Municipal Development Fund of Georgia

Rehabilitation of Observatory in Abastumani, Adigeni Municipality

Sub-project Environmental and Social Screening and

Environmental Review

WORLD BANK FINANCED
THIRD REGIONAL DEVELOPMENT PROJECT

October, 2017

Sub-project Description

The Sub-Project (SP) on Rehabilitation of Astrophysical Observatory named after Evgeni Kharadze in Abastumani envisages:

- Arrangement of parking lots;
- Arrangement of a public toilet;
- Rehabilitation of the central building of telescope AZT-11 and landscaping its adjacent area;
- Rehabilitation of cableway infrastructure.

The SP site is located in Adigeni Municipality, Southern Georgia, at 250 km distance from Tbilisi. In 1932, Abastumani Astrophysical Observatory was founded by Academician Eugene Kharadze on Mount Kanobili, near resort Abastumani. The Observatory is connected to resort Abastumani by a cableway. Cableway passes through the traditional use zone of Borjobi-Kharagauni National Park. The Observatory represents a cultural heritage monument. At this stage, agreeing of the SP design with the National Agency for Cultural Heritage Preservation of Georgia is underway.

The SP envisages implementation of the following works:

Rehabilitation of the central building of telescope AZT-11 and landscaping its adjacent area – the observatory represents three-storied building with open terraces, tower and dome. The SP envisages rehabilitation of basic part of the building except the tower and the dome. Within the SP, only façades of tower and dome will be rehabilitated and the existing metal sheets, which cover the dome and the tower, will be painted.

The ground floor will host hall (37 m^2), visitor center (54 m^2), an exhibition hall (103 m^2), virtual laboratory of the observatory (62 m^2), café (82 m^2), WC (including persons with disabilities) (21 m^2) and auxiliary rooms (75 m^2). On the second floor, there will be a reading hall (55 m^2), a repository room (51.2 m^2), and rooms for staff (85 m^2). The third floor will host only rooms for staff (122 m^2).

Under the presented SP, rehabilitation of the terraces is also planned; the works include arrangement of metal railings (225 m) for terraces of three floors and glass railing for terrace of the tower.

The waste water system of the observatory will be connected to the central wastewater system. According to the SP design, the buildings will be equipped with electric heating systems, fire alarm, internet and connected to the exiting water supply system.

Within the SP, landscaping of the area adjacent to the Observatory is also planned. In particular, the surrounding area of the buildings will be paved with decorative concrete tiles (1600 m^2) and asphalt layer (2115 m^2), outdoor lighting will be arranged, benches and litterbins will be placed. The SP also envisages rehabilitation of the existing little basin located adjacent to the buildings to be rehabilitated. The planned works include cleaning of the basin,

lining it with natural granite stone and arrangement of fountain. Along the territory, drainage system will be arranged and storm water will be discharged into the adjacent ravine.

The building and its surrounding area to be rehabilitated are registered as the State property. User rights for the building and the territory are with Ilia State University. Due to fact that the observatory and its surrounding area represent a cultural heritage monument, prior to starting of rehabilitation works, MDF will apply to the National Agency for Cultural Heritage Preservation of Georgia (NACHPG) for permission to undertake rehabilitation works on the Cultural Heritage Monument.

Arrangement of public-toilet: A public toilet (including for persons with disabilities) will be arranged in the building of the post office allocated adjacent to the central building of telescope AZT-11. The building will be connected to the central wastewater and water supply systems.

The building intended for the public-toilet is registered as the State property. User rights for the building and the territory are with Ilia State University.

Arrangement of parking area: arrangement of parking areas nearby the buildings of the refractor and the former post office. The parking adjacent to the building of the former post office will be intended for four cars and two buses. The parking lot adjacent to the refractor is intended only for four cars. Lots are spacy enough to allow for vehicles maneuvering and parking. The territory will be paved with concrete.

The land plots allocated for the parking are registered as the State property. User rights for the building and the territory are with Ilia State University.

Rehabilitation of cableway infrastructure: The Observatory is connected to resort Abastumani by a cable car. Within the SP, the following works are planned: rehabilitation of the existing lower and upper stations, painting of three intermediate pillars, installation of new haul rope and a new cable car. Cableway passes through the traditional use zone of Borjomi-Kharagauli National park. It is registered as the State property. According the order # 5/a735 of LEPL Agency of Protected Areas dated August 2, 2017, LEPL Municipal Development Fund of Georgia is granted the special usage right to the plant lot under the cableway for the purpose of its rehabilitation. As the cableway (total length -755.95 m) represents linear construction of the 5th category, agreeing of the rehabilitation works with the Ministry of Economy and Sustainable Development of Georgia is underway.

According to the Investment Financing Agreement between Municipal Development Fund of Georgia and Ilia State University, Ilia State University will be responsible for maintenance of public toilet, the observatory, parking area and cableway.

Environmental Screening and Classification

(A) IMPACT IDENTIFICATION

Does the subproject have a tangible impact on the environment?	The SP will have a modest short-term negative environmental impact and it is expected to have tangible long-term positive impact on the natural and social environment.
What are the significant beneficial and adverse environmental effects of the subproject?	The SP is expected to have positive long-term social impact through rehabilitation of the Observatory, arrangement of tourist infrastructure in Abastumani. It will improve workspace for employees of the Observatory as well as touristic attraction. The increased tourist flows will have positive social impact through improvement of employment opportunities and supporting the development of tourism-based economy and cultural heritage circuits in the Samtskhe -Javakheti region. The SP implementation will create opportunity for new jobs for local population and increase their incomes. The expected negative environmental and social impacts are likely to be short term and typical to medium scale rehabilitation works in modified landscape: noise, dust, vibration, and emissions from the operation of construction machinery; generation of construction waste. In the operation phase, proper management of generated solid waste and waste water should be ensured to reduce impact on the environment. The SP envisages arrangement of wastewater treatment units for the public toilet. Increased tourist flows may have indirect negative environmental impacts, such as waste generation, vandalism, etc.
May the subproject have any significant impact on the local communities and other affected people?	The SP does not require any land acquisition and does not entail any other type of resettlement. Negative impacts are short term and limited to the construction site. They are related to the possible disturbance described above. Any other negative impacts on local population and economic livelihoods of local people are not expected to occur. Around the SP, territory there is no local population. Noise, dust, vibration, and emissions from the operation of construction machinery and generation of construction waste may have minimal negative impact on the employees of the observatory.

	The long-term social impact will be positive, temporary jobs will be created during construction and hence, income of the part of local population will be increased. the employees of the observatory will be provided with improved and better workspace. Implementation od the SP will contribute the development of the private sector and will lead to the growth of tourism-related production. Better transport conditions, in particular - rehabilitation of cableway connecting the observatory to resort Abastumani, will be created which in turn will contribute development of tourism.

(B) MITIGATION MEASURES

Were there any alternatives to the sub-project design considered?	Providing of the conveyance opportunities for disabled was added to the initial design of tourist infrastructure. As the SP envisages rehabilitation of the existing facilities, any alternatives regarding to the SP design were not considered.
What types of mitigation measures are proposed?	The expected negative impacts of the construction phase can be mitigated by demarcation of the construction site, traffic management, good maintenance of the construction machinery, observance of the established working hours, and well organized disposal of waste to the formally agreed sites. Instead of transporting excess inert material through several settlements to the landfill, it may be disposed in an alternative location approved by local (municipal) governing bodies in written. The nearest landfill is located in village Chacharaki, Akhaltsikhe Municipality, 33 km distance from the SP site. In case of chance finds, works will be taken on hold and notification be sent to the Ministry of Culture and Monument Protection of Georgia. Works will resume only upon written consent of the Ministry. The public-toilet will be connected to the central wastewater system to avoid water pollution by newly arranged sewage system.
What lessons from the previous similar subprojects have been incorporated into the project design?	Based on the lessons learned from previous similar projects, design envisages not only construction of the new building but also arrangement of resting areas for visitors, landscaping of the SP area *and c*onnecting of the public-toilet to the central wastewater system. Details securing the rights of using the

	building (visitor center, public toilet) and parking by disabled people is envisaged by the SP design.
Have concerned communities been involved and have their interests and knowledge been adequately taken into consideration in subproject preparation?	Consultation meeting to discuss draft about ER with concerned communities will be organized prior tendering of the construction works.

D) CATEGORIZATION AND CONCLUSION

Based on the screening outcomes,
Subproject is classified as environmental Category

A ☐
B ☒
C ☐

Conclusion of the environmental screening:

1. Subproject is declined ☐
2. Subproject is accepted ☒

If accepted, and based on risk assessment, subproject preparation requires:

1. Completion of the Environmental Management Checklist for Small Construction and Rehabilitation Activities ☐
2. Environmental Review, including development of Environmental Management Plan ☒

Social Screening

Social safeguards screening information		Yes	No
1	Is the information related to the affiliation, ownership and land use status of the sub-project site available and verifiable? (The screening cannot be completed until this is available)	✓ [1]	
2	Will the sub-project reduce people's access to their economic resources, such as land, pasture, water, public services, sites of common public use or other resources that they depend on?		✓
3	Will the sub-project result in resettlement of individuals or families or require the acquisition of land (public or private, temporarily or permanently) for its development?		✓
4	Will the project result in the temporary or permanent loss of crops, fruit trees and household infra-structure (such as ancillary facilities, fence, canal, granaries, outside toilets and kitchens, etc.)?		✓
If answer to any above question (except question 1) is "Yes", then **OP/BP 4.12 Involuntary Resettlement** is applicable and mitigation measures should follow this OP/BP 4.12 and the **Resettlement Policy Framework**			
Cultural resources safeguard screening information		**Yes**	**No**
5	Will the project require excavation near any historical, archaeological or cultural heritage site?	✓	
If answer to question 5 is "Yes", then **OP/BP 4.11 Physical Cultural Resources** is applicable and possible chance finds must be handled in accordance with OP/BP and relevant procedures provided in the **Environmental Management Framework**.			

[1] The lands allocated for the arrangement of the parking, the public-toilet, rehabilitation of cable car, observatory are registered as State property. User rights for the building and the territory are with Ilia State University.

Environmental Review and Environmental Management Plan

Introduction

1.1. Background Information

The Government of Georgia has requested the financing of $60 million from the World Bank for implementation of the Third Regional Development Project (RDP 3). The total project cost is $ 75 million and includes $15 million funding from the Government of Georgia. The proposed project will be implemented by the Municipal Development Fund of Georgia (MDF).

The proposed development objective of RDP 3 is to improve infrastructure services and institutional capacity to support the development of a tourism-based economy of the Samtskhe-Javakheti and Mtskheta-Mtianeti regions. The envisaged activities are expected to bring direct benefits to the residents of these regions as well as to the tourists visiting them. More specifically, implementation of the project is expected to improve access, quality and reliability of public infrastructure; increase the volume of private sector investment in the region; and increase points of sales (tourism-related enterprises) in renovated culture heritage sites and cities. The Government will benefit from improved institutional capacity of selected agencies and local-self-governments. Overall, the population is expected to see higher incomes and better quality of life.

The SP for the rehabilitation of the observatory in Abastumani is a part of the RDP 3 and shall be prepared, reviewed, approved, and implemented in agreement with the requirements of the Georgian legislation and the World Bank policies applicable to the RDP 3.

1.2. Institutional Framework

The Municipal Development Fund of Georgia (hereinafter: the MDF) is a legal entity of public law, the objective of which is to support strengthening institutional and financial capacity of local government units, investing financial resources in local infrastructure and services and improving on sustainable basis the primary economic and social services for the local population (communities). MDF is designated as an implementing entity for the RDP III and is responsible for its day-to-day management, including application of the environmental and social safeguard policies.

MDF prepares and submits to the World Bank for approval the Subproject Appraisal Reports (SARs), with safeguards documents attached. These may include, as case may be, an Environmental Review (ER) along with an Environmental Management Plan (EMP), an EMP prepared using the Environmental Management Checklist for Small Construction and Rehabilitation Activities, and a Resettlement Action Plan (RAP).

According to the Investment Financing Agreement between Municipal Development Fund of Georgia and Ilia State Univeristy, Ilia State University will be responsible for maintenance of public-toilet, the Observatory and parking area.

1.3 Legislation and Regulations

According to the law of Georgia on Permit on Environmental Impact (2008) the SP does not require preparation of EIA and obtaining of Permit on Environmental Impact.

The SP triggers to the OP/BP 4.01 Environmental Assessment and OP/BP 4.11 Physical Cultural Resources safeguard policies.

According to the above-mentioned safeguard policies and the Environmental Management Framework adopted for the current program, the SP has been classified as B (+) category and requires preparation of Environmental Review (ER) and environmental Management Plan (EMP), in complains with recommendations of Environmental Management Framework (EMF).

2. Subproject description

The Sub-Project (SP) on Rehabilitation of Astrophysical Observatory named after Evgeni Kharadze in Abastumani envisages:

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- Arrangement of a public toilet;
- Rehabilitation of the central building of telescope AZT-11 and landscaping its adjacent area;
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The SP envisages implementation of the following works:

Rehabilitation of the central building of telescope AZT-11 and landscaping its adjacent area – the observatory represents three-stored building with open terraces, tower and dome. The SP envisages rehabilitation of basic part of the building except the tower and the dome. Within the SP, only façades of tower and dome will be rehabilitated and the existing metal sheets, which cover the dome and the tower, will be painted.

The ground floor will host hall (37 m^2), visitor center (54 m^2), an exhibition hall (103 m^2), virtual laboratory of the observatory (62 m^2), café (82 m^2), WC (including persons with disabilities) (21 m^2) and auxiliary rooms (75 m^2). On the second floor, there will be a reading hall (55 m^2), a repository room (51.2 m^2), and rooms for staff (85 m^2). The third floor will host only rooms for staff (122 m^2).

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The waste water system of the observatory will be connected to the central wastewater system. According to the SP design, the buildings will be equipped with electric heating systems, fire alarm, internet and connected to the exiting water supply system.

Within the SP, landscaping of the area adjacent to the Observatory is also planned. In particular, the surrounding area of the buildings will be paved with decorative concrete tiles (1600 m^2) and asphalt layer (2115 m^2), outdoor lighting will be arranged, benches and litterbins will be placed. The SP also envisages rehabilitation of the existing little basin located adjacent to the buildings to be rehabilitated. The planned works include cleaning of the basin, lining it with natural granite stone and arrangement of fountain. Along the territory, drainage system will be arranged and storm water will be discharged into the adjacent ravine.

The building and its surrounding area to be rehabilitated are registered as the State property. User rights for the building and the territory are with Ilia State University. Due to fact that the observatory and its surrounding area represent a cultural heritage monument, prior starting of rehabilitation works MDF will officially ask to National Agency for Cultural Heritage Preservation of Georgia (NACHPG) for permission.

Arrangement of public-toilet: A public-toilet (including for persons with disabilities) will be arranged in the building of the post office allocated adjacent to the central building of telescope AZT-11. The building will be connected to the central wastewater and water supply systems.

The building intended for the public-toilet is registered as the State property. User rights for the building and the territory are with Ilia State University.

Arrangement of parking area: arrangement of parking areas nearby the buildings of the refractor and the former post office. The parking adjacent to the building of the former post office will be intended for four cars and two buses. As for the parking lot adjacent to the refractor, it will be intended only four cars. The mentioned territories are permissible for transports stopping and maneuvering. The territory will be paved with concrete layer.

The lands allocated for the parking, are registered as the State property. User rights for the building and the territory are with Ilia State University.

Rehabilitation of cableway infrastructure: The Observatory is connected to resort Abastumani by a cable car. Within the SP, the following works are planned: rehabilitation of the lower and upper stations, painting of three intermediate pillars, installation of new haul rope and a new cable car. Cableway passes through the territory of traditional use zone of Borjomi-Kharagauli National park. Cableway is registered as the State property (see attachment 1). According the order # 5/a735 of LEPL Agency of Protected Areas dated August 2, 2017, LEPL Municipal Development Fund of Georgia is granted the special use right to the land plot under the cableway for the purpose of its rehabilitation.

As the cableway (total length - 755.95 m) represents linear construction of the 5th category, agreeing of the rehabilitation works with the Ministry of Economy and Sustainable Development of Georgia is underway.

According the Investment Financing Agreement between Municipal Development Fund of Georgia and Ilia State University, Ilia State University will be responsible for maintenance of public-toilet, the observatory, parking area and cable car.

3. Baseline Environmental Conditions

The SP site is located in Adigeni Municipality, Southern Georgia, at 250 km distance from Tbilisi. In 1932 Abastumani Astrophysical Observatory was founded by Academician Eugene Kharadze on Mount Kanobili, near resort Abastumani. The Observatory is connected to Abastumani by a cable car. The Observatory represents a cultural heritage monument, but nowadays the building is much damaged. Nearby area of the observatory is not populated, it is located in the forest. Currently, the buildings to be rehabilitated are in poor conditions. The doors, windows, ceilings, walls and building services systems (water supply, plumbing and electricity) are amortized.

The observatory is connected to resort Abastumani by cable car, which is also damaged and not functioning. Lower station height is 1292.2m above sea level, upper station _ 1564.6m above sea level. Electrical and mechanical equipment of the cable car require renovation. Nowadays, due to the poor condition, the cable car only serves

employees of the Observatory. The cableway is the State property. It passes through traditional use zone of Borjomi-Kharagauli National Park. MDF was granted the special usage right of the cableway for the purpose of tis rehabilitation. **Potential Impacts**

4.1 Construction Phase

4.1.1. Social Impacts

General set of social issues. No significant social issues are associated with implementation and operation of this SP.

Resettlement Issues. The SP does not entail private land acquisition and no impacts are envisaged on private or leased agricultural lands and private assets or businesses.

Positive impact related to Job opportunities for construction workers. Limited and temporary during construction and limited during operation.

Health issues related to noise, emissions, and vibration. Limited and temporary.

Traffic Disruption. Local traffic can be impacted limited and temporary by transport activities related to the SP.

Safety and Access. There will be reduced access to areas adjacent to rehabilitation and potential hazards to vehicles and pedestrians during rehabilitation downtime.

4.1.2. Impacts on the Physical Cultural Property

The SP envisages implementation of works in the area of Abastumani Observatory. These works arrangement of parking area, arrangement of public-toilet, rehabilitation of the central building of telescope AZT-11 and landscaping its adjacent area, rehabilitation of stations of cable car and cableway.

Therefore, the risk of negative impacts on the structural integrity and historical value of the complex is minimal. In course of rehabilitation and construction activities, especially during soil excavation works, chance finds may be encountered. In such cases, works will be immediately taken on hold and the Ministry of Culture and Monument Protection will be informed. Works may resume only upon formal permission from the National Agency for Cultural Heritage Preservation.

Operational phase risks are related to management of visitation, preventing vandalism on site, maintenance of water supply and sanitation systems, and household waste management.

4.1.3. Environmental Impacts

Soil Pollution

Potential pollutants from a SP of this nature include the following (this list is not exhaustive):

- Diesel fuel, lubrication oils and hydraulic fluids, antifreeze, etc. from construction vehicles and machinery;
- Miscellaneous pollutants (e.g. cement and concrete);
- Construction wastes (packaging, stones and gravel, cement and concrete residue, wood, etc.).

Water Pollution

Water pollution may result from a variety of sources, including the following:

- Spillages of fuel, oil or other hazardous substance, especially during refuelling;
- Releasing silt water from excavations;
- Silt suspended in runoff waters ("construction water");
- Washing of vehicles or equipment;
- Exposure of contaminated land and groundwater;
- Impact on surface and/or underground water with chlorine-containing waste water that are expected to be formed in washing and disinfection process before launching operation of newly installed water pipes.

Spillages may travel quickly downhill to a watercourse or water body. Once in a watercourse, it can be difficult to contain the pollution which can then impact over a wide area downstream. It is therefore vital that prompt action is taken in the event of any potential water pollution incident.

Once the working width has been stripped of topsoil, the subsoil becomes exposed. During earthworks in a wet weather this may result in uncontrolled release of suspended solids from the work area.

Air Pollution and Noise

Potential impact of air pollution is minimal and related to operation of vehicles and heavy machinery at the construction site and during transportation of materials.

- Noise and vibration arising from heavy machinery and vehicles;
- Air emissions (from vehicles, bulldozers, excavators etc.);
- Dust (from vehicles);
- Fumes may be a concern linked to supply and transportation of materials.

Construction Related Wastes

Construction Wastes
The following types of inert waste are anticipated to be produced from these activities:

- Natural materials (soil and rock);
- Contaminated soil with non-hazardous substance or objects;
- Inert materials generated due to the demolition works within the Monastery are (tiles, stones, white brick, wood);
- Packaging materials;
- Metals (including scrap metal and wire) – negligible amount of metal waste is expected;
- Debris and domestic waste located on the area for tourist infrastructure arrangement.

Hazardous Construction Wastes
Small quantities of the hazardous wastes will arise mainly from the vehicle maintenance activities. A number of hazardous wastes, which could be generated, include:

- liquid fuels;
- lubricants, hydraulic oils;
- chemicals, such as anti-freeze;
- contaminated soil;
- spillage control materials used to absorb oil and chemical spillages;
- machine/engine filter cartridges;
- Oily rags, spent filters, contaminated soil, etc.).

Transport related impacts

- Noise & Vibration Impacts;
- Traffic congestion (nuisance);
- Air pollution;
- Mud on roads;
- Refuelling, maintenance and vehicle cleaning and related risks of soil and water contamination.

Topsoil losses due to topsoil stripping

- Topsoil washout due to improper storage and reinstatement;
- Silt runoff to watercourses and water bodies;
- Exposure of contaminated land.

4.2 Operation Phase

Potential impact related to the operation of the provided light infrastructure would be the following:

- Increase of the number of tourists will result in the increased volume of waste and noise;
- The traffic will increase in adjacent area of CH sites, which will result in the increased level of local emissions and noise as well as traffic safety issues;
- Tours of sites of worshipping may conflict with local traditions and/or religious beliefs.

The potential risk of pollution is related to disruption of wastewater treatment process due to not proper operation and maintenance of the wastewater treatment units.

According to the Investment Financing Agreement between Municipal Development Fund of Georgia and Ilia State University, Ilia State University will be responsible for maintenance of public-toilet, the Observatory and parking area, cable car.

5. Environmental Management Plan

This Environmental Management Plan (EMP) has been prepared to ensure that negative environmental impacts associated with this SP are minimized.

The contractor is required:

1. To obtain construction materials only from licensed providers;
2. If contractor wishes to open quarries or extract material from river bed (rather than purchasing these materials from other providers), then the contractor must obtain licenses for inert material extraction;
3. If contractor wishes to operate own asphalt (rather than purchasing these materials from other providers), then the contractor must obtain an environmental permit with an established ceiling of pollutant concentrations in emissions;
4. If contractor wishes to operate own concrete plant (rather than purchasing these materials from other providers), then the contractor must prepare technical report on inventory of atmospheric air pollution stationary source and agree with the Ministry of Environment and Natural Resources Protection (MoENRP);
5. Construction waste must be disposed on the land plots (in accordance with letter from Adigeni Municipality. The records of waste disposal will be maintained as proof for proper management as designed.
6. If over 200 tons of non-hazardous waste or over 1000 tons of inert materials or 120 kg of hazardous waste is generated annually (calculation apply to a calendar year) as a result of contractor's general activities, they shall prepare and cause the Ministry of Environment and Natural Resources Protection of Georgia to approve the Waste Inventory and Waste Management Plan for the Company, appoint an environmental manager, and submit an information on his/her identity to the Ministry of Environment and Natural Resources Protection of Georgia in accordance with requirements of the Waste Code of Georgia.

Copies of extraction licenses (if applicable), agreed technical report on inventory of atmospheric air pollution for operating concrete plants (if applicable), and waste disposal agreement must be submitted to the MDF prior to the commencement of works.

GOST and SNIP norms must be adhered.

ENVIRONMETAL MITIGATION PLAN

Activity	Expected Negative Impact	Mitigation Measure	Responsible for implementation
Pre-Construction Phase			
Obtaining of required permits/licenses and concluding agreements	Disruption of construction works due to sanctions from regulatory bodies against construction contractor resulting from the absence of required documents; Damage to the environment cause by unauthorized use of natural resources and unregulated discard of waste	The following permits/licenses and agreements should be obtained by the works contractor and submitted to the MDF: – Agreement for disposal (stockpiling) of excessive soil – licenses for inert material extraction – Permits for production of such construction materials that belongs to the activity subject to ecological examination – Technical report on inventory of atmospheric air pollution stationary source and agree with the Ministry of Environment and Natural Resources Protection (MoENRP) - Agreement on household and construction waste disposal on the Aspindza landfill.	Construction contractor
Notification of the local community on upcoming activities	Hostile attitude of local communities and possible conflict leading to disruption of works; Inconvenience to local community from unexpected presence and activity of construction contractor	- Place informational banner on the construction site carrying contact information about MDF, as well as works supervisor company and local municipality administration. - Make the banner from weather resistant material. - Provide information in Georgian and English languages. - Notify local community and other interested parties about the scope and timing of the upcoming works	Construction contractor
Institutional arrangements for implementation of environmental mitigation measures	Poor environmental and social performance of construction contractor Occurrence of work-site trauma and other health damage due to poor understanding of health and safety rules by personnel	- Appointing a person responsible for protection of social and natural environment and ESMP implementation (environmental manager) - Acquainting workers with ESMP and training them in social and environmental good practice, including health and safety rules	Construction contractor

Activity	Expected Negative Impact	Mitigation Measure	Responsible for implementation
Construction Phase			
Construction works, including: - Preparation of construction sites - Earth works - Installation of facilities - Machinery operations - Transportation operations	Deterioration of ambient air	– All vehicles shall be maintained so that their emissions do not cause nuisance to workers or local people. All vehicles shall be checked and repaired in case of need to eliminate increased level of noise due to damaged parts; – Regular maintenance of diesel engines shall be undertaken to ensure that emissions are minimized, for example by cleaning fuel injectors. All plant used on site shall be regularly maintained so as to be in good working order at all times to minimize potentially polluting exhaust emissions; – Vehicle refueling shall be undertaken so as to avoid fugitive emissions of volatile organic compounds through the use of fuel nozzles and pumps and enclosed tanks (no open containers will be used to stored fuel); – Materials transported to site shall be covered/ wetted down to reduce dust. The construction site shall be watered as appropriate. Protective equipment shall be provided to workers as necessary; – During demolition works destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site; – The surrounding environment (sidewalks, roads) shall be kept free of debris to minimize dust; – earth works shall be suspended during strong winds; – Construction materials and storage piles shall be covered; – Stripped soil/ excavated ground shall be stockpiled properly; – There shall be no open burning of construction / waste material at the site; – There shall be no excessive idling of construction vehicles at sites;	Construction contractor

Activity	Expected Negative Impact	Mitigation Measure	Responsible for implementation
		– The SP territory shall be reinstatement immediately after finalizing of construction works.	
	Propagation of noise and vibration	– The maximum speed shall be restricted in residential areas to the safety level during the pass of the trucks; – Proper technical control and maintenance practices of the machinery shall be applied; – Activities shall be limited to daylight working hours; – No-load operations of the vehicles and heavy machinery are not allowed. Proper mufflers will be used on machinery; – Ensure that machinery is in good technical condition.	Construction contractor
	Damage of soil	– Demarcation of construction sites' boundaries and access roads before construction works are launched; – Adherence to demarcated work site boundaries during operations; – Stripping of topsoil from work sites (whenever possible) before starting of earthworks and stockpiling for subsequent reinstatement, in compliance with the Technical Regulations on Stripping, Stockpiling, Use and Reinstatement of Topsoil (2014); – Topsoil shall be stored in stockpiles, no more than 2m high with side slopes at a maximum angle of 45^0. The following shall also be taken into consideration: • Dedicated storage locations shall be used that prevents the stockpiles being compacted by vehicle movements or contaminated by other materials; • Topsoil shall be segregated from subsoil stockpiles; • No material shall be stored where there is a potential for flooding;	Construction contractor

Activity	Expected Negative Impact	Mitigation Measure	Responsible for implementation
		• No storage at less than 25m from river/streams, subject to the site-specific topography; – Topsoil stripping during heavy rains will not be allowed; – Stored topsoil shall be used for reinstatement and landscaping of the SP area immediately after completion of construction works. As appropriate, this may include leveling of ground surface, reinstatement of topsoil and measures to facilitate natural recovery of vegetation; Topsoil from the sites, which will not be reinstated to the initial conditions shall be distributed carefully on the surrounding area; – In the event that the stockpiles experience significant erosion the contractor will be required to implement corrective action, such as installing erosion matting over the stockpiles if further surface compaction and/or topsoil seeding fails. The Contractor shall protect the stockpiles from flooding and run-off by placing berms or equivalent around the outside where necessary; – subsoil shall be stored in stockpiles, no more than 3m high with side slopes at a maximum angle of 60^0; dedicated storage locations shall be used that prevents the stockpiles being compacted by vehicle movements or contaminated by other materials; subsoil shall be segregated from topsoil stockpiles.	

Activity	Expected Negative Impact	Mitigation Measure	Responsible for implementation
	Water and soil pollution	– Provision of staff with toilets and bathrooms, and centralized discharge of generated wastewater in the sewer systems if possible or install temporary structures; – Ensuring that machinery is well maintained; – Refueling of machinery using respectively equipped refueling trucks, and using of drip trays during refueling operations; – Refueling and maintenance of machinery only at a specially devoted site, where topsoil is tripped and grovel layer is arranged; lubricants, fuel and solvents shall be stored exclusively in the designated sites; No fuel, lubricants and solvents storage or re-fueling of vehicles or equipment will be allowed near the cultural heritage site; – Ensuring that construction materials are appropriately stockpiled and stored in the specially designated and temporarily constructed storage facilities; – Temporarily storage on site of all hazardous or toxic substances shall be in safe containers labeled with details of composition, properties and handling information; Spill containment materials (sorbents, sand, sawing, chips etc.) should be available on construction site; – Ensure that all spills are cleaned up immediately, and contaminated soil is respectively disposed off; – Wet cement and/or concrete will not be allowed to enter any watercourse, pond or ditch. – Cleaning up of the entire SP territory from construction waste as soon as the construction works are finalized.	Construction contractor
	Pollution of environment by solid and liquid wastes	– Burning of waste is prohibited; – Paints with toxic ingredients or solvents or lead-based paints shall not be used.	Construction contractor

Activity	Expected Negative Impact	Mitigation Measure	Responsible for implementation
		– Different types of waste (construction, hazardous, household) shall be collected separately; special sites shall be designated for waste accumulation and pollution prevention measures shall be applied there; – Construction inert waste and excess soil should be disposed on territory allocated by the Adigeni Municipality; – Temporarily storage of all hazardous or toxic substances shall be in safe containers labelled with details of composition, properties and handling information; Uncontrolled storage of hazardous wastes on the construction area is prohibited; the containers of hazardous substances shall be placed in a leak-proof container to prevent spillage and leaching; shall be handed over to a permitted waste management company, on a contractual basis; – Any construction or municipal wastes produced during construction stage should remove from the site area frequently; – Agreements on the disposal of waste shall be obtained prior disposal is undertaken; – Upon completion of washing and disinfection of pipes and reservoirs the disinfection solution will be neutralized by the contractor prior to release to the environment – to avoid damage to terrestrial or aquatic organisms. In the case of disinfection via chlorination this is achieved by application of a reducing agent, such as sodium bisulfate to achieve de-chlorination. The reducing agent, in turn, must be applied by the contractor at the precise dosage to neutralize the disinfectant – but no more, since reducing agent residuals are also detrimental to aquatic ecosystems.	

Activity	Expected Negative Impact	Mitigation Measure	Responsible for implementation
	Impact on traffic flow	– Impose speed limitation to the SP machinery; – Ensure that SP machinery move using only pre-determined routes; – The frequency of machinery movement shall be restricted.	Construction contractor
	Health and safety risks for local community	– Construction site shall be properly secured and construction related traffic regulated. This includes but is not limited to: - Installation of the signposting, warning signs, barriers and traffic diversions: signs shall be clearly visible and the public warned of all potential hazards; - Construction site and all trenches shall be fenced and properly secured to prevent unauthorized access (especially of children); - Appropriate lighting should be provided; - Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement; - Imposing of speed limitation to SP machinery - Ensuring that SP machinery move using only pre-determined routes	Construction contractor
	Damage to private property	– Ensuring that sub-project machinery move using only pre-determined routes; – Imposing of speed limitation to the sub-project machinery; – Incurred losses shall be fully compensated by the contractor.	Construction contractor

Activity	Expected Negative Impact	Mitigation Measure	Responsible for implementation
	Conflicts with local population or other affects people	– Meeting with local population (if required) – Reception and addressing of complaints/grievances: - Grievance Redress committee will be established at the municipal level with the following composition: authorized representative of Adigeni Municipality Sakrebulo and Gamgeoba, Head of the Social Service, person in charge of relations with the water supply company, representative of the local NGO. - If the grievance will not unsolved at the local level, it will be lodged to the MDF. - MDF registers all received compliances, comments and how the compliance was addressed - During public consultations, the local population will be informed about the grievance redress issues and received information about contact persons.	Construction contractor
	Occupational health and safety risks	– Informing of the SP labor about potential health and safety risks, and instructing them regarding safety measures to be adhered (before launching construction works and during civil works) – Ensuring that required personal protection equipment (e.g. helmets, gloves, etc.) is supplied and used by workers as appropriate – Ensure safety of machinery operations – Provision of safety signs for high risk zones – Implementation of measures recommended for air protection and noise abatement	Construction contractor

Activity	Expected Negative Impact	Mitigation Measure	Responsible for implementation
	Impact on cultural heritage	– Suspension of construction operations if archeological objects or artefacts are discovered during earth works, informing MDF and Ministry of Culture and Monument Protection about the chance finding and resume works only after respective permission is issued; – Cleaning up and reinstatement of the SP area immediately after the construction works are completed.	MDF, Construction contractor
Operation Phase			
Operation of Observatory, public-toilet, parking area, Cable car	Pollution of environment with solid waste and waste water	– Regularly deliver solid waste from the site to the land plots – Burning of waste should not be practiced. – Sewage collector systems and biological wastewater treatment facility should be maintained in good technical condition; – Operations & Maintenance Training (upon facility start-up and 4x seasonally during guarantee period) will be executed by works contractor, including supply of Operations Manual and preparation of Training Program (Summary Report).	Ilia state University

6. Monitoring

MDF carries overall responsibility for monitoring of the implementation of the environmental mitigation measures. A consulting company hired for supervision of works will supplements MDF's in-house capacity for tracking environmental and social compliance of works undertaken under this SP. Field monitoring checklist will be filled out and photo material attached on monthly basis. Environmental monitoring of the SP shall be implemented according with plan given below.

Narrative reporting on the implementation of EMP will be provided on monthly and quarterly basis as part of the general progress reporting of MDF. MDF will also be expected to obtain from contractors and keep on file all permits, licenses, and agreement letters which contractors are required have according to the Georgian law for extracting material, operating asphalt/concrete plants, disposing various types of waste, etc.

7. Remedies for EMP Violation

MDF, as a client of construction works, will be responsible for enforcing compliance of contractor with the terms of the contract, including adherence to the EMP.

The contractor is obliged to carry out any of its activities pursuant to the Georgian Environmental Legislation in force, and in case if any noncompliance is revealed, the contractor shall be liable to cover at its own expense all damage liquidation costs.

8. Costs of Implementation

Costs of implementing the proposed mitigation measures are small and difficult to single out from the costs of construction operations. Nonetheless, it is recommended that Bill of Quantities presented in the tender documentation carry a line item for the disposal of waste and excess materials. Other costs of adherence to good environmental practice and compliance with this EMP are expected to be integrated into the pricing of various construction activities.

9. Grievance Redress Mechanism

Grievance Redress committee will be established at the municipal level. If the grievance will not unsolved at the local level, it will be lodged to the MDF. As for grievance monitoring MDF registers all received compliances, comments and how the compliance was addressed. During public consultations, the local population will be informed about the grievance redress issues and received information about contact persons.

In addition, contractor is obliged to place informational banner on the construction site carrying contact information about contact persons of MDF, works Supervisor Company and local municipality administration. The banner will be made with weather resistant material and provide information in Georgian and English languages.

MONITORING PLAN

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
Pre-Construction Phase						
Obtaining of agreements / permits	Purchase of construction materials from the officially registered suppliers and agreement for waste disposal	In the works contractor's office or warehouse	Verification of documents and inspection	Prior to commencement of civil works	To ensure technical reliability and safety of infrastructure, Prevent pollution of the construction site and nearby area with waste	MDF, Construction supervisor
Notification of the local community on upcoming activities	Placement of informational banner and accuracy of provided information	Construction site	Inspection	Prior to commencement of civil works	To ensure local population are informed about the planned SP and contact persons from MDF, works supervisor company and local municipality administration	MDF, Construction supervisor
Institutional arrangements for implementation of environmental mitigation measures	Responsible person for protection of social and natural environment and ESMP implementation (environmental manager); Trained workers in social and environmental good practice, including health and safety rules	In the works contractor's office or warehouse Construction site	Inspection	Prior to commencement of civil works	To prevent Poor environmental and social performance of construction contractor Occurrence of work-site trauma and other health damage due to poor understanding of health and safety rules by personnel	MDF, Construction supervisor
CONSTRUCTION PHASE						
Supply with construction materials	Purchase of construction materials from the officially registered suppliers	In the supplier's office or warehouse	Verification of documents	During conclusion of the supply contracts	To ensure technical reliability and safety of infrastructure	MDF, Construction supervisor

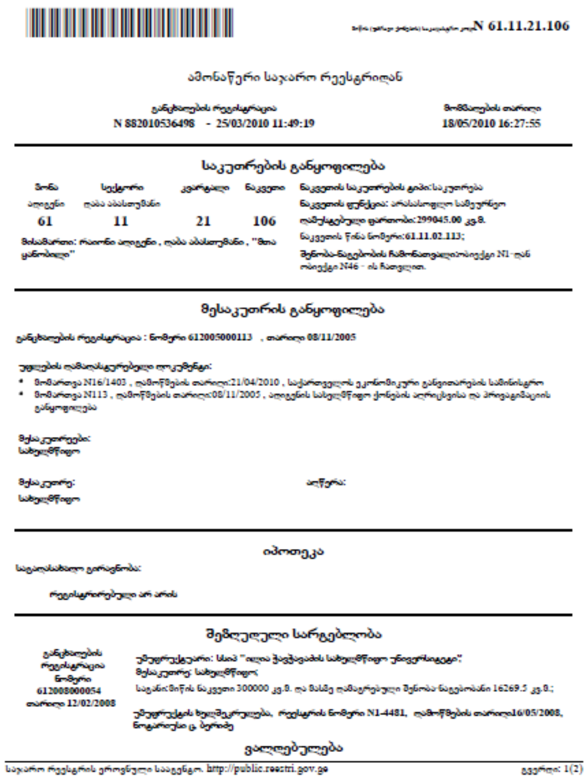
Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
Transportation of construction materials and waste Movement of construction machinery	Technical condition of vehicles and machinery Confinement and protection of truck loads with lining Respect of the established hours and routes of transportation	Construction site	Inspection	Unannounced inspections during work hours and beyond	Limit pollution of soil and air from emissions; Limit nuisance to local communities from noise and vibration; Minimize traffic disruption.	MDF, Construction supervisor, Traffic Police
Earthworks	Temporary storage of excavated material in the pre-defined and agreed upon locations; Backfilling of the excavated material and/or its disposal to the formally designated locations;	Construction site	Inspection Permanent oversight by archaeologists	In the course of earth works	Prevent pollution of the construction site and its surroundings with construction waste; Prevent damage and loss of physical cultural resources	MDF, Construction supervisor Adigeni Municipality
Sourcing of inert material	Purchase of material from the existing suppliers if feasible; Obtaining of extraction license by the works contract and strict compliance with the license conditions; Terracing of the borrow area, backfilling to the exploited areas of the borrow site, and landscape harmonization;	Borrowing areas	Inspection of documents Inspection of works	In the course of material extraction	Limiting erosion of slopes and degradation of ecosystems and landscapes; Limiting erosion of river banks, water pollution with suspended particles and disruption of aquatic life.	MDF, Construction supervisor

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	Excavation of river gravel and sand from outside of the water stream, arrangement of protective barriers of gravel between excavation area and the water stream, and no entry of machinery into the water stream.					
Generation of construction waste	Temporary storage of construction waste in especially allocated areas; Timely disposal of waste to the formally designated locations	Construction site; Waste disposal site	Inspection	Periodically during construction and upon complaints	Prevent pollution of the construction site and nearby area with solid waste	MDF, Construction supervisor
Trafic disruption and limitation of pedestrian Access	Installation of traffic limitation/diversion signage; Storage of construction materials and temporary placement of construction waste in a way preventing congestion of access roads	At and around the construction site	Inspection	In the course of construction works	Prevent traffic accidents; Limit nuisance to local residents	MDF, Construction supervisor
Workers' health and safety	Provision of uniforms and safety gear to workers; Informing of workers and personnel on the personal safety	Construction site	Inspection	Unannounced inspections in the course of work	Limit occurrence of on-the-job accidents and emergencies	MDF, Construction supervisor

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	rules and instructions for operating machinery/equipment, and strict compliance with these rules/instructions					
OPERATION PHASE						
Management of the solid waste	Trash binds provided on site and arrangement in place for timely regular out-transporting of waste	Rehabilitated facilities	Inspection	During operation of facilities	Prevent littering of the site and area around it	Ilia State University
Maintenance and protection of the site after the rehabilitation	No unauthorized construction and no informal land use in the vicinity of the observatory	Rehabilitated facilities	Inspection	During operation of facilities	Prevent loss of the historical and aesthetic values of the site and surrounding area	Ilia State University National Agency for Cultural Heritage Protection
Servicing of water supply scheme and sewage system	Water supply scheme does not leak and water supply uninterrupted Sewage treatment block operate smoothly	Rehabilitated facilities	Inspection	During operation of facilities	Prevent water loss and water logging of the site Prevent pollution of surface and ground water with untreated sewage	Ilia State University

Attachment 1. Cadastral information, Orthophoto and pictures of the site

Cadastral Information of observatory and its surrounding area



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- N16/1403 , 21/04/2010
- N113 , 08/11/2005

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შეზღუდული სარგებლობა

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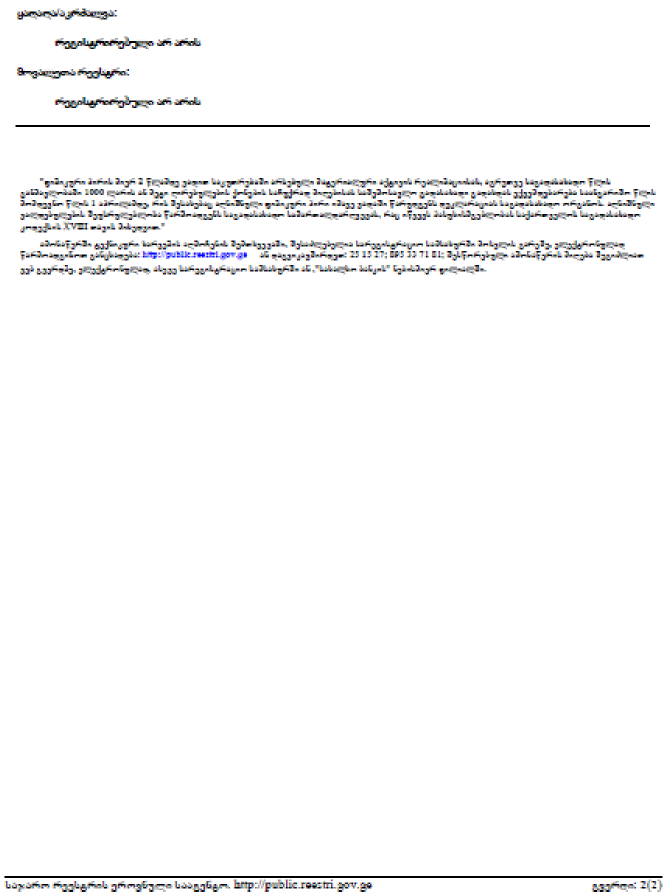

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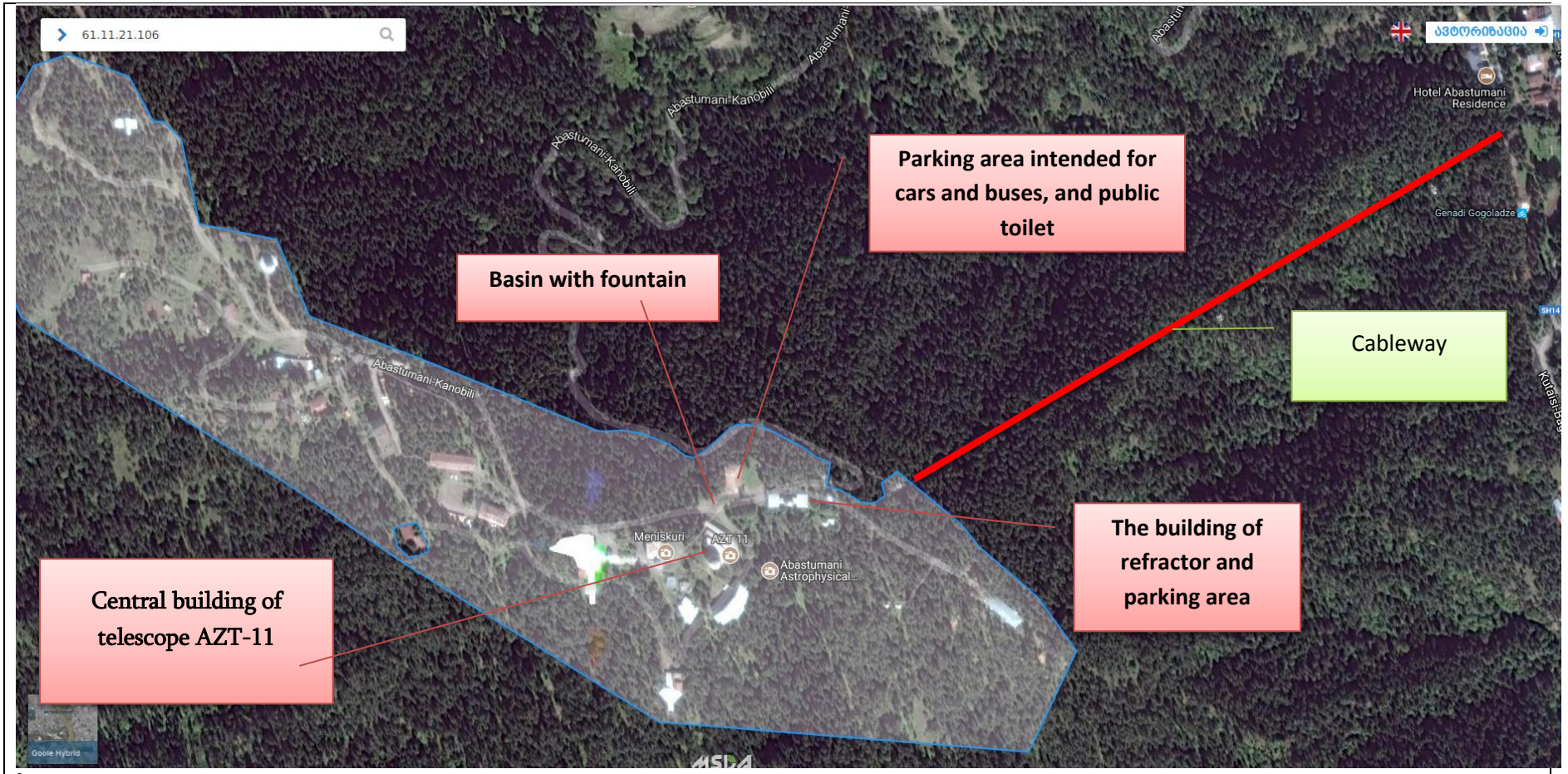

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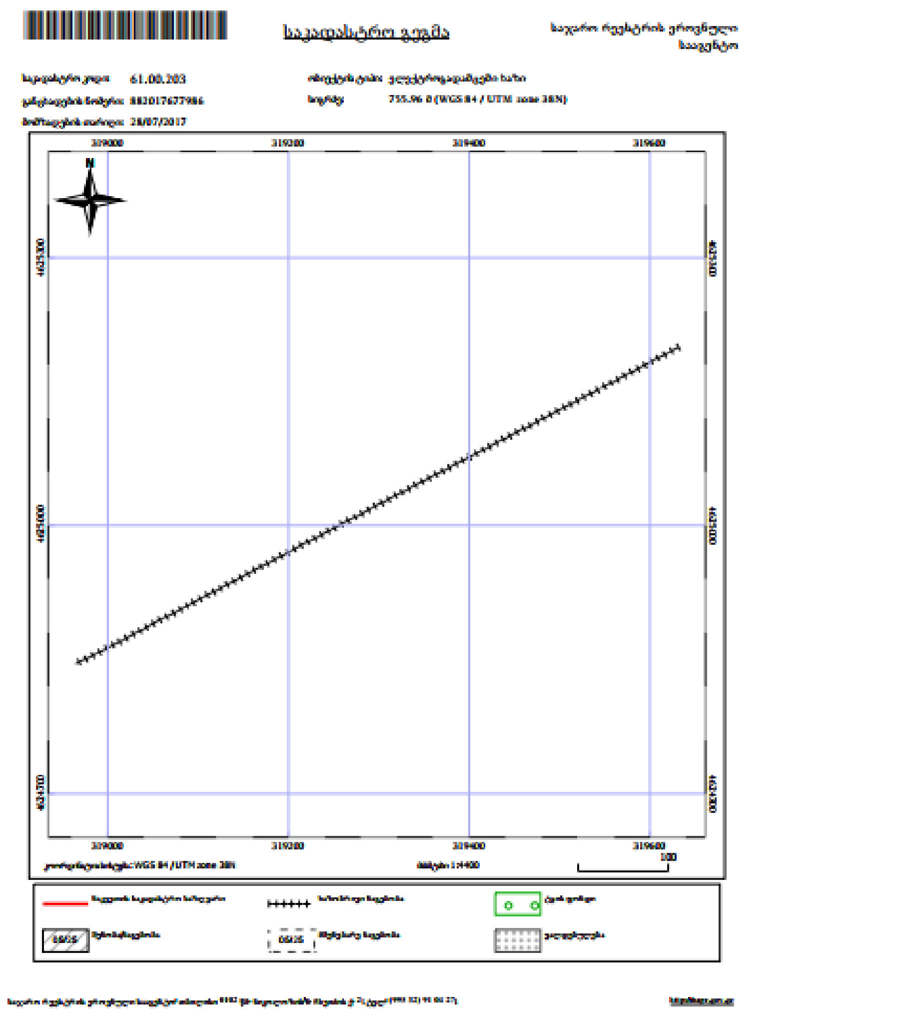
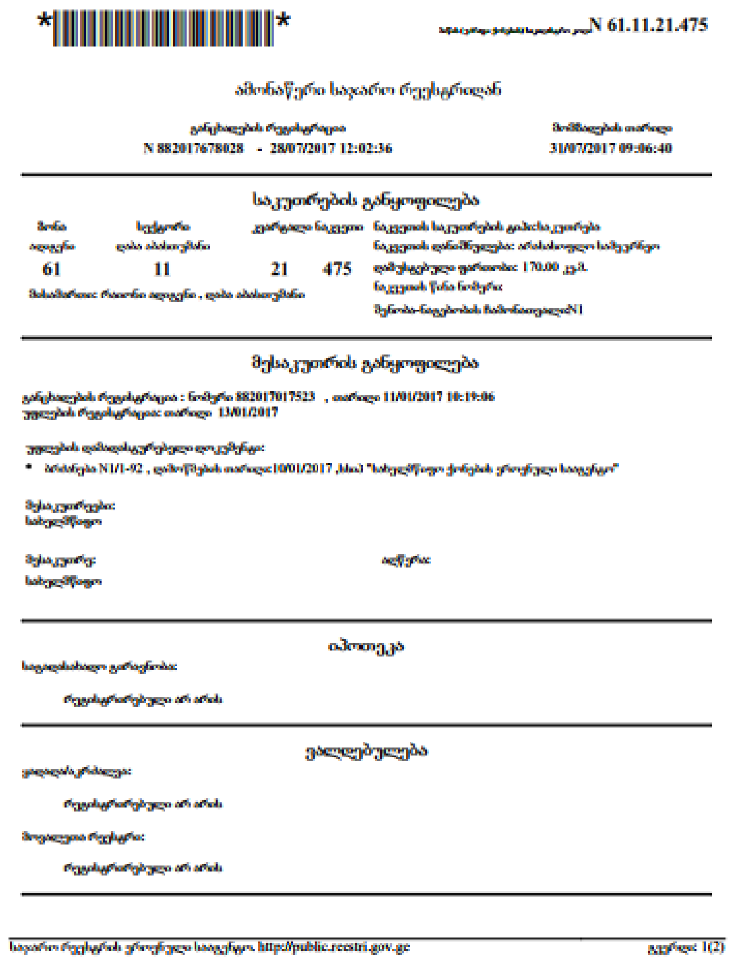
[2] The area inside the blue figure is registered as the State property. The red line indicates a cableway of the cable car to be rehabilitated, that is also registered as linear construction of the State property. However, it passes through the traditional zone territory of Borjomi-Kharagauli National Park. Nevertheless, Mdf was granted the special usage right of the territory, indicated with the red line, for rehabilitation works.

Cadastral information of cableway and station

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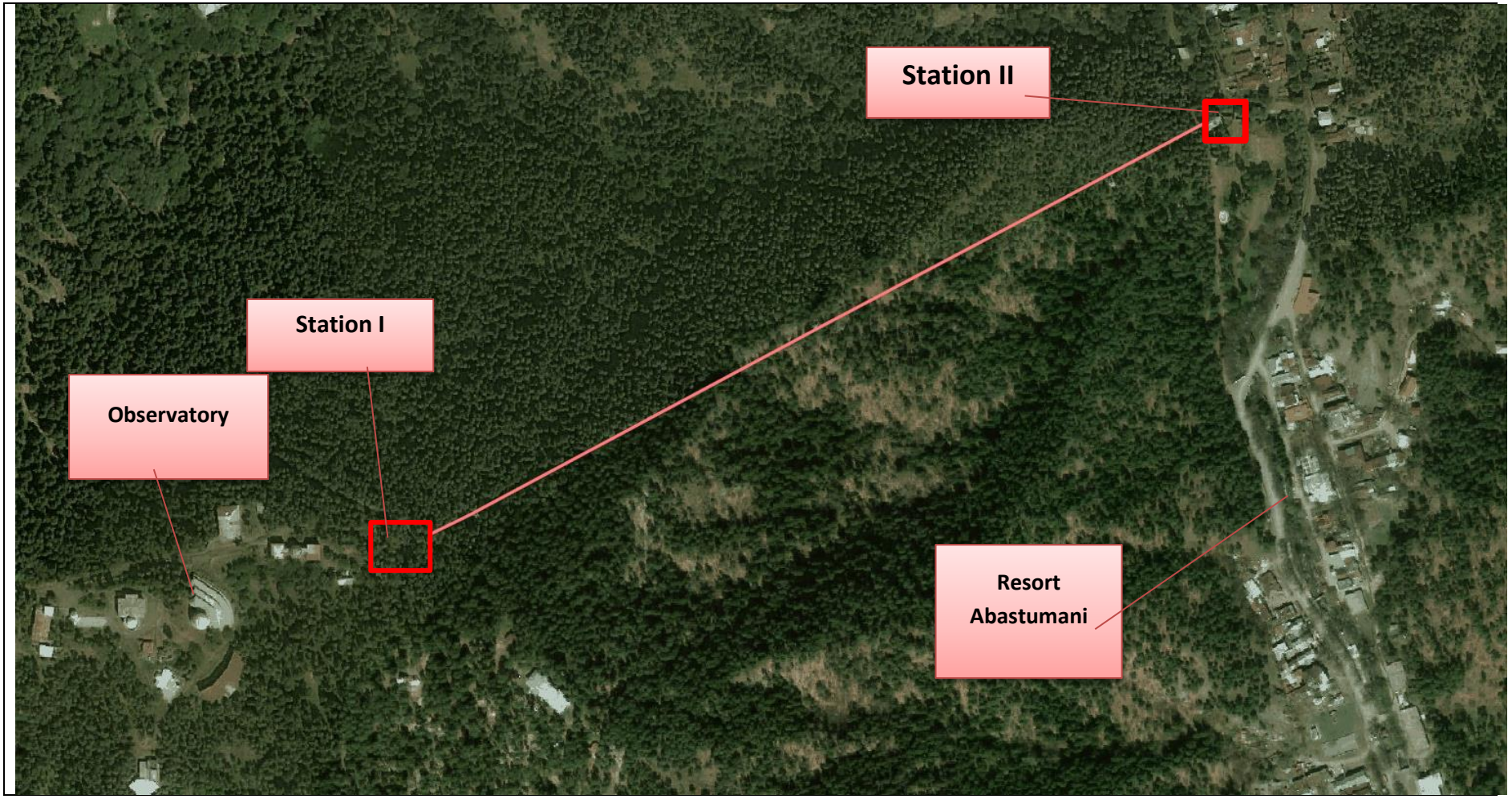
Station II
Station I
Observatory
Resort
Abastumani

Locations of Observatory, Parking areas, Basin with Fountain

Central building of telescope AZT-11	
	
	

Stations of Cable Car

Attachment 2. Order # 5/a735 of LEPL Agency of Protected Areas

According to the order # 5/a735 of LEPL Agency of Protected Areas, dated August 2, 2017, LEPL Municipal Development Fund of Georgia was granted the special use right of the land plot under the cableway.


საქართველოს გარემოსა და ბუნებრივი რესურსების დაცვის სამინისტროს
საჯარო სამართლის იურიდიული პირი -
დაცული ტერიტორიების სააგენტოს თავმჯდომარის

ბრძანება