



Tetritskaro internal roads and bridge rehabilitation

**(Tetritskaro municipality)**

**Sub-Project Environmental and Social Screening and  
Environmental Management Plan**

**WORLD BANK FINANCED**

**SECOND REGIONAL AND MUNICIPAL INFRASTRUCTURE DEVELOPMENT PROJECT**

**Tbilisi, Georgia**

**September 2014**

## Environmental Screening

Sub-project (SP) will rehabilitate Takaishvili (470 m), Tabidze (422 m), Tumaniani (667 m), Giorgi Brtskinvale (1124 m), Kostava (300 m) , Khergiani (300 m), and Trialeti (165 m), streets in town Tetrtskaro with total length of 3448 m. Also 3 water culvert structures will be rehabilitated within the SP in daba Manglisi. Town Tetrtskaro and daba Manglisi are located in Tetrtskaro Municipality, Kvemo Kartly region.

In town Tetrtskaro the SP includes:

- On Giorgi Brtskinvale street - arrangement of the concrete culvert (1083 m), sidewalk (3629,5 m<sup>2</sup>), concrete ditch (870 m), two storm water pipe (26,0 m), connections and local entrances (613 m<sup>2</sup>) yard entrances (1183,3 m<sup>2</sup>);
- On Kostava, Khergiani, Trialeti and Tumanishvili streets - arrangement of the concrete culverts (338 m), sidewalk (807,8 m<sup>2</sup>), concrete bore (344 m), connections and local entrances (819 m<sup>2</sup>), yard entrances (380m<sup>2</sup>);
- On Tabidze street – arrangement of the sidewalk (285,5 m<sup>2</sup>), concrete bore (380 m), yard entrances (190,4m<sup>2</sup>),
- On Takaishvili street – arrangement of the concrete culvert (465 m), storm water pipe (L=9.20 m), connections and local entrances (346m<sup>2</sup>).

In daba Managlisi 3 water culvert structures with total length of 48,6 m will be rehabilitated, including:

- Culvert #1 – 12 m (arrangement of retaining construction and water releasing construction and carriageway arrangement);
- Culvert #2 – 20,1 m (restoration of culvert structure’s ruined walls, damaged parts of entrance portal wall and arrangement of carriageway);
- Culvert #3 – 16,5 m (arrangement of retaining wall at pipe exit portal, gabion arrangement, soil bed recovery, restoration of culvert structure damaged walls, arrangement of carriageway).

### (A) IMPACT IDENTIFICATION

|  |   |
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| <p>Has sub-project a tangible impact on the environment?</p>                                 | <p>The SP has a modest short term negative environmental impact while its long term impact is expected to be positive.</p> <p>The main impact will be during the construction phase, which includes works for laying various layers, movement and operation of heavy vehicles, supply of materials. The roads to be rehabilitated are located within a settlement with strongly modified environment. Therefore the impact is transitory and insignificant (noise, emissions, construction waste, temporary disturbance of traffic and access, etc.).</p> |
| <p>What are the significant beneficial and adverse environmental effects of sub-project?</p> | <p>The SP will have a long term positive social impact through improving living and transportation conditions of the local population. It will decrease existing negative impacts on community such as dust, emissions and noise.</p> <p>The expected negative environmental and social impacts are likely</p>  |

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|  | <p>to be short term and typical for small to medium scale rehabilitation works in urban landscape: noise, dust, vibration, and emissions from the operation of construction machinery; generation of construction waste; disruption of traffic and pedestrian access.</p> <p>To minimize road crossing ponding and flooding risk, works for rehabilitation of storm water ditches along the streets is planned within the SP. Storm waters will flow to ditches of the nearby streets and eventually will be discharged into the ravines.</p> <p>Due to narrow road corridors (about 4 m) that lay between private properties (residential yards), arrangement of sidewalks is impossible along the Tabidze and Takaishvili streets, as well as along of some sections of the Kostava, Khergiani, Trialeti and Tumaniani streets without involuntary resettlement, which is justifiable neither from financial, nor from social standpoint. Speed bumps and limiting signs will be arranged to increase pedestrian safety.</p> <p>Cutting of shrubs will be needed along the some sections of the roads due to the rehabilitation works.</p> |
| <p>May the sub-project have any significant impact on the local communities and other affected people?</p> | <p>No land take and relocation are expected.</p> <p>The long term social impact will be beneficial (improvement of local population's living conditions, better traffic safety conditions, convenience of travelling).</p> <p>Negative impacts are short term and limited to the construction site. They are related to the possible disturbance described above.</p>  |

**(B) MITIGATION MEASURES**

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| <p>Were there any alternatives to the sub-project design considered?</p> | <p>Given that the SP envisages rehabilitation of the existing infrastructure, no alternatives have been considered.</p>   |
| <p>What types of mitigation measures are proposed?</p>                   | <p>The expected negative impacts of the construction phase can be easily mitigated. The contractor will be responsible for the waste disposal at the permitted location, use the quarry materials from the licensed quarries only, prevent water and soil from pollution (fuel spills due to equipment failure, raw asphalt/concrete spills etc.), avoid disturbance of population (noise, dust, emissions) through proper work/supplies scheduling, traffic management, good maintenance of the construction machinery, etc.</p> |

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| What lessons from the previous similar projects have been incorporated into the sub-project design?  | MDF have wide experience of implementation of medium and large scale road and streets rehabilitation subprojects financed by various donor organizations. Based on lessons learned from previous similar projects, design envisages not only rehabilitation of road pavement but also rehabilitation of storm water ditches which will backing further maintenance of the street cover. |
| Have concerned communities been involved and have their interests and knowledge been adequately taken into consideration in sub-project preparation? | The SP has been developed by the Municipality in consultation with the affected communities and as a response to the current situation.<br><br>MDF and local municipality will organize consultation meeting to discuss EMP with local population before starting of rehabilitation works.  |

### (C) RANKING

The project has been classified as environmental Category B according to the World Bank safeguards (OP 4.01) and requires Completion of the Environmental Management Checklist for Small Construction and Rehabilitation Activities.

### 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)                      | ✓   |    |
| 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 sub-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 <b>Resettlement Policy Framework</b> |   |     |    |

**PART A: GENERAL PROJECT AND SITE INFORMATION**

| <b>INSTITUTIONAL &amp; ADMINISTRATIVE</b> |   |  |                                |
|---|---|--|--------------------------------|
| Country                                   | Georgia   |  |                                |
| Project title                             | Regional and Municipal Infrastructure Development   |  |                                |
| Sub-Project title                         | City Tetrtskaro and daba Manglisi streets Rehabilitation  |  |                                |
| Scope of site-specific activity           | <p>The SP will rehabilitate Takaishvili (470 m), Tabidze (422 m), Tumaniani (667 m), Giorgi Brtskinvale (1124 m), Kostava (300 m), Khergiani (300 m), and Trialeti (165 m), streets in town Tetrtskaro with total length of 3448 m. Three water culvert structures will be rehabilitated within the SP in daba Manglisi as well. Town Tetrtskaro and daba Manglisi are located in Tetrtskaro Municipality, Kvemo Kartly region.</p> <p>In town Tetrtskaro the SP includes:</p> <ul style="list-style-type: none"> <li>• <u>On Giorgi Brtskinvale street</u> - arrangement of the concrete culvert (1083 m), sidewalk (3629,5 m<sup>2</sup>), concrete ditch (870 m), two storm water pipe (26,0 m), connections and local entrances (613 m<sup>2</sup>) yard entrances (1183,3 m<sup>2</sup>);</li> <li>• <u>On Kostava, Khergiani, Trialeti and Tumanishvili streets</u> - arrangement of the concrete culverts (338 m), sidewalk (807,8 m<sup>2</sup>), concrete bore (344 m), connections and local entrances (819 m<sup>2</sup>), yard entrances (380m<sup>2</sup>);</li> <li>• <u>On Tabidze street</u> – arrangement of the sidewalk (285,5 m<sup>2</sup>), concrete bore (380 m), yard entrances (190,4m<sup>2</sup>),</li> <li>• <u>On Takaishvili street</u> – arrangement of the concrete culvert (465 m), storm water pipe (L=9.20 m), connections and local entrances (346m<sup>2</sup>).</li> </ul> <p>In daba Managlisi 3 water culvert structures with total length of 48,6 m will be rehabilitated, including:</p> <ul style="list-style-type: none"> <li>- Culvert #1 – 12 m (arrangement of retaining construction and water releasing construction and carriageway arrangement);</li> <li>- Culvert #2 – 20,1 m (restoration of culvert structure’s ruin walls, concreting entrance portal wall damaged parts and arrangement of carriageway);</li> <li>- Culvert #3 – 16,5 m (arrangement of retaining wall at pipe exit portal, gabion arrangement, soil bed recovery, restoration of culvert structure damaged walls, arrangement of carriageway).</li> </ul> |  |                                |
| Institutional arrangements (WB)           | Task Team Leader:<br>Ahmed Eiweida,<br>Co-Task Team Leader:<br>Xiaolan Wang   | Safeguards Specialist:<br>Darejan Kapanadze                          |                                |
| Implementation arrangements (Borrower)    | Implementing entity:<br>Municipal<br>Development Fund of<br>Georgia   | Works supervisor:<br>Eptisa Servicios de<br>Ingenieria S.L.<br>Spain | Works contractor:<br><br>(tbd) |

| SITE DESCRIPTION  |   |
|---|---|
| Name of institution whose premises are to be rehabilitated                      | Tetriskaro Municipality   |
| Address and site location of institution whose premises are to be rehabilitated | 34, Tamar Mephe street, Tetriskaro<br>Tel: 35922358<br>E-mail: tetriskarogamgeoba@yahoo.com<br><br>The SP site is located in eastern Georgia, Kvemo Kartli region, in Tetriskaro municipality. Distance from Tbilisi is 80 km.  |
| Who owns the land?<br>Who uses the land (formal/informal)?                      | Municipal property  |
| Description of physical and natural environment around the site                 | <p>Town Tetriskalo is located in Tetriskaro municipality, on Gomeri ridge, left side of river Chivchavi river, 1189 m above sea level. According to 2002 census population is more than 4000. The roads to be rehabilitated are located between private properties (residential houses and yards, agriculture fields). Mentioned roads connect Tetriskaro separate districts to center. At the end of Tabidze and Takaishvili streets there is a cemetery. There are no small vendors or public or buildings along the street.</p> <p>Roads were constructed decades ago and basically of ground. Nowadays the roads are badly damaged that prevents the normal and safe movement of transport; reduce road capacity and leads to an increase in emissions. The ditches along the roads are filled by sediments and covered by vegetation.</p> <p>Due to narrow road corridors (about 4 m) that lay between private properties (residential yards), arrangement of sidewalks is impossible along the Tabidze and Takaishvili streets, as well as along of some sections of the Kostava, Khergiani, Trialeti and Tumaniani streets without involuntary resettlement, which is justifiable neither from financial, nor from social standpoint. Speed bumps and limiting signs will be arranged to increase pedestrian safety.</p> <p>Storm water will be discharged into the adjacent gullies.</p> <p>Within the framework of the SP, rehabilitation of three culvert structures is also envisaged in daba Manglisi which is located in Tetriskaro municipality 34 km distance from town Tetriskaro and 53 km from Tbilisi. According to 2002 census 2 752 people live in Manglisi settlement council. Borough Manglisi is located on South part of Trialeti ridge on left side of river Algeti. Relief is mountainous with many gullies, in which after sediments appear rivers. Water culverts to be rehabilitated within the framework of the SP are</p> |

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|  | <p>located on Rustaveli street. As for today all three culvert are amortized. At the beginning of first culvert, road pavement does not have foundation, and on the gully side there is a downfall of roadbed which threatens transport movements. Second culvert is of tunnel type construction and walls are washed out. Arch does not have supports and may collapse any time. Wall bottom of entrance portal are partially washed out. Third culvert is also of arch type construction. Culvert entrance section is filled with sediment almost up to diameter, culvert masonry walls are attenuated.</p>   |
| <p>Locations and distance for material sourcing, especially aggregates, water, stones?</p> | <p>Water will be available at the construction site from the municipal water supply system.</p> <p>Distance to the nearest licensed borrow pit is approximately 40 km.</p>  |
| <p><b>LEGISLATION</b></p>  |   |
| <p>National &amp; local legislation &amp; permits that apply to project activity</p>       | <p>The SP has been classified as low risk Category B according to the World Bank policies and the ESMF.</p> <p>Tetrtskaro municipal authority approved the SP.</p> <p>Georgian legislation does not require any type of environmental review, approval, or permitting for the SP. Though according to the national regulatory system:</p> <ul style="list-style-type: none"> <li>(i) construction materials must be obtained from licensed providers,</li> <li>(ii) 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 extraction,</li> <li>(iii) if contractor wishes to operate own asphalt or concrete plant (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 and technical report on inventory of atmospheric air pollution stationary source agreed with Ministry of Environment and Natural Resources Protection.</li> <li>(iv) Permanent placement of the inert material (cut ground and sedimentary soil) generated in the course of earth works in a selected location must be approved by local (municipal) governing bodies in written;</li> <li>(v) Construction waste must be disposed on the nearest municipal landfill in accordance with written agreement with the Solid Waste Management Company of Georgia Ltd.</li> </ul> <p>Copies of extraction licenses (if applicable), permits for operating asphalt/concrete plants (if applicable) and waste disposal permits will be attached to this EMP once the contractor is selected and mobilized to the works site.</p> |

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|   | GOST and SNIP norms must be adhered.   |
| <b>PUBLIC CONSULTATION</b>  |  |
| When / where the public consultation process will take /took place  | EMP will be discussed with beneficiary community prior to the commencement of works. |
| <b>ATTACHMENTS</b>  |  |
| Attachment 1: Site map and pictures<br>Attachment 2: Record on public consultation ( <a href="#">to be provided</a> )<br>Attachment 3: Agreement on waste disposal ( <a href="#">to be provided</a> ) |  |



**PART B: SAFEGUARDS INFORMATION**

| <b>ENVIRONMENTAL /SOCIAL SCREENING</b>                       |  |   |                            |
|--|--|---|----------------------------|
|  | <b>Activity/Issue</b>                        | <b>Status</b>   | <b>Triggered Actions</b>   |
| Will the site activity include/involve any of the following? | A. Building rehabilitation                   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | See Section <b>A</b> below |
|  | B. New construction                          | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section <b>A</b> below |
|  | C. Individual wastewater treatment system    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section <b>B</b> below |
|  | D. Historic building(s) and districts        | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section <b>C</b> below |
|  | E. Acquisition of land <sup>1</sup>          | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section <b>D</b> below |
|  | F. Hazardous or toxic materials <sup>2</sup> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section <b>E</b> below |
|  | G. Impacts on forests and/or protected areas | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section <b>F</b> below |
|  | H. Handling / management of medical waste    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section <b>G</b> below |
|  | I. Traffic and Pedestrian Safety             | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | See Section <b>H</b> below |

<sup>1</sup> Land acquisitions includes displacement of people, change of livelihood encroachment on private property this is to land that is purchased/transferred and affects people who are living and/or squatters and/or operate a business (kiosks) on land that is being acquired.

<sup>2</sup> Toxic / hazardous material includes but is not limited to asbestos, toxic paints, noxious solvents, removal of lead paint, etc.

**PART C: MITIGATION MEASURES**

| ACTIVITY  | PARAMETER                      | MITIGATION MEASURES CHECKLIST  |
|---|--------------------------------|--|
| 0. General Conditions                                     | Notification and Worker Safety | <ul style="list-style-type: none"> <li>(a) The local construction and environment inspectorates and communities have been notified of upcoming activities</li> <li>(b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works)</li> <li>(c) All legally required permits have been acquired for construction and/or rehabilitation</li> <li>(d) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment.</li> <li>(e) Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots)</li> <li>(f) Appropriate signposting of the sites will inform workers of key rules and regulations to follow.</li> </ul>   |
| A. General Rehabilitation and /or Construction Activities | Air Quality                    | <ul style="list-style-type: none"> <li>(a) Demolition debris shall be kept in controlled area and sprayed with water mist to reduce debris dust</li> <li>(b) During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site</li> <li>(c) The surrounding environment (sidewalks, roads) shall be kept free of debris to minimize dust</li> <li>(d) There will be no open burning of construction / waste material at the site</li> <li>(e) There will be no excessive idling of construction vehicles at sites</li> <li>(f) Truck loads should be confinement and protected with lining.</li> </ul>  |
|   | Noise                          | <ul style="list-style-type: none"> <li>(a) Construction noise will be limited to restricted times agreed to in the permit</li> <li>(b) During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible</li> <li>(c) The machinery should move only along the preliminarily agreed route;</li> <li>(d) The maximum allowed speed should be restricted;</li> <li>(e) Proper technical control and maintenance practices of the machinery should be applied;</li> <li>(f) No-load operations of the vehicles and heavy machinery are not allowed. Proper mufflers will be used on machinery.</li> </ul>  |
|   | Water Quality                  | <ul style="list-style-type: none"> <li>(a) Contractor will be required to organize and cover material storage areas. The material storage sites should be protected from washing out during heavy rain falls and flooding through covering by impermeable materials. Appropriate erosion and sediment control measures will be established such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers;</li> <li>(b) Contractor will plan all excavations, topsoil and subsoil storage so as to reduce to a minimum any runoff;</li> <li>(c) Revision of vehicles will be required to ensure that there is no leakage of fuel and lubricating materials. All machinery will be maintained and operated such that all leaks and spills of materials will be minimised. Daily plant checks (Vehicle Maintenance Procedure) will be undertaken to ensure no leaks or other problems are apparent. Vehicle maintenance, cleaning, degreasing etc will be undertaken in designated areas, of hard-standing, not over made ground. Maintenance points will not be located within 50m of any watercourse;</li> <li>(d) Lubricants, fuel and solvents should be stored and used for servicing machinery exclusively in the designated sites, with</li> </ul> |

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|  |   | adequate lining of the ground and confinement of possible operation and emergency spills. Spill containment materials (sorbents, sand, sawing, chips etc.) should be available on construction site;<br>(e) Wet cement and/or concrete will not be allowed to enter any watercourse, pond or ditch.   |
|  | Waste management  | (a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities.<br>(b) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers.<br>(c) Construction waste will be collected and disposed properly by licensed collectors<br>(d) The records of waste disposal will be maintained as proof for proper management as designed.<br>(e) Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)  |
|  | Material supply   | a) Use existing plants, quarries or borrow pits that have appropriate official approval or valid operating license.<br>b) Obtain licenses for any new quarries and/or borrowing areas if their operation is required;<br>c) Reinstate used sections of quarries and/or borrowing areas as extraction proceeds on or properly close quarries if extraction completed and license expired;<br>d) Haul materials in off peak traffic hours;<br>e) Place speed regulating, diverting, and warning signs for traffic as appropriate.   |
|  | Protection of trees along the roads   | a) Trees along the road must be protected from cutting or unintentional damage;   |
| <b>H</b> Traffic and Pedestrian Safety | Direct or indirect hazards to public traffic and pedestrians by construction activities | (a) In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to <ul style="list-style-type: none"> <li>▪ Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards</li> <li>▪ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes.</li> <li>▪ Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement</li> <li>▪ Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public.</li> <li>▪ Ensuring safe and continuous access to office facilities, shops and residences during renovation activities, if the buildings stay open for the public.</li> <li>▪ To arrange speed bumps to reduce vehicle speed and appropriate signs (road narrows/mind pedestrians) in agreement with local traffic police.</li> </ul> |

**PART D: MONITORING PLAN**

| Activity   | What<br>(Is the parameter to be monitored?)   | Where<br>(Is the parameter to be monitored?) | How<br>(Is the parameter to be monitored?) | When<br>(Define the frequency / or continuous?)      | Why<br>(Is the parameter being monitored?)   | Who<br>(Is responsible for monitoring?)      |
|--|---|--|--|--|--|--|
| <b>CONSTRUCTION PHASE</b>  |   |  |  |  |  |  |
| 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                 |
| Transportation of construction materials and waste<br><br>Movement of construction machinery | Technical condition of vehicles and machinery;<br><br>Confinement and protection of truck loads with lining;<br><br>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;<br><br>Limit nuisance to local communities from noise and vibration;<br><br>Minimize traffic disruption. | MDF, Construction supervisor, Traffic Police |

|  |  |  |   |  |  |                              |
|--|--|--|---|--|--|------------------------------|
| Sourcing of inert material                             | <p>Purchase of material from the existing suppliers if feasible;</p> <p>Obtaining of extraction license by the works contract and strict compliance with the license conditions;</p> <p>Terracing of the borrow area, backfilling to the exploited areas of the borrow site, and landscape harmonization;</p> <p>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.</p> | Borrowing areas                                      | <p>Inspection of documents</p> <p>Inspection of works</p> | In the course of material extraction                 | <p>Limiting erosion of slopes and degradation of ecosystems and landscapes;</p> <p>Limiting erosion of river banks, water pollution with suspended particles and disruption of aquatic life.</p> | MDF, Construction supervisor |
| Generation of construction waste                       | <p>Temporary storage of construction waste in especially allocated areas;</p> <p>Timely disposal of waste to the formally designated locations</p>   | <p>Construction site;</p> <p>Waste disposal site</p> | Inspection  | Periodically during construction and upon complaints | Prevent pollution of the construction site and nearby area with solid waste  | MDF, Construction supervisor |
| Traffic disruption and limitation of pedestrian access | <p>Installation of traffic limitation/diversion signage;</p> <p>Storage of construction materials and temporary placement of construction waste in a way preventing congestion of access roads</p>   | At and around the construction site                  | Inspection  | In the course of construction works                  | <p>Prevent traffic accidents;</p> <p>Limit nuisance to local residents</p>   | MDF, Construction supervisor |

|                                   |  |                                 |            |   |  |                              |
|-----------------------------------|--|---------------------------------|------------|---|--|------------------------------|
| Workers' health and safety        | <p>Provision of uniforms and safety gear to workers;</p> <p>Informing of workers and personnel on the personal safety rules and instructions for operating machinery/equipment, and strict compliance with these rules/instructions</p>              | Construction site               | Inspection | Unannounced inspections in the course of work | Limit occurrence of on-the-job accidents and emergencies | MDF, Construction supervisor |
| <b>OPERATION PHASE</b>            |  |                                 |            |   |  |                              |
| Maintenance of rehabilitated road | <p>Maintenance of relevant speed limiting bumps and road signage for traffic safety;</p> <p>Demarcation of the sections of streets under repair;</p> <p>Disposal of asphalt and or other waste from the repair works to the designated landfill.</p> | Rehabilitated sections of roads | Inspection | During maintenance works                      | Prevent road accidents and disruption of traffic         | Tetrtskaro municipality      |

Attachment 1. Location of the roads to be rehabilitated city Tetrtskaro



**Attachment 2. Photo illustrations**

**Takaishvili street**





Tabidze street



Giorgi Brtskinvale street



**Kostava, Khergiani, Trialeti and Tumaniani streets**







Attachment 3. Culvert structures location in borough Manglisi and photo material



**culvert #1**



**Pipe entrance**



**Pipe exit**



**Destroyed roadbed**

culvert #2



Entrance portal



Ruined wall, view from entrance



Ruined wall, view from exit



Exit portal



Culvert #3





**Attachment 4: Documents of public consultation**

**Attachment 5: Agreement on waste disposal**