Terms of Reference (ToR) for
Preparation of Detailed Engineering Design for rehabilitation of an access road to Zedazeni Monastery Complex in Mtskheta Municipality

1. Introduction

The Municipal Development Fund of Georgia is a legal entity of public law whose purpose is to mobilize financial resources from donors including international and Georgian financial institutions, in order to make them available for investments in local infrastructure and services, while simultaneously helping local self-governments in strengthening their institutional and financial capacity.

MDF implements various regional and municipal development projects, including the Third Regional Development Project (RDP 3) financed by the World Bank Group and the Government of Georgia (GoG). The aim of the RDP 3 is to stimulate economic growth in Mtskheta-Mtianeti and Samtskhe-Javakheti regions through provision of enabling environment for increased tourist visitation and private investment. Arrangement of public tourist infrastructure in the areas adjacent to the cultural heritage monuments is a type of activity supported by RDP 3.

MDF, in the capacity of Employer, seeks consultant services for the preparation detailed design for the rehabilitation of an access road to Zedazeni Monastery Complex in Mtskheta Municipality, which is a sub-project (SP) included into the work program of RDP 3. Present TOR details technical requirements and outputs expected from the sought consultancy.

2. Baseline Information and Objectives of the Assignment

The SP area is located in Mtskheta Municipality; Zedazeni Monastery is a Georgian Orthodox monastery, located on the Zedazeni mountain the hills of Saguramo, northeast to Mtskheta and to the east side of the Aragvi River. Saint John founded the monastery in the 540s (6th century) where prior to Christianity used to be a cult of Zaden, the idol of fruitfulness.

In general, the monastery is actively visited by parishioners and tourist as well because of its history and nice view. However, access road to it is poorly damaged and it's getting harder and harder to get to the monastery every year especially in winter season. The existing challenge threaten the Cathedral's to get inaccessible very soon. The length of the section makes up 6, 5 km (to be specified on site), whereas the width – 6-9 m. The road does not pass through the populated territory (at the beginning only). There is the soil road, sectioned by small ravines, however discharge pipes are blocked that disables clear conducting, ditches on existing road are filled with fallen soil and grown up shrubbery.

This assignment includes preparation of detailed engineering design for rehabilitation of the access road to Zedazeni Monastery Complex, which includes the following:

1. Cleaning and compacting of some sections of the road out of mud and surplus soil, leveling, arranging of the pavement with layers of sand-gravel and crushed rock (design solution).
2. Cleaning of soil ditches and fallen soil; cleaning of artificial structures (culverts), keeping compliance with safety arrangements and cleaning out of shrubbery.
3. Addition of artificial structures - in case of requirement.
4. Arrangement of parking lot with crushed rock layer in the end of the road, paving the access road to the monastery and road signage.

Preparation of feasibility study and detailed engineering design for rehabilitation of the access road to Zedazeni Monastery Complex, which includes:

Cleaning of some sections of the road out of mud and surplus soil, leveling, arranging of the pavement with layers of sand-gravel and crushed rock (design solution).

Cleaning of soil ditches and fallen soil; cleaning of artificial structures (culverts), keeping compliance with safety arrangements and cleaning out of shrubbery. Addition of artificial structures - in case of requirement.

Currently, there is no parking lot for visitors and monastery residents. Arrangement of parking lot with crushed rock layer in the end of the road, at the entrance of the monastery, paving the access road from parking to the church and road signage was initiated by the monastery and concept of SP agreed with them. Consulting company should make an initial assessment of the needs and available space for the parking.

3. Tasks and Stages of Service Delivery

Stage I – Exploration works, survey of the design area

- Put together cadastral documentation (to include in the design and status quo topographic plans the registered land plot(s) outline with indication of cadastral boundaries and codes); b) topographic survey of the area; c) general geological survey of the area; d) information on existing communications; e) art historian's basic opinion on the monument;
- Conduct feasibility study for the SP, including review of the possible alternatives, analysis of SP challenges and risks, with determining SP scope and parameters (including financial scope) and tentative method and schedule of project implementation.
- Develop SP concept – with specified SP site parameters; structural, architectural and technical solutions. Analysis of financial data of the Municipality/Entity before the SP and upon the SP implementation; financial and operational capacities of the Municipality and capability of covering operational and other respective expenditures in case of SP implementation; maintenance of the road in the operation phase;

Environmental and Social Survey

The Consultant will conduct environmental and social surveys and collect the information that is needed for evaluation of the environmental and social impacts. The Consultant will acquire and provide information that is needed for evaluation of the resettlement (pre-evaluation of land ownership and scale of impact), as well as number of potential beneficiaries.

Special attention should be paid to the fact that Zedazeni Monastery road is bordered by the Tbilisi National Park and that road rehabilitation and operation should not compromise aesthetic value of the Monastery Complex.

Consultant has to submit the background environmental and social information as follows:

- Topographic, geological and hydrogeological information (description of relief, geology and soil, based on archive data and as a result of visual survey; information regarding existence or probability of hazardous geological processes, necessity for conducting of explosive works; depth of location of ground water etc.);
- Information on surface water bodies located in the vicinity of the SP site;
- Brief description of climatic conditions;
- Brief information on the type of vegetation and listing of plant species along the road to be rehabilitated, including identification of any Red Listed species that may be occurring in the SP site;

- Suggested sites for disposing of excess material and construction waste identified through consultations with Mtskheta Municipality Gamgeoba, including cadastral information and maps of suggested sites;
- Locations and distances to the nearest licensed borrow pits producing natural construction materials that maybe required for construction works under the SP;
- Review all existing underground and surface communications within the road corridor;
- Cadastral documents for the SP site and information on whether the SP implementation is likely to have impacts on privately owned or leased land plots (temporal disturbance; loss of the part of the land plot or whole land plot by the owner; loss of the property being on the land plot; loss of income etc.);
- Information on the registered archeological site nearby the SP site;
- Formal status of Zedazeni Monastery Complex as a historic/cultural monument, protection regime/zoning around it, and location of SP site vis-à-vis such zones/protective status, if any;
- Brief social-economic information on surrounding area, including tourism, and on potential beneficiaries, such as monks, pilgrims, local population, tourists, etc.

Based on feasibility study, the Consultant with the Employer and Mtskheta municipality will determine priority works to be implemented under SP budget, for which detailed engineering report will be developed.

Following completion of exploration-survey works and upon submission of the respective reports, rehabilitation-restoration methods, and concept, the Employer will specify scope and parameters of SP intervention, and preferred solutions, which will be followed by decision on commencement of the next stage works. After initial survey, the Employer may come up with a decision to cancel the SP that will lead to termination of contract with the consultant or cancellation of its individual Design works assignment

Stage II

Preparation of the draft design documentation and its Agreement with the stakeholders – Mtskheta Municipality, Architectural Council of the Patriarchy of Georgia and NACHP and Agency of Protected Areas.

Stage III

Preparation of the detailed design documentation

4. Deliverables

Background information

- Geodetic survey of design territory;
- Identification of SP site and its cadastral mapping clearly depicting boundaries of the SP site in relation with areas managed by National Forest Agency/Agency of Protected Areas;
- Survey of existing road pavement on the carriageway (geological profiles);
- Inventory of structures/communications existing in and around the SP site, including their technical conditions; Environmental and social survey compiled according to the outline described above;
- SP concept with respective graphic, photo and textual contents;
- Initial, tentative Cost estimate of works, including alternative proposals.

Draft Design

- Executive Summary;
- Topographic survey UTM (international) coordinate system;
- Geological survey (as required);
- General location and master plans (scale 1:500; 1:1000);
- Architectural shop drawings (plans, sections, facades);
- Main structural solutions;

- Small architectural forms, as required;
- Visual and photographic material.
- Water drainage measures, preparation of design of drainage structures, roadside ditches/canals, culverts etc. (Need for specific structures should be determined at the detailed design stage. Apparently, based on the survey, erosion/landslide preventing measures may be needed in some sections of the road. As for the culvert, it should be provided in the design of drainage structures and water diversion measures (this structure is mentioned in this sub-paragraph of the TOR).
- Design of road safety measures, signage and road marking (if necessary);
- Detail drawings of road pavement and structures' elements in scale 1:100/200/500;
- Detailed information about scope of works to be implemented in the specific locations along the road, noting road picket-sections;

Detailed Design Documentation

- Executive Summary;
- Topographic survey UTM (international) coordinate system;
- General location and master plans (scale 1:500; 1;1000);
- Architectural shop drawings (plans, sections, facades, details, units (1:100, 1:50, 1:25);
- Bill of quantities of finishing, improvement works;
- Detailed drawings of small architectural forms – bench, shed, decorative lamp pole etc. as required;
- Structural shop drawings (schemes, details, units, specifications, (scale1:100, 1:50, 1:25);
- Engineering part: power network, drainage (schemes, details, units, specifications);
- Work organization project with time Schedule and financial schedule, list of requisite machinery and equipment, etc.;
- BoQ for works to be implemented; Cost estimations (unit rate breakdown by resources and summarized unit rates);
- Detailed and general specifications of bidding documentation;
- Determination of load on engineering communication network for obtaining technical conditions from relevant institutions, as required;
- Economic analysis (should include capital expenditures required for SP implementation as well as average annual operation and maintenance costs. The named data should be provided for each possible alternative solution of SP design (based on technical specifics of the SP, at least two alternative technological solutions should be presented). The deliverables should also include methodology of each alternative of cost calculation with respective clarification and reference to the data sources.

Technical specifications shall include general instructions and recommendations for the contractor (bidders) as well as detailed specifications (specifying all mandatory standards) for controlling materials used, methods of work performance and quality.

The graphical part of the design (construction as well as bidding drawings) shall be prepared in accordance with norms and standards required for working documentation, in appropriate scale and detailing.

Design should be attached with brief description.

Registered land plot(s) with indication of cadastral boundaries and index should be mapped on topographic map of existing and design conditions.

During the progress of construction works and even after expiration of the design documentation contract, in order to provide for adherence to the design documentation, the consultant shall take part in definition of design solutions and preparation-coordination of working documentations, bill of quantities and variation orders to the contract, as required

Design supervision: During the construction period, once a month or upon MDF's request, a consultant or his representative will visit and monitor the progress on site. Following the visit, the consultant will prepare and submit a report to the Employer, which will cover the situational analysis on site, list any deviations observed or variations needed, supported by argumentation.

5. Consultant's Qualification and Team Composition

The Consultant shall have experience in preparation of road construction/rehabilitation designs in at least two contracts, that has been completed within the last three years and that is similar to the proposed consultant services by physical size, nature of works, complexity, methods and technology.

In order to provide for the top-level performance of the assigned task, the Consultant shall mobilize the qualified staff (key personnel as well as the support staff).

All the specialists shall be well-recognized professionals in their respective fields with at least 5-year experience in the similar work environment.

The consultant should mobilize the following personnel:

N	Consultants	Number	Month	Input, person*month
	Key Experts			
1	Team Leader/Road Engineer	1	2,50	2,5
2	Structural engineer	1	1,5	1,5
3	Geotechnical engineer	1	1,5	1,5
4	Environmental Specialist	1	1,5	1,5
	Non-Key Experts			
5	Topographer	1	1,5	1,5
6	Road Engineer	1	1,0	1
7	Hydrologist	1	1,0	1
8	Economist	1	1,0	1
9	Cultural heritage specialist	**1**	**0,5**	**0,5**
	subtotal 1	**9**		**12**

➢ Narrative Qualification Requirements for Key Experts

Title	Specific experience (Years)	Area of Specialization, Qualification	Main Responsibilities, but not limited to
Team Leader/	5	Civil Engineering - Road Design Management, experience of implementation of similar	• Overall responsibility for elaboration of the road design and managing the Consultant's team;

Road Engineer		size and type projects (design services); Minimum bachelor's degree in civil/road engineering;	• Monitor performance, deadlines, progress, and manage risks to ensure timely and quality delivery of outputs. • Coordinate and liaison with Local Government/Employer; • In-depth overall knowledge in detailed design for medium sized road projects; • Knowledge of the local and international standards for construction/rehabilitation works; • Report writing and oral presentation;
Structural Engineer	5	Civil Engineering — structural Engineering with experience in designing of road structures (culverts, bridges, retaining walls and etc.), Minimum bachelor's degree in civil engineering;	• Structural calculations and preparation of structural part of design; • Knowledge of the local and international standards for construction/rehabilitation works; • Preparation of design report and drawings
Geotechnical Engineer	5	Civil Engineering — Geotechnical Engineering; Minimum bachelor's degree	• Ground and soil investigations • Checking of designs of foundations, slope and embankment construction • Laboratory and in-situ testing • Preparation of geological report
Environmental Specialist	5	Environmental Science — environmental impact assessment, experience of implementation of similar size and type projects; knowledge of international and local regulations for environmental protection	• Conducts the pre-study of the environment; • Evaluates the hazards that might accompany the implementation of the SP under design; • Prepares report on environmental and social issues reflecting the results of the survey and determines the avoidance measures of the expected impacts.
Cultural heritage specialist	5	Experience in impact assessment on CH of similar size and type of projects Knowledge of international and local regulation for CH protection	• Identifies and obtains documents on the historic/cultural status of Zedazeni Monsatery Complex; finds out if and what type of protection regime is enforced on the area that includes the SP site; assesses potential visual/aesthetic impacts of SP on the historic landscape, Zedazeni Monastery Complex and more widely - on Mtskheta, as a UNESCO heritage site

6. Reporting and Schedule

a) Within 5 weeks period from the commencement of service provision, consultant shall submit results of survey-investigation works (topo-geodetic survey, cadastral maps, final draft of feasibility study, stakeholder consultations report etc.) to the Employer.
b) Within 6 weeks period from the commencement of service provision, consultant shall submit Environmental and Social survey, and within one week the Employer will provide consultant with comments.
c) Within 8 weeks period of time consultant shall submit preliminary detailed design to the Employer, and within one week the Employer will provide consultant with comments and notes relating to design.
d) Within one-week period, upon receipt of the Employer comments, consultant is obliged to enter relevant amendments into design and submit final design along with feasibility study and tender documentation to employer.
e) Within one-week period since submission of final design consultant will submit to the Employer design liaison document with local municipality.

At every stage, within one-week period following submission of the documentation, the employer will furnish the consultant with its remarks. The consultant shall consider the above-mentioned for the following stage and introduce the respective amendments to the design documentation.

Finally, the consultant shall submit to the employer four printed copies of the detailed design documentation and bidding documents prepared in Georgian and English languages. The submitted materials shall be accompanied with their electronic versions (textual part in Word and Excel file form, and drawings in - AutoCAD and PDF format).

7. Employer's Contribution

The employer shall grant access to all available materials, which may be required for the Consultant to perform their services.

8. Duration of the Assignment

Expected duration of the Consultant's assignment is 75 days.

Consultant's Reporting Obligations:

Deliverables	Submission Date	Language
Results of survey-investigation works (topo-geodetic survey, cadastral maps, geological and hydrological reports, final draft of feasibility study etc.)	Within 5-week from commencement of services	Georgian/English
Report on environmental and social survey	Within 6-week from commencement of services	Georgian/English
preliminary detailed design	Within 8-week from commencement of services	Georgian/English
Final Detailed Design Documentation	Within 10-week from commencement of services	Georgian/English