Government of Saint Lucia

Ministry of Infrastructure, Port Services and Transport

Disaster Vulnerability Reduction Project

(DVRP)

TERMS OF REFERENCE

FOR CONSULTING SERVICES

DETAILED DESIGNS

IMPROVED DRAINAGE SYSTEMS

IN FLOOD PRONE AREAS ISLAND WIDE

Nov. 22, 2016
March 7, 2017
June 21 2017

TERMS OF REFERENCE

Detailed Designs for Improved Drainage Systems in Flood Prone Areas Islandwide

1. BACKGROUND

Saint Lucia is exposed to a range of natural hazards, particularly weather-related phenomena such as hurricanes, winds, storm surges, and heavy rainfalls, which leads to flooding and landslides. In addition, climate change related impacts are expected to intensify precipitation patterns, thereby generating more extreme storms, hurricanes, floods and rises in sea-level. These extreme natural events can cause considerable destruction to the island's infrastructure including the road / transportation network, social and economic sectors as they typically devastate coastal and low-lying areas, which are the areas where the majority of the island's population and main commercial activities are situated. Such disasters can impose exorbitant costs on the country's fragile economy and thus further exacerbate poverty levels.

Of concern is the condition of the drainage systems in flood prone communities and its impact on the primary and secondary roads and rivers. The capacity of exisitng drains cannot accommodate increased run off due to climate change and increased flooding. In addition, the absence of draimage of systems and the lack of maintenance (routine and periodic) drains has led to ineffective drainage systems in densely populated and marginalized communities. This has resulted in the need to manage additional runoff contributing to flooding and adversely impacting the integrity of the road infrastructure, creating hazards, obstructions in waterways and contributing to catastrophic flooding and reducing mobility. In addition, to damage caused to national assets private property and livelihoods are also adversely impacted as a result of flooding.

Therefore, the Government of Saint Lucia (GOSL) secured financing from the International Development Association and the Climate Investment Fund towards the financing of the Disaster Vulnerability Reduction Project (DVRP). The DVRP includes various civil works activities including improved drainage systems in flood prone areas island wde. Key priority areas identified (Annex I and II) based on flooding patterns (hazard flood maps, National Emergency Management Office and the CHARIM) are South East Castries in particular Bexon / Marc, Anse La Raye, Canaries, Soufriere, Micoud South in particular Anse Ger, Desruisseaux, Dennery South in particular Green Mountain and Dennery Village, Castries and selected areas in the Marchand Community.

The DVRP is being implemented by the Department of Economic Development, Transport and Civil Aviation through the Project Coordination Unit (PCU) while the Department of Infrastructure, Energy and Ports (DIEP), is the technical Implementation Agency responsible for

managing the civil works activities. To this end the Department of Economic Development, Transport and Civil Aviation seeks to engage four Individual Consultants to prepare detailed designs for drainage investments for Lots 1, 2, 3 and 4 detailed below.

- LOT 1 – Gros Islet
- LOT 2 – South East Castries in particular Bexon / Marc, Castries and selected areas in The Marchand Community
- LOT 3 – Anse La Raye, Canaries and Soufriere
- LOT 4 – Micoud South and Dennery

2.0 OBJECTIVE OF THE ASSIGNMENT

The objective of the assignment is for the consultant to develop detailed designs informed by sustainable solutions that would address the drainage problems thereby reducing the impacts of flooding in the communities identified as Lots 1, 2, 3 and 4.

3.0 SCOPE OF SERVICES

The specific scope of services includes undertaking site reconnaissance, identifying scope of works and associated environmental and social impacts that may need to be addressed and developing detailed designs that are resilient to the effects of climate change and developing the associated cost, for implementation of the proposed packages.

This would require stakeholders' meetings and consultations, field reconnaissance, survey reviews, topographic mapping and development of sustainable engineering solutions utilizing methods such as bioengineering solutions, gabion structures, reinforced concrete structures, lined and unlined drainage systems and use of geotextiles and preparation of final designs (technical information, bill of quantities and drawings).

Activity 1 – Site reconnaissance, stakeholder meetings and consultation to identify existing problems

a) Work with the Community / Liaison Officer for the DVRP as well as with the Community Development Officer to conduct community meetings with residents, community groups, select private sector groups and NGOs to get an appreciation of the magnitude of the problems and concerns of citizens. The Social Safeguards Officer for the DVRP should participate in those meetings.

b) Review all available data to facilitate proper engineering designs such as flood hazard maps (CHARIM), topographic and aerial surveys, cadastral maps to determine the extent of private property or livelihood that may be affected, to develop the alignment of the affected property for the proposed works.

c) Where necessary undertake topographic surveys of the proposed sites and surroundings to carry out hydrological analyses and hydraulic assessments.

d) Perform all studies, explorations, surveys and tests surveys, laboratory testing (where necessary), analysis and calculations, etc. required to produce full and complete set of working drawings, specifications, complete bills of quantities, requirement of materials and complete cost estimates for the culvert and associated infrastructure.

e) Work with communities to highlight areas of concerns (which may include mapping) and identify training for sustainability of the program. Such training may include disposal of waste, environmental etc which may be delivered by the Solid Waste Agency or the Environmental Health.

f) Undertake simplified Environmental and Social Impact Assessments.

Using the existing Environmental Management Framework developed for the DVRP undertake an Environmental Assessment and develop the Environmental Management Plan to be used during execution of the works. Work with stakeholders where necessary such as Solid Waste Authority and Environmental Health to recommend and facilitate training for maintenance of drains and waste disposal.

Propose simple hand tools and procedures that maybe utilized for maintenance of drainage infrastructure where constructed.

Using the existing Social Assessment Framework developed for the DVRP undertake a Social Assessment of the extent of the resultant impact of the works, impact on personal property, livelihoods. Clearly highlight where the works would be of a social or economic benefit to the affected communities.

Activity 2 - Preliminary Designs and Options

a) Prepare and present preliminary designs and options to communities and stakeholders' for input and feedback

b) Develop sustainable engineering solutions utilizing methods such as bioengineering solutions, gabion structures, reinforced concrete structures and geotextiles to inform preliminary designs

Activity 3 - Final Design Report

a) Final designs should incorporate recommendations received from stakeholders.

b) Work with the Project Coordination Unit to develop the procurement strategy for the proposed works; in particular for labor intensive proposed works

c) Preparation of final designs (technical information, specifications, bill of quantities and drawings) for the purposes of execution of the works.

d) Detailed designs should be consistent with the priorities identified through the stakeholder consultation.

e) Allow for citizen engagement throughout execution of the assignment.

f) In developing and preparation of final designs, the Consultant shall work closely by consulting an collaborating with the Civil Works Coordinator of the PCU

g) In conducting the Social Assessment, the Consultant shall work closely with the Social Safeguards Officer of the PCU

h) Throughout the assignment the Consultant will undertake a participatory approach

4.0 REPORTING REQUIREMENTS AND DELIVERABLES

Report #1 – Preliminary Assessment

The consultant will submit Report #1- Preliminary Design Report within **four weeks** of signing the contract. This report must include the Environmental and Social Assessments, prioritization of works to be done based on economic benefit and impact and feedback obtained from stakeholders, map of the proposed interventions.

Comments in response by the GOSL, should reach the Consultant no later than ten days after receipt of Report #1.

Report #2 – Preliminary Designs and Options

The consultant will submit and present Report #2- Preliminary Design and Options Report within **ten weeks** of signing the contract. This report must include the proposed preliminary designs and options (methodology, proposed solution), work packages, estimated costs, based on feedback obtained from communities and stakeholders.

Comments in response by the GOSL, should reach the Consultant no later than ten days after receipt of Report #1.

Report #2 – Detailed Designs

- Following acceptance of the preliminary design report the Consultant shall submit within **sixteen weeks** of contract signature Report #2 Detailed Designs. This report should include technical information (complete set of drawings, specifications, bills of quantities) requirement of materials for the proposed solutions, procurement strategy and proposed training programs for maintenance, list of handtools for maintenance.

Comments in response by the GOSL, should reach the Consultant no later than ten days after receipt of Report #2.

Note: Client comments must be taken into account and addressed before final submission of each deliverable.

5.0 WORKING ARRANGEMENTS AND LOGISTICS

The Client will:

a) Ensure timely review of reports submitted by the consultant and facilitate the provision of feedback within two weeks of receipt of reports.

b) Initiate the consultation and co-operation of other agencies required to provide support to the consultant for realization of the relevant aspects of the assignment.

c) Facilitate access to sites for field study and reconnaissance.

d) Provide access to relevant existing information, including relevant GIS data, topographic and aerial surveys, cadastral maps, etc.

The Consultant will:

a) Execute the duties and tasks outlined in Section 3 above with due diligence, efficiency and in accordance with the highest standards of professional competence, ethics and integrity.

b) Be responsible for the collection and analysis of all data and information to assist in the timely completion of the assignment.

c) Submit reports and plans within the stipulated timeframes stated in the Terms of Reference for review by the Client.

d) Be responsible for the provision of software, equipment, materials and transportation required to undertake the consultancy.

e) Execute the services in accordance with the laws, customs and practices in Saint Lucia and use the appropriate international/regional standards for preparation of technical information.

f) Use all available reports, data and information maintained by the DIPE identifying key areas within the specified Lot where drainage should be improved

6.0 TIMING

The Consultancy shall be conducted over seventy-five (75) working days over period of four months.

7.0 QUALIFICATIONS

The Consultant must have the following minimum qualifications

Consultant:

- Bachelor's Degree in the discipline of Civil/Structural Engineering.
- At least 15 years of working experience in civil engineering/ structural.
- At least five years experience in design of works of a similar nature.

ANNEX I

Map of Areas Affected– ZONES

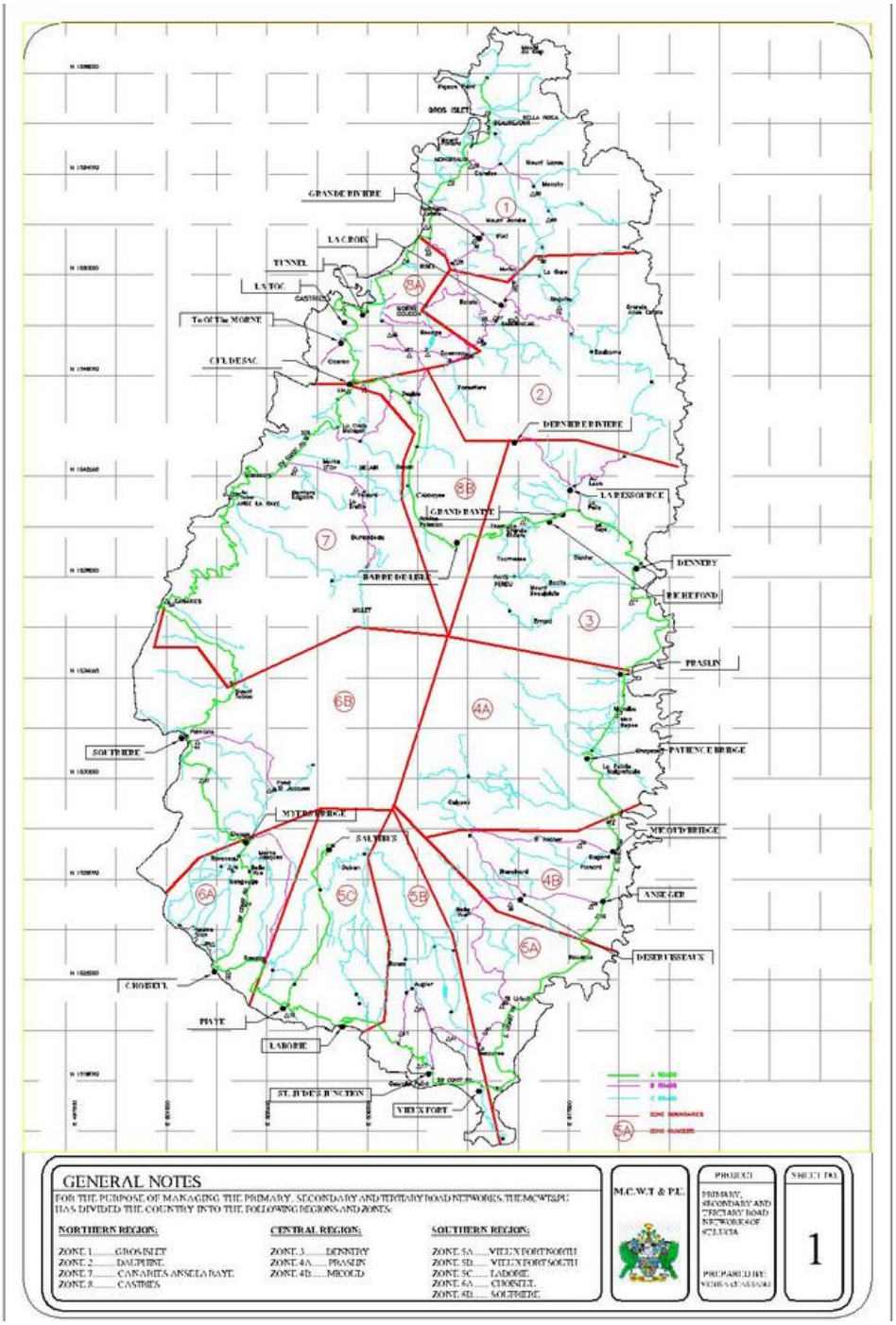

Figure 1 - Drainage Zone