



GOVERNMENT OF ST. LUCIA
Department of Infrastructure, Ports and Energy

TERMS OF REFERENCE
FOR
CONSULTING SERVICES
FOR
DETAILED DESIGNS FOR RECONSTRUCTION OF THE VANARD (VENUS) –
ANSE LA RAYE LINK ROAD
&
SUPERVISION

SLU-DVRP-AF-QCBS-DSAVR-02-17

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TERMS OF REFERENCE
VANARD (VENUS) – ANSE LA RAYE LINK ROAD
DETAILED DESIGNS AND SUPERVISION

1. BACKGROUND

The Government of St. Lucia (GOSL) has secured financing towards the implementation of the Disaster Vulnerability Reduction Project (DVRP) from the International Development Association and the Climate Investment Fund. The Disaster Vulnerability Reduction Project aims to measurably reduce the Country's vulnerability to natural hazards and climate change impacts, and includes various activities related to institutional strengthening and training as well as the execution of various civil works to improve the resilience, preparedness, and response capacity of Saint Lucia to natural hazards.

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, Ports and Energy (DIPE), is the technical Implementation Agency responsible for managing the civil works activities.

Component 1 – Risk Reduction and Adaption Measures of the DVRP includes financing for the reconstruction and retrofitting of public infrastructure including roads. The GOSL, through the Department of Infrastructure, Ports, and Energy now seeks to rehabilitate 8.75 km of road in the District of Anse La Raye, the Vanard (Venus) – Anse La Raye Link Road; with a view to significantly improve the quality of that road. In undertaking this Road Rehabilitation Project, the GOSL seeks to fulfill its mandate in improving the motorability, general conditions and resilience of the existing roadway. The deteriorating condition of this road network result in exorbitant vehicular operating costs to farmers, and residents as well as certain sections have become inaccessible.

Reports emanating from feasibility studies carried out by the GOSL (DIPE) as part of the Tertiary Roads Development Program as part of GOSL's ongoing National Roads Development Program are as follows:

- Tertiary Roads Development Program and Institutional Strengthening, Final Report and Annexes (3 Volumes), DIWI Consult International, GmbH, January 2002.
- Feeder and Agricultural Roads Phase 1, Feasibility Study DIWI Consult International, GmbH, December 2004.
- Agricultural and Economic Feeder Roads Program, Evaluation Report, Halcrow Group Ltd, January 2010.

With a view to improving the existing conditions of the roadway the Department of Economic Development, Transport and Civil Aviation seeks to engage a Consulting Firm to prepare detailed engineering designs for the rehabilitation/reconstruction of the Vanard (Venus) to Anse La Raye Link Road and to carry out supervision services of the proposed works.

Given that the Vanard (Venus) to Anse La Raye Link Road provides an alternate access for commuters between the two communities (Millet and Anse Lan Raye) it is imperative that the proposed designs allow for works allow for uninterrupted flow of traffic during the construction

phase. The designs should also be incorporate climate resilience principles and standards so that constructed roadway can withstand weather related phenomena and is resilient to the effects of climate change.

2. OVERALL OBJECTIVE

The objective of this consultancy is to engage a firm to prepare detailed designs (technical information, specifications, work requirements, drawings and detailed bill of quantities) for the rehabilitation/reconstruction of the Vanard (Venus) to Anse La Raye Link Road in accordance with international standards approved for climatic conditions similar to that of Saint Lucia including seismic conditions and carry out supervision services of then proposed works.

The specific objectives of the assignment are for the Consultant to prepare detailed designs, provide pre-construction services and construction supervision and post-construction services, to ensure that the completed works are in compliance with the signed contract and consistent with the agreed / approved designs.

3.0 SCOPE OF SERVICES

The Consulting firm shall the services detailed in these Terms of Reference as expeditiously and with the highest professional skills and care. During all stages of the assignment then Consulting Firm shall make all efforts to maintain full coordination with the Client – Department of Infrastructure, Ports and Energy (DIPE), and stakeholders’ including the Department of Economic Development, Transport and Civil Aviation to ensure a common understanding of the assignment. The Firm should allow for citizen engagement throughout execution of the assignment.

The consultancy shall include two phases:

Phase 1- Detailed Designs which includes engineering surveys, engineering designs and
Phase 2- Pre-Construction services, Construction Supervision and Post-Construction services.

Services to carried out under Phase 2 will be undertaken then basis of satisfactory performance under Phase 1 and upon mobilization of a Contractor for the proposed works. The Services will be contracted under two separate contracts for each phase. Phase 1 Contract will be a lump sum form of contract and payments under the Contract will be based on the submission and acceptance of deliverables by the Client. Phase 2 will be contracted time-based contract using a fixed price and fixed rates for services.

The Consultant shall be responsible for the following services:

Designate a competent expert to serve a lead and to provide regular updates to the Client on all matters.

Coordinating, interacting and reporting at least weekly with the Client. Copies of coordination meetings, reports should also be forwarded to the Department of Economic Development, Transport and Civil Aviation and to the PCU.

Providing full Construction Administration Services during the construction and post-construction periods.

PHASE 1: DETAILED DESIGN SERVICES

It is anticipated that the road improvements will generally utilize the existing road alignment except where cost savings or other benefits can be shown for an alternative alignment.

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

- a. Review and use existing topographic and cadastral maps, of the site, surroundings and watershed for the purpose of conducting the relevant ESIA to inform the designs. Where existing data may be limited undertake necessary physical, cultural, and biological surveys for enhancement and purpose of the assignment
- b. Undertake an Environment and Social Impact Assessment (ESIA) to determine potential impacts that may occur during the construction of the proposed works and the corresponding mitigation measures that will be described in an Environmental and Social Management Plan (ESMP). The Environmental and Social Impact Assessment shall be conducted in accordance with the Environment and Social Assessment Framework developed for the DVRP.
- c. The environmental assessment part of the ESIA should describe the legal framework, physical and biological setting, potential project impacts, and measures to avoid, minimize or mitigate them. In particular the ESIA for Venus Anse la Raye Road should assess the presence of the Saint Lucia Parrot and the fer-de-lance in the vicinity of the project, as well as the vegetation and trees that may be used by these species for nesting, forage, or shelter; water quality in streams and rivers especially near the WASCO intake and the runoff from the quarry near Anse la Raye; and the existence of soft or loose soils, silts and sands that may require special measures to stabilize them, prevent landslips, stop erosion, and prevent runoff from affecting streams and rivers.
- d. The socioeconomic part of the ESIA should clearly detail the extent of the resultant impact of the works, potential impact on private property, likelihood of displacement of livelihoods and of affected persons, potential damage to crops as well as the potential social or economic benefit, areas for possible land take for the purposes of construction for temporary

or permanent use and to facilitate compensation for acquisition of private property. For the affected households, it should include the composition of the households in term of gender and age (noting the children and the elderly)

- e. The ESIA shall address health and safety aspects for workers and for the nearby communities, especially as regards access across work zones, traffic safety, and safety near excavations, trenches, and slopes.
- f. Based on the findings of then ESIA develop an Environmental and Social Management Plan (ESMP). Appendix 9 of the Environmental Assessment and Environmental Management Framework (EA/EMF) developed for the DVRP includes an outline for an EIA report and other information that will serve as guides for this purpose.¹ The ESMP should clearly describe the mitigation measures, responsibilities, supervision arrangements, and reporting requirements for the contractor, the supervision firm, and the PCU.

ENGINEERING SURVEYS

- a. Review and use existing topographic and cadastral maps, of the site, surroundings and watershed for the purpose of conducting the relevant ESIA, hydrological, hydraulic assessment /analysis to inform the designs. Where existing data may be limited undertake necessary topographic, cadastral and other surveys for enhancement and purpose of the assignment
- b. Use existing studies and or carry out all detailed surveys including traffic to determine loading, precise location of the road alignment, drainage requirements and for preparation of technical information. Traffic surveys should give consideration to seasonal variations, incidence of delays and other constraints set by the present road and bridges, different types of vehicles, existing traffic volume data, axle loadings and the projected traffic growth on which the pavement design is to be based. The forecast will cover the medium term (about the next ten) years in detail and the longer term. The analysis will also constitute a baseline against which the project may be evaluated in the future; the findings should therefore be presented in a manner, which facilitates comparison with an ex-post survey.
- c. Undertake condition assessments including structural, strengths of all drainage infrastructures, bridges and retaining walls and conduct slope stability analysis of critical slopes and embankments along the link road
- g. Conduct hydraulic capacity of all existing drainage infrastructure and determine the adequacy of the capacity of these structures. The Capacities shall be assessed in accordance with the following Annual Exceedance Probabilities (AEP); Drains – AEP 10%; Culverts – AEP 2%; Bridges – AEP 1%.
- h. Conduct hydrological modelling using various climatic scenarios and hydraulic analysis of the catchment to inform the designs

¹ <http://www.govt.lc/publications/environmental-assessment-and-environmental-management-framework-for-the-disaster-vulnerability-reduction-project-dvrp->

- i.* Undertake a natural hazard impact assessment (NHIA) to examine the impacts of natural hazards and disasters on the proposed project. The NHIA should provide a comprehensive assessment of the risk of relevant natural hazards to the proposed project, including a full description of the nature and impacts of previous incidences of the hazard, the probability of future occurrences and the likely impacts of future occurrences on the proposed works. The natural hazards to be included in this investigation are earthquake, volcano the hazards associated with severe weather systems, such as hurricanes and tropical storms, viz. wind, storm surge (and coastal flooding), coastal erosion, inland flooding and landslide.

For each hazard, a full description of the following:

- i.* Hazard history – a description of previous occurrence of the hazard, including frequency, intensity, magnitude, extent and probability of occurrence, hazard susceptibility and natural and man-made causes;
- ii.* Impacts of previous hazards;
- iii.* Nature and characteristics of existing hazards and of future hazards which may occur during the life of the proposed works — including frequency, intensity, magnitude, extent and probability of occurrence, and hazard susceptibility and natural and man-made causes.

In the case of flood hazard, the assessment should include the production of flood hazard maps, at 1:5000 scales. For all other hazards, the hazard susceptibility may be indicated by a hazard map, at appropriate scale, showing the distribution of the hazard in the area of influence of the proposed project;

- iv.* An assessment of the potential vulnerability of the proposed project to the hazard, including the vulnerability associated with the proposed project location, and structural and operational vulnerability of the proposed project elements.
- v.* Other potential impacts of the existing/future hazard on the proposed works. In addition to the potential impacts associated with a single hazard event, the specific potential impacts of multiple hazards occurring at the same time (such as storm surge, coastal floods, inland floods and landslides associated with a hurricane or tropical storm) should be described.

- j.* At minimum, the following geotechnical investigations should be performed as per site requirement to determine subsurface soil exploration to determine the soils characteristics, engineering strength properties for the purposes of analysis and design of the proposed works:

- Determine the sub-soil condition through pitting (1m x 1m x 1m) and Dynamic Cone Penetration (DCP) tests at 2 locations each within 20m of the proposed location for designed infrastructure.
- Determine the sub-soil condition through 2m deep pitting and DCP test & CBR.
- Determine the engineering strength properties of the sub-soil conditions through geotechnical investigations and laboratory test and/or with empirical correlations from the above test required for design of the bridge and all associated infrastructure.

- k.* Undertake a risk assessment with regard to landslips of existing or proposed cut slopes alongside sections of the road improvements.
- l.* Perform all studies, explorations, tests surveys, laboratory test, analysis and calculations, etc. required to produce full and complete set of working drawings, specifications, bills of quantities, requirement of materials and complete cost estimates for the bridge construction, bypass road and ancillary infrastructural works that maybe required
- m.* Utilize international best practices, standards and codes for all investigative requirements for further development of the designs

PRELIMINARY DESIGNS

- a.* Design of the roadway should incorporate carriage way, furnishings, drainage, access for pedestrians including cyclists, tourist viewpoints, bus stops and laybys
- b.* Use the findings of the preliminary surveys to develop three (3) design options of all infrastructure including drainage infrastructure (drains, culverts & bridges), roadway, pedestrian access and retaining structures for consideration by the Client. The options presented shall take into consideration ancillary infrastructural works, cost for maintenance of the proposed structure, economic analysis and social benefits / considerations for each option presented as well as timelines for implementation of each option.
- c.* Design options be based on the data obtained from hydraulic and hydrologic analysis of water patterns and flow in the watercourses crossing the road and the parameters used for the surface and subsurface drainage structures.
- d.* Particular attention must be paid to the stability of cuttings and embankment slopes especially where they occur in erodible materials
- e.* The design options shall include the following:
 - i.* A description of the residual strength of the existing pavement along the road
 - ii.* An analysis and recommendations on the possible use to which excavated materials can be put to use.
 - iii.* Identification of dumping areas suitable for excess excavated materials taking into consideration the need to minimize long haulage of materials and associated costs
- f.* Support designs with a strip map for the road. It will include typical cross section and clearly indicate which sections of the alignment are to be constructed to a particular standard where standards vary.
- g.* A prototype of the preferred design option should be prepared for visual display;

DETAILED DESIGNS

- a. In developing and preparation of final designs, the Consultant shall work closely by consulting and collaborating with the Engineer, DVRP
- b. Detailed designs should be consistent with the priorities identified through the stakeholder consultation;
- c. Using the option approved and accepted by the Client, develop detailed designs for all infrastructure (proposed works) including technical information, construction drawings, Bill of Quantities, technical specifications
- d. Environmental and social mitigation plan and environmental management contract clauses to be incorporated in the contract and to be used for the purposes of monitoring of the works
- e. Contract drawings shall be prepared at scales of 1:100. Such drawings shall be sufficiently complete and detailed for use in construction purposes.
- f. Prepare the Maintenance Plan including the associated costs for such maintenance of all infrastructure for a five-year period following completion of the works (starting from the defects liability period)
- g. Support detailed designs with all relevant data, calculations, mathematical models including water elevations, rainfall, traffic count
- h. The Consultant shall undertake any other surveys and investigations required for finalization of the detailed designs
- i. Final designs should incorporate recommendations received from stakeholders;
- j. Work with the Project Coordination Unit to develop the procurement strategy for the proposed works;

PHASE 2 –PRE-CONSTRUCTION, CONSTRUCTION SUPERVISION & POST CONSTRUCTION

Services During the Bidding Process:

Under the direct supervision of the Project Manager, DVRP, the Consultant shall undertake the following services

- a. Assist the Project Coordination Unit, DED by providing responses to technical clarification sought by Bidders and
- b. Prepare the technical analysis report to supplement the Bid Evaluation Report.

Services during the Construction Period:

All Key Experts (Site Engineer, Superintendent of Works, Clerk of Works) approved for the services are to be onsite throughout the construction period.

Under the direct supervision of the Project Manager, DVRP, the Consultant will undertake the supervision and certification of works:

During this period the Consultant shall undertake the following;

- a. Carry out technical inspections and supervision of the various activities included in the construction contract in a manner that ensures the contractor remains obligated to the timely and qualitative implementation of the works.
- b. Prepare the quality assurance plan in consultation with the contractor, consistent with the conditions of the contract. The Plan should be reviewed and approved by the client.
- c. Certify all completed physical works, ensuring quality and standards are maintained before acceptance by the Government of Saint Lucia - Department of Economic Development, Transport and Civil Aviation.
- d. Represent the interest of the Government vis-à-vis the contract in any manner and or including arbitration related to the construction contracts and the proper execution thereof.
- e. Prepare in accordance with the works implementation program a comprehensive public relations program to keep residents, road users and other key stakeholders informed prior to and during construction, of the types and duration of disruptions and impacts that may be caused during construction. This should also include but not be limited to advance notice and information on closure of roads, traffic diversions and measures being implemented to minimize the nuisance effects of dust and noise in the specific areas.
- f. Monitoring and updating of the implementation of the environmental management plan, health and safety plan to ensure that adequate measures have been taken to protect life and property.
- g. Ensure that the contractor mobilizes and supplies sufficient resources including; materials, personnel, equipment and machinery necessary to execute the contract in a timely manner
- h. Review and approve any workshop drawings submitted by contractor, ensure all materials are consistent with the technical specification and ensure all required laboratory testing is performed. **Undertake minor modifications to the designs when necessary.**
- i. Review technical proposals submitted by the contractor and furnish the employer with the necessary technical advice and recommendation
- j. Maintain a complete set of field records, timesheets, diary and minutes of site meetings. Attend site meetings as and when required, review contractor's work schedule, monthly progress report and results of laboratory testing, in accordance with the agreed quality assurance plan.

- k.* Verify periodic and final payment statements submitted by the contractor and certify the quality and quantity of completed work activities for payment after checking their consistency with the technical specifications, terms of contract and agreed quality assurance plan.
- l.* Examine and make recommendations to the Client on all claims from the Contractors for extension of time, compensation, work or expenses or other similar matters.
- m.* Review and prepare any necessary variation orders after securing the employer's approval and prepare all relevant amendments to the drawings to suit any modifications to the existing approved works.
- n.* Review the breakdown of unit rates and justification submitted by the contractor for the unit price of those work activities that are not included in the original contract (including variation orders) and recommend for the approval of the employer.
- o.* Certify practical completion and issue completion certification to the contractors and review and finalize as built drawings for approval. Submission should be made in hard – (3 copies) and in electronic (AutoCAD) form.
- p.* Provide timely assistance and direction to the Contractors on all matters related to the interpretation of the Contract Documents, ground survey controls, quality control, laboratory testing of construction material, work performance and other matters related to contract compliance and progress of the project.
- q.* Facilitate the inspection of the substantially completed works by representatives of Department of Infrastructure, Ports and Energy and the Project Coordination Unit before the issuance of the Taking Over certificate.
- r.* Carry out the necessary inspection, specify and supervise any remedial works to be carried out during the defect liability period, as required.
- s.* Perform all other tasks not specifically mentioned above but which are necessary and essential to successfully supervise and control all construction activities in accordance with the terms of the works contract.
- t.* Advise the GOSL in all matter relating to the execution of the works including contract management
- u.* Take responsibility for the completion of works within the period specified in the contract

Services during the Defects Liability Period:

Services over this period shall be carried out three months intervals during the defects' liability period of one year. The Consultant shall undertake the following:

- a.* Supervision of remedial works and make recommendations to the Client, as to the date of the Final inspection of the whole Works.

- b. Inspection of works periodically (at three (3) months intervals) prior to the expiration of the Contractors one-year defects liability.
- c. Preparation of a final defects list, if required;
- d. Preparation and Issuance of the Defects Liability Certificate
- e. Review and update the Maintenance Manual in accordance with the final scope of the works.
- f. Preparation of the Final Payment Certificate (Final Account)

4.0 REPORTING REQUIREMENTS AND DELIVERABLES

PHASE #1: PRELIMINARY SURVEYS & ENGINEERING DESIGNS

Report #1: ESIA Report

Report on the Outcome of the ESIA with supporting ESMP

Within six (6) weeks of engagement the Consultant will submit the ESIA and ESMP containing the information as detailed in the scope of services.

The Client will provide comments / feedback on the report or its acceptance to the Report within ten (10) days of receipt of the report.

Report #2: Preliminary Design Report

Report containing three (3) Design Options for approval and selection of the preferred Option

Within ten (10) weeks of engagement the Consultant shall submit the option designs consistent with the scope of services supported by the necessary economic and social analysis. The Consultant would be required to make a presentation using visual tools on the options prepared for consideration of the Client and to expedite the review process.

The Client will provide comments / feedback on the report or its acceptance to the Report within ten (10) days of receipt of the report.

Presentation to Stakeholders – Community Consultation

Within two(2) weeks of acceptance of the preferred Option the Consultant shall make a presentation to stakeholders in the community. The presentation – option selected with the environmental management plan- should incorporate all feedback received from the Client for enhancement.

The Environmental and Social Safeguards Officers of the PCU will provide assist with

presentation of the ESMP and Social Safeguards Management Plan. The Communications / Liaison Officer, DVRP will provide assistance with notification of meeting to stakeholders. The PCU will assist with logistical arrangements for the presentation.

Report #3 – Final Designs

Six (6) weeks after acceptance of approved / accepted option design the Consultant shall submit the final designs containing the technical information for bidding including the construction drawings, Bill of Quantities, technical specifications, environmental and social mitigation plan and environmental management clause as described in scope of Services.

The Client will provide comments / feedback on the report or its acceptance to the Report within ten (10) days of receipt of the report.

PHASE #2 PRECONSTRUCTION, CONSTRUCTION SUPERVISION & PRECONSTRUCTION

Report on the Technical Evaluation Report

Within one (1) week after receipt of the bids from the Project Coordinating Unit, the Consultant shall submit to the PCU a technical evaluation report to supplement the Bid Evaluation Report. This report should provide a detailed engineering analysis of bids received highlighting any substantial differences in bids prices or items in the BOQ and giving clear explanations as needed. As part of this analysis the consulting firm should also review the estimates for the proposed works to confirm consistency with the current market prices. The report should also include the support provided to the PCU during the bidding process.

Comments in response by the GOSL, PCU should reach the Consulting Firm no later than one (1) week after receipt of the Report (Technical Evaluation Report).

SUPERVISION OF CONSTRUCTION

Inception Report: Site Possession Report

Within two (2) weeks after commencement of the works by the Contractor the Consultant shall submit a report on the available equipment, and staffing provided by the Contractor, any breaches to the contract, supervision team, mobilization and organization. The report should provide feedback of the review of the contractors' mobilization, work methods and work plan, setting out guidelines for administering, monitoring and evaluating project progress and mode of cooperation.

Monthly Progress Reports

The Monthly progress reports shall be brief and concise and provide means of closely monitoring project progress and forecasting construction costs and shall cover percentage completion of the proposed works, detail the progress of works including revised cost

estimates (if any), cash flow statements. Generally, the report should include but not limited to the following:

- Main activities undertaken and events for the period and progress of activities of the contractor and supervision staff
- Monitoring and evaluation of project progress
- Quantity of works completed as the date thereof
- Observations on the progress of works, sharing what is actually taking place in the execution of the contract
- Photographic pictures
- Evaluation of adherence of the contractor to the ESMP
- Identification of environmental and social impacts and recommendations for ways to minimize those impacts
- Any concerns or issues related to community safety, traffic, or access
- Reporting (monitoring and updating) on the implementation of the social safeguard tools and plans including compliance on main indicators of Resettle Action Plan (RAP), if any, on grievances and cases resolved, on stakeholder engagement activities and on compliance with the Grievance Redress Mechanism (GRM)
- Results of laboratory testing reports
- Variation orders issued to date
- Payments received by the contractor and consultant, including project accounts balances as at the date thereof
- Define achievements, setbacks, problems, shortages, impediments, and means of rectification
- Number of skilled and ordinary labourers and their attendance
- Fatalities, accidents, incidents, near-misses, or any concerns related to worker health and safety
- Minutes of site and progress meetings, including extra ordinary meetings
- Works schedules and duration

During the construction phase ask for. Also ask that monthly progress and final report, include report on: social safeguard compliance (.

The consultant is expected to provide a statement in support of works certified based on claims submitted by the Contractor.

Final Report

The Final Report shall be submitted within two (2) weeks after Practical Completion of the works and on completion of the construction period. This report will detail the level of achievement made and provide an assessment of the contractors' performance under the contract and the quality of works. Generally, the report should include all the points required in the interim report given above but not limited to the following:

- Project Description (purpose, scope and dimensions)
- Project data (historical data on contract, financial resources, etc)
- Monthly Certificates
- Claims, Variation Orders and Addenda
- Project Organisation
- Updated Maintenance Manual
- Quality and time evaluation
- Major problems arisen and measures taken
- Environmental, social, health and safety performance
- Quantity of works completed as the date thereof
- Photographs
- Final Accounts
- Statement of Accounts Payments received by the contractor and consultant,
- Minutes of site and progress meetings, including extra ordinary meetings
- List of As built drawings.
- The arrangement for inspection during the defect liability period if required.
- Lessons Learnt
- Conclusions and Recommendations

The client will take no longer than ten (10) days to review and provide feedback to the reports submitted by the Consultant.

POST CONSTRUCTION (Supervision of Defects Liability Period)
Project Completion Report

This report shall provide an appropriate update to the Final Report to take into account any event and contractors' activities which took place during the Defects Liability Period. It should also include the final project accounts.

- ❖ ***All reports shall be submitted in English.***
- ❖ ***All reports and documents relevant to the Consultant's services, computer programmers, etc. shall become the property of the Government of Saint Lucia.***

5. DURATION OF SERVICES AND RESOURCE MOBILIZATION

Phase #1 will require 16-man months over seven (7) calendar months

Phase #2

Supervision - will require full time supervision over the construction period not to exceed twelve (12) months.

Post Construction (Supervision during Defects Liability Period) - (3) man months over twelve calendar months.

6. WORKING ARRANGEMENTS AND LOGISTICS

The consultancy will be managed by the Department of Economic Development, Transport and

Civil Aviation (DEDTCA) with technical support from the Department of Infrastructure, Ports and Energy (DIPE). The Project Manager, DVRP will have day-to-day responsibility for contract administration and supervision of the Consultant.

The Client will:

- a) Ensure timely review of reports submitted by the consultant and facilitate the provision of feedback within ten days 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.
- d) Provide access to relevant existing information, including relevant GIS data, traffic data, survey maps

The Consultant will:

- a) Execute the duties and tasks outlined in Section 3 above with due diligence and efficiency and in accordance with the highest standards of professional competence, ethics and integrity.
- b) Be responsible for the supervision of its technical experts (key and non-key) involved with implementation of the assignment including providing all office space, software, equipment, materials, accommodation, office requirements and transportation.
- 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) Engagement of qualified and experienced technical experts and administrative staff and other resources necessary to undertake the services

7.0 QUALIFICATIONS AND EXPERIENCE REQUIREMENTS

The Consultant Team should comprise a multi-disciplinary group of experts with **Relevant, Demonstrable Expertise** in civil and environmental engineering, hydraulics, hydrology, social planning and assessment, communications, cadastral, topographic and quantity surveying, technical drawing, presentations and transportation planning.

The Consulting Firm:

1. Must demonstrate at least ten (10) years' experience in successfully undertaking designs of similar magnitude or complexities (*The Consultancy entails the designs for rehabilitation/reconstruction of approximately 8.75 kilometres of flexible and rigid pavement systems, highways and roadway, designs of associated infrastructure for highways inclusive of; Drains, Culverts, Bridges, Retaining walls and stabilization of slopes inclusive of bioengineering methods*);
2. At least two successfully completed similar assignments undertaken during the past 10 years where the value of the executed physical works was over United States, four million dollars (US\$4million);
3. Must demonstrate at least ten (10) years' experience in successfully undertaking supervision of construction projects of a similar magnitude.

WORK TEAM MINIMUM REQUIREMENTS		
POSITIONS	QUALIFICATIONS	SPECIFIC EXPERIENCE
KEY EXPERT REQUIREMENTS FOR PHASE I		
Lead Consultant	Msc in Civil Engineering	<p>Advisor, Consultant or management positions in projects for design of infrastructure requiring community participation and administration of contracts</p> <p>At least 15 years' experience in design of flexible and rigid pavements systems, retaining walls, earth retaining structures, embankment and bio-engineering method and slope stabilization management</p> <p>Experience in management of landslides, design of culverts and bridges</p> <p>Experience in the design of roads and highways in similar terrains or small Island States</p> <p>Experience of working with multilateral organizations.</p> <p>Experience not less than fifteen (15) Years as Team Leader</p> <p>Fluent in English Language</p>
Highway Engineer/Pavement Engineer	<p>MSc Highway Engineering with 10years experience</p> <p>Or;</p> <p>BSc Civil Engineering with 20year experience</p>	<p>At least 10 years experience in the design of highways, motorways</p> <p>At least 20 years experience in the design of highways, motorways</p>
Hydraulic Engineer	Masters in Hydraulic/Drainage Engineer	<p>Not less than 10 years of work experience as a Hydraulic engineer</p> <p>Experience in undertaking hydrologic assessments</p> <p>Experience in design of drainage systems for highways inclusive of culverts and bridges</p> <p>Worked in similar environments</p>

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Geotechnical Engineer	Masters in Geotechnical Engineer	At least 10 years' experience in slope stabilization, design of retaining walls, earth retaining structures, embankment and bio-engineering methods and slope stabilization management
Surveyor	License Land Surveyor	At least 10 years working experience following certification
Social Specialist	Bachelor's degree in Sociology or Disaster Risk Management or another related field	10 years working experience in communities and urban / rural settings Experience in undertaking social assessments including census Experience working on community participation projects Ability to communicate in the local language – patois
Environmental Specialist	Bachelor's degree in Civil Engineering, Environmental Studies or Disaster Risk Management or other related field	5 years working experience in working with roads or other types of civil works Experience in undertaking environmental assessments in urban / rural communities Understanding of environmental issues in Caribbean context Ability to write technical documents
Quantity Surveyor	B. Sc. degree in Quantity Surveying	15 years of professional experience in the field 5 year experience in the relevant field.
Transport Economist	MSc Transportation Economist	15 years' experience in undertaking transportation assessments related to construction of highways.
CAD GIS	Diploma in imaging and GIS	10 years' experience as CAD GIS
KEY EXPERT REQUIREMENTS FOR PHASE II		
Project Manager	MSc in Civil Engineering	At least 15 years experience in the construction of flexible and rigid pavements systems, retaining walls, earth retaining structures, embankment and bio-engineering method and slope stabilization management At least 15 years experience in the management of construction contractors. At least 10 years in project and contract management
Superintendent of	BSc in Civil Engineering	At least 15 years experience undertaking projects of a similar

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Works		<p>nature. At least 10 years experience in supervision of the construction of highways. Experience in project and contract management Project Management Certification would be an asset.</p>
Clerk of Works	Diploma in Construction Management	<p>10 years experience in the supervision of construction of roads, retaining wall, drainage systems inclusive of culverts and bridges</p>

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ANNEX I

1. Map showing Location of the Vanard (Venus) to Anse La Raye Road



2. Aerial view of the Vanard (Venus) to Anse La Raye

DIPE TO INSERT ROAD MAP

**TERMS OF REFERENCE:
VANARD (VENUS) – ANSE LA RAYE LINK ROAD – DESIGN AND SUPERVISION**

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ANNEX II

Terms of Geospatial Data Delivery and Sharing

Freely accessible data and analysis is a core component of this project. Therefore, all geospatial data collected and created by project activities must be preserved, consolidated and transferred to the Government of Saint Lucia upon project completion, in a well-known or standard electronic format. Specifically, the following terms apply:

Licensing: All data procured and developed for this project is done on behalf of the Government of Saint Lucia and therefore all licensing agreements must be made similarly. In keeping with the World Bank commitment to open data, it is recommended that this license be under Creative Commons CC-BY-SA where possible and appropriate. See: <http://creativecommons.org/licenses/by-sa/2.0/> for more detail.

Vector data: Geospatial vector data must be converted into a standard OGC format or well-known format and must be compatible to Saint Lucia's existing data format, geo-referenced with each theme on a different layer. This list includes, but is not limited to, shape file format. Additional formats may be delivered with prior approval and in consultation with the Ministry of Physical Development, Housing and Urban Renewal (MPDHU). All files must include projection parameters and must be done to Saint Lucia 1955 British West Indies Grid and WGS84 in consultation with the Survey and Mapping Unit, MPDHU. Vector data must adhere to topological standards.

All CAD files should be in AutoCAD DWG format, the version of the file format shall be discussed and decided with the MPDHU

Raster data: Geospatial raster data must be converted into a standard OGC or well-known format and must be geo-referenced and compatible to Saint Lucia's existing data format. Data formats include, but is not limited to, GeoTiff format. Additional formats may be delivered with prior approval. All files must include projection parameters and must be done to Saint Lucia 1955 British West Indies Grid and WGS84 in consultation with the Survey and Mapping Unit, MPDHU.

Tabular data: Tabular data must be converted into a readily accessible or well-known format. This list includes, but is not limited to, CSV, tab delimited text file, or spreadsheet. Additional formats may be delivered with prior approval.

Media/method of transfer: All data sets must be transferred on media such as a CD/DVD, hard drive or solid-state drive, as agreed by the Government of Saint Lucia.

Metadata: Detailed documentation needs to be provided for each data set. This metadata must include description, source, and contact, spatial and attribute keywords, date, accuracy, restrictions. A description of attributes should be provided for vector and tabular data sets. Spatial data must include details of projection. Metadata should conform to ISO Metadata standards and consistent with standards used with ESRI software such as ARCGIS. Ministry of

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Physical Development, Housing and Urban Renewal must be consulted to maintain consistency in map scales, resolution and projection in Saint Lucia's context.

Derived data: All derived data generated for this project belongs to the Government of Saint Lucia and must be transferred under these terms.

Periodic updates: Ongoing updates of this data during the project made by the selected consultant must be provided as they are created.

Disposal of data: The selected firm is free to maintain copies of data collected and developed in this project, without conflicting the terms of any license agreements. Ownership remains with, and must be stated as, the Government of Saint Lucia. Further data sharing is only permissible with approval of the Government of Saint Lucia and only if the data is made available free of cost.