



**Ministry of Food and Agriculture**

# **Ghana Agricultural Sector Investment Programme (GASIP)**

## **Draft Terms of Reference**

### **Engagement of Consultants to Supervise the Construction of Feeder Roads and Farm Tracks**

**Enabling Public Infrastructure Sub -component**

**October 2018**

## TERMS OF REFERENCE

### 1. BACKGROUND

The Ghana Agricultural Sector Investment Programme (GASIP) is a Government of Ghana (GoG) programme designed to provide a framework for a long-term financing arrangement for private sector-led, pro-poor agricultural value chain development in Ghana. It's being financed by the International Fund for Agricultural Development (IFAD) and the Government of Ghana (GoG). The Ministry of Food and Agriculture (MOFA) is the implementing ministry.

The Programme has three components. **Component 1** (Value Chain Development) is central to ensuring strong business linkages among actors in the entire value chains of commodities to ensure they meet market or consumer and industry demands. It has three sub-components: (i) Agribusiness linkage development; (ii) Rural financial services and (iii) Climate Change Resilience—which is mainstreamed value chain interventions to reduce risks, enhance profitability and sustainable production systems. **Component 2** (Rural Value Chain Infrastructure) is aimed at providing the enabling infrastructure to catalyse value chain development. It has two sub-components: (i) Productive Infrastructure and Facilities—aimed at encouraging investments in commercial infrastructure and facilities for the selected value chains; and (ii) Enabling Public Infrastructure—aimed to finance enabling public infrastructure for the growth and viability of selected value chains. **Component 3** (Knowledge Management, Policy Support and Coordination) aimed at harnessing successful lessons for replication and providing an enabling environment for optimization of programme opportunities and benefits.

This TOR covers the Enabling Public Infrastructure Sub-component of the Programme under which feeder roads and farm access tracks shall be constructed/rehabilitated as per details in table 1. Below;

**Table 1.** Details of feeder roads and farm access tracks

No.	ZONE	Region	District	Sub-Site	project	Description of Works
1	Southern					
2	Central					
3	Northern					

### 2. OBJECTIVE OF ASSIGNMENT

The objective of the assignment is to provide Technical Assistance to GASIP to guarantee quality of feeder roads and farm tracks works in accordance with the Ministry Roads and Highways (MRH) and Department of Feeder Road (DFR) guidelines and applicable design standards.

### 3. SCOPE OF WORK

- A. The following works are intended to be carried out on each selected road and farm track for improvement:

- a. Undertake design review (i.e road condition survey, engineering design studies including drainage studies, materials investigations, topographical survey, geotechnical survey and cost estimation).
- b. Undertake the supervision of the Civil Works.

Remedial measures shall be incorporated in the proposed design solutions to mitigate any adverse impacts on the environment.

B. Appointed Consultants shall undertake the following activities in conjunction with the design review of Civil Works for the road/farm track length:

- a. Field survey and data collection to justify the selected feeder roads and farm tracks and to fix their physical extents and locations utilizing GPS technology. Data to be collected shall include road gradient and traffic volumes. The beginning and end of each road shall be marked with permanent concrete survey monuments. A schedule detailing the coordinates of all such permanent survey monuments shall be included in the Design Report.
- b. Drainage studies on all watercourse crossings to determine the discharge of individual catchment areas, calculation of run-off, etc and calculation of the corresponding hydraulic capacity required for each drainage structure. Determine realistic requirements for longitudinal drainage features based on estimates of catchment area, run-off and rainfall data.
- c. Identification of sources of suitable construction materials for incorporation in the works including quarry products. The Consultant shall identify borrow areas for earthworks and pavement materials, taking cognizance of environmental aspect and test their properties for compliance with the specified requirements for each type of material including particle size distribution, Atterberg limits and DCP/CBR values. The Consultant shall determine the quantity of material available at each borrow area location by excavation of trial pits and prepare a schedule of material test reports and location maps indicating their location relative to the sections to be improved. The Consultant shall gather all pertinent geotechnical data required to enable the design of the road pavement layers taking into consideration MoT and DFR technical specifications and guidelines.
- d. Detailed topographic surveys comprising data collection on the position and dimensions of the existing road and contiguous portions of adjoining roads, junctions, drainage structures, water courses, services etc

Detailed topographical surveys shall be sufficient to generate accurate ground models of the corridors along all the entire section for sealing. The following are to be provided for each section:

- Location map showing the road length plotted on 1:50,000 scale topographic sheets:
- Plan at 1:2,500 scale showing contour lines, existing alignment and features, proposed horizontal alignment, junctions, survey beacons, water courses, drainage structures and channels (existing and proposed)

- Longitudinal section at a scale of 1:2,500 horizontal and 1:250 vertical showing the existing and proposed vertical alignment, main geometric data, cross drainage structures with dimensions and inverts at both inlet and outfall, junction locations.
  - Typical cross-sections at a scale of 1:50 showing existing ground surface and finished surface in cut, fill and side-long-ground conditions, cross-section composition, cross-slope, camber and super elevation details.
  - Cross-sections at right angles to the centre line at 25m intervals and to an extent as shall be dictated by the terrain.
- e. Collect pertinent field data such that necessary consideration to environmental matters may be given during the design process. Produce typical drainage details (cut-off drains, lined drainage, dwarf walls, gabions, stone pitching, scour checks, scour protection measures at aprons, etc.) and typical cross sections, paying particular attention to environmental considerations and bio-engineering techniques.
- f. Prepare detailed engineering drawings for typical drainage structures, (standardized drawings for typical culverts will be utilized as far as practicable). Draw up schedules for typical drainage structures in tabular form indicating locations, waterways, invert gradients and associated scour protection measures, etc. and relevant design details including reinforcement and formwork schedules.
- g. Produce cost estimation for the roads/farm tracks designed.
- h. Produce Engineering Design Reports for submission to GASIP comprising:
  - Main report including the design methodology adopted and mitigation measures incorporated in the design to minimize detrimental effects on the environment during the construction phase.
  - Geometric design.
  - Pavement design.
  - Materials investigations.
  - Hydrological Design Report comprising hydrological and hydraulic analysis, method and formulae utilized, meteorological data and drainage structure sizing calculations.
  - Drawings.

C. Consultants appointed for the supervision phase shall undertake the following activities:

- a. Issue instructions, in accordance with the authority specified in the Conditions of contract, to Contractors such that works can proceed with due expedition.

- b. Comment on Contractors' proposals and methods for executing the Works.
- c. Monitor progress against programme, instructing Contractors to revise their programmes as necessary in order to meet due completion dates. Hold regular progress meetings with Contractors and take minutes for record purposes.
- d. Ensure that the works are executed to the correct line and level and that the quality of workmanship and materials are in compliance with the specifications.
- e. Ensure prompt responses when Contractors call for inspections and approvals.
- f. Receive, draft, record and send any correspondence associated with the Works.
- g. Measure and value works completed by Contractors. Check and correct interim payment certificates and forward them to the appropriate DFR Regional Office within 7 days of receipt from Contractors, taking cognisance of any amounts due or recoverable from Contractors in respect of advance repayment, retention and price adjustment in respect of escalation, etc that may apply, such that the Employer can pay Contractors in accordance with the terms of their Contracts.
- h. Instruct Contractors in writing to perform any additional works or variations within the limits set out in the Contract or that have been duly authorized by the Employer.
- i. Report monthly to the Employer on the physical and financial progress of the works and their estimated final value for budgetary purposes.
- j. Keep full and complete records on site of all matters pertaining to the Works including, but not limited to, correspondence, site instructions, variations, revised drawings, site sketches, minutes of meetings, testing, inspections, approvals, measurement, interim payment, progress reports, insurances, visitors to site, completion certificates, dayworks, Contractor's labour and equipment returns, site diaries and inspector's daily reports.
- k. Ensure that Contractors in particular comply with their contractual obligations in respect of labour standards and mitigation of impacts on the environment by making appropriate deductions from Interim Payment Certificates in accordance with the provisions of the Conditions of Contract where necessary.
- l. Maintain a supervisory presence on site at all times when contractors are executing Permanent Works. The minimum levels of supervision required shall be:
  - by Technician Engineer who will inspect all sites under their responsibility at all times. Technician Engineers should be equipped with appropriate means of transport to enable them to carry out their functions.

- by Technician Engineers who will inspect all sites under their responsibility at least once per day. The Technician Engineers should also be equipped with appropriate means of transport to enable them to supervise more than one site.
  
- by senior supervisory staff (the Team Leader and the Civil Engineer) who will visit sites on “an as needed” basis. Senior supervisory staff will keep records of site visits and plan their activities such that each site receives at least 3 visits by a senior supervisor each week during the construction period.
  
- Ensure that Contractors follow good practice in respect of health and safety issues
  
- Inform the Employer of and keep detailed particulars and records pertaining to any matters that may constitute a contractual dispute.
  
- Keep accurate records of time worked on site by all of the Consultant’s personnel and their respective overnight locations in the form of signed and countersigned timesheets to be submitted in support of the Consultant’s invoices for remuneration in respect of providing consultancy services.
  
- Produce and submit four hard copies of the Final Report including “as built” drawings and test results.
  
- Carry out inspections and instruct and supervise any necessary remedial works before the issuance of the Taking-Over and Defects Liability Certificates.
  
- Perform all other tasks not specifically mentioned herein but necessary to properly supervise and control all construction activities in accordance with the terms of the Contract and DFR’s Draft “Consultant’s Supervision Guidelines”.

The Consultant’s performance in respect of providing consultancy services will be monitored by GASIP Zonal Office under the overall guidance of the National Infrastructure Manager.

#### **4. CONSULTANT’S TEAM**

The composition of Consultant’s core team proposed for each key stage is as follows:

##### **A. For the design of Civil Works**

- a) Senior Highway Engineer/Team Leader – shall be a professionally qualified road engineer with a minimum of fifteen (15) years post qualification experience and shall have held similar assignments as team Leader.

A degree in civil engineering is required. He shall be a member of a relevant professional institution. Experience in materials investigation and quality control and the design and supervision of roads is essential.

- b) Road Design Engineer – shall hold a degree in civil engineering with a minimum of ten (10) years post qualification experience and shall assist the Team Leader in coordinating all data collection, analysis, and design of the road lengths links selected for surfacing. He will develop the design drawing for the tender documents.

He shall be a member of a relevant professional institution. A minimum of ten (10) years experience in conducting design studies for road construction and road design is mandatory.

- c) Geodetic Engineer – shall hold a degree in Geodetic engineering or other relevant discipline with a minimum of ten (10) years post qualification experience and shall be responsible for the survey activities required for the design of each road link selected for bitumen surfacing.

He shall be a member of a relevant professional institution. A minimum of ten (10) years experience in conducting topographical surveys for road design and construction is mandatory.

- d) Pavement Design/Materials Engineer – shall be a degree-qualified civil engineer with at least ten (10) years post graduate experience in pavement design and construction. He will be responsible for all materials investigations and pavement and surfacing design. He shall be a member of a relevant professional institution.

- e) Hydrologist/Drainage Engineer – shall be a degree-qualified civil engineer with at least ten (10) years post graduate experience of which about 5 years will have been in the design and construction of drainage structures. He will be responsible for ensuring that all drainage related issues are adequately addressed and that structures are designed to appropriate standards. He shall be a member of a relevant professional institution.

- f) Quantity Surveyor – shall be a degree-qualified quantity surveyor with at least ten (10) years post graduate experience in post contract administration for road works. He shall be responsible for estimating the quantities of works designed and identifying all supporting data required for the production of the Engineer’s Estimate and shall be fully conversant with the preparation of tender documents and the tender process. He shall be a member of a relevant professional institution.

- g) Technical and support staff as required including locally recruited enumerators to be trained as traffic data collectors (limited traffic count). Each person should possess a minimum of Construction Certificate and at least 5 years post qualification experience in similar assignments.

- h) Environmentalist – shall be a degree qualified Environmentalist with at least 10 years post qualification experience in environmental analysis of road development impacts and mitigation measures for negative impacts.

The duration for this assignment is ***One month***.

B. Supervision of Contracts for the execution of Civil Works.

- a) Team Leader - The Team Leader will be the same Consultant’s staff member proposed under “A” above’

- b) Civil Engineer - The Civil Engineer will hold a degree in civil engineering with a minimum of ten (10) years experience in the road section. Experience in the supervision of road construction contracts is mandatory. He shall be a member of a relevant professional institution
- c) Environmentalist – shall be a degree qualified Environmentalist with at least 10 years post qualification experience in environmental analysis of road development impacts and mitigation measures for negative impacts.
- d) Technician Engineer - Technician Engineers will hold a diploma (HND) in civil and geodetic engineering and quantity surveying and have a minimum of five (5) years experience in the supervision of road construction contracts.

Technician Engineers:

1 No Civil for each road,

1No. materials/quality control, 1 No. geodetic and 1 No. quantities for lot 4.

2 No. materials/quality control, 2 No. geodetic and 2 No. quantities for rest of the lots.

The duration for this assignment is *Six month*.

## 5. CONSULTANT’S METHODOLOGY

A. As part of their technical proposal Consultant’s shall submit details of their proposed methodology. Such details shall include, but not be limited to:

- a) A programme showing the activities to be performed by each member of the Consultant’s core team.
- b) A list of proposed resources to be employed by the Consultants
- c) Arrangements in respect of support facilities and logistics for the Consultant’s personnel
- d) Details of technical and support staff to the Consultant’s core teams.

Consultants may comment on the adequacy or otherwise of these Terms of Reference in their Technical Proposal.

## 6. IMPLEMENTATION OF THE CONSULTANCY ASSIGNMENT

The Consultant shall be engaged to carry out the services described above by **GASIP** on behalf of MOFA.

The offices of MMDAs, decentralized MOFA offices and DFR shall be involved in monitoring of the project while project shall be managed by GASIP Zonal Offices under the overall guidance of the Infrastructure Manager.

## 7. TIME FRAME

The estimated number of professional staff-months required for the assignment.

### *i) Design Review*

The consultancy is expected to be awarded by \_\_\_\_\_, and take a maximum of **One man-months**.

*The man-months proposed is for only key personnel and does not include other supporting staff such as draftsmen, secretariat, etc. and personnel whose input may require minimal duration)*

### *ii) Construction Supervision*

The consultancy is expected to commence by \_\_\_\_\_, and take a maximum of **Six man-months**.

*The man-months proposed is for only key personnel and does not include other supporting staff such as draftsmen, secretariat, etc. and personnel whose input may*

## 8. REPORTING

The Consultant shall report to the **National Coordinator, of GASIP, the Contracting Authority**, or his representative for all activities and consultations. All reports and relevant data compiled or prepared in the course of the services shall be sole property of GASIP and shall not be shared without prior permission from GASIP.

A Six (6) hard copies of the Inception Report shall be submitted ..... month after commencement of services.

B. Six (6) hard copies of the Draft Final Engineering Design Report and Draft Bidding documents shall be submitted within one month of commencing the services.

C. Six (6) hard copies of the Final Engineering Design Reports and Final Bidding Documents shall be submitted two weeks after receipt of the Employer's comments on the Draft Final Engineering Design Report.

D. During Contract supervision monthly progress meetings will be held with each Contractor and six (6) hard copies of monthly progress report will be submitted not later than two (2) weeks after issuance of Interim Payment Certificates or one (1) week after the meeting concerned whichever is the earliest.

E. Six (6) hard copies of the Final Report including "as built" drawings for each Contract will be submitted within ..... days of the issue of the Taking-Over Certificate.

## 9. OTHER SERVICES

### *i) Services and Facilities to be Provided by the Consultant*

For the proper execution of the assignment, the Consultant shall be expected to set up office at locations deemed strategic enough to facilitate consultations and coordination at each level. The logistics to be provided by the Consultant shall include;

- a. Computing capability as required;
- b. Vehicles for the execution of the assignment
- c. Facilities for day-to-day running, periodic maintenance services for these vehicles and
- d. All office facilities, accommodation and subsistence necessary for the staff on the assignment.

**ii) *Services and Facilities to be Provided by GASIP***

GASIP shall make available to the Consultant all existing reports related to the project and shall assist the Consultant to obtain:

- a. Access to the site Entry and exit visas, etc. (if applicable)
- b. Immunity from any legal action which might be instituted for any acts accomplished by them in the discharge of project-related activities;
- c. Inviolability of secrecy and immunity from seizure of documents relating to the project; and
- d. Taxes, duties, levies, consistent with the tax provisions of the GASIP.

**iii) *Correspondence and Consultation with GASIP***

Liaison meetings shall be held with GASIP at monthly intervals. Meetings would be attended by members of the Supervision Staff as necessary and would have the objective of expanding on contents of the Progress Reports, discussing any problems and relevant matters.

GASIP shall see to it that correspondence exchanged in connection with the execution of the Project is dealt with promptly, by its offices, so as not to cause any delay.

The Consultant shall liaise closely with GASIP through the Zonal GASIP Offices during the course of the assignment.