National Committee for Sub National Democratic Development Secretariat

Climate Adaptive Irrigation and Sustainable Agriculture for Resilience (CAISAR) Project

Project Implementation Unit (PIU)

REQUEST FOR EXPRESSIONS OF INTEREST (Consulting Firms)

for

Consulting service for the detailed engineering design for rural farm road improvement

Reference No. CAISAR-PIU-054

Issue Date: 10th November 2026

Deadline of Submission: ***Thursday, 10th December 2026 at 10.00 A.M Cambodia Time***

Instructions to Consultants[1]

Reference Number: *CAISAR-PIU-054*

Consulting service for the detailed engineering design for rural farm road improvement

1. The Royal Government of Cambodia (RGC) has received financing from the IFAD Loan No. 2000005670 & IFAD No. 2000005671 And GCF Loan No. 2000005672 & GCF Grant No. 2000005673 funds toward the cost of Climate Adaptive Irrigation and Sustainable Agriculture for Resilience Project (CAISAR) ("the client" or "procuring entity"), and intends to apply part of the proceeds for the recruitment of consulting services, for which this REOI is issued.

   The use of any IFAD financing shall be subject to IFAD's approval, pursuant to the terms and conditions of the financing agreement, as well as IFAD's rules, policies and procedures. IFAD and its officials, agents and employees shall be held harmless from and against all suits, proceedings, claims, demands, losses and liability of any kind or nature brought by any party in connection with Climate Adaptive Irrigation and Sustainable Agriculture for Resilience Project (CAISAR).

2. This request for expressions of interest (REOI) follows the general procurement notice that appeared in AIIB General Procurement Notice – Main CAISAR Project on 22 September 2025, and on NCDDS website on 31 July 2025.

3. The NCDDS now invites expressions of interest (EOIs) from legally constituted consulting firms (not individual consultants) ("consultants") to provide *Consulting service for the detailed engineering design for rural farm road improvement*. More details on these consulting services are provided in the preliminary terms of reference (PTOR) attached as **Annex 1**.

4. Before preparing its EOIs, the consultant is advised to review the preliminary terms of reference attached as **Annex 1**, which describe the assignment and **Annex 2** that details the evaluation of the technical qualifications. Key Experts are not required at this expression of interest stage. Consultants shall not submit curricula vitae of key experts with their EOI, and no points shall be awarded for key experts at this stage. Evaluation at the EOI stage shall be based exclusively on the qualifications and experience of the consulting firm, as set out in Annex 2. The indicative key expert requirements set out in the preliminary terms of reference (Annex 1) are provided for information only; key experts shall be proposed and evaluated at the Request for Proposals (RFP) stage by shortlisted consultants.

5. The consultant shall not have any actual, potential or reasonably perceived conflict of interest. A consultant with an actual, potential or reasonably perceived conflict of interest shall be disqualified unless otherwise explicitly approved by the Fund. A consultant including their respective personnel and affiliates are considered to have a conflict of interest if they a) have a relationship that provides them with undue or undisclosed

[1] This document refers to legally constituted consulting firms as "consultant".

information about or influence over the selection process and the execution of the contract, b) participate in more than one EOI under this procurement action, c) have a business or family relationship with a member of the client's board of directors or its personnel, the Fund or its personnel, or any other individual that was, has been or might reasonably be directly or indirectly involved in any part of (i) the preparation of this expression of interest, (ii) the selection process for this procurement, or (iii) execution of the contract. The consultant has an ongoing obligation to disclose any situation of actual, potential or reasonably perceived conflict of interest during preparation of the EOI, the selection process or the contract execution. Failure to properly disclose any of said situations may lead to appropriate actions, including the disqualification of the consultant, the termination of the contract and any other as appropriate under the IFAD Policy on Preventing Fraud and Corruption in its Projects and Operations[2].

6. All consultants are required to comply with the Revised IFAD Policy on Preventing Fraud and Corruption in its Activities and Operations (hereinafter, "IFAD's Anticorruption Policy") in competing for, or in executing, the contract.

   a. If determined that a consultant or any of its personnel or agents, or its sub-consultants, sub-contractors, service providers, suppliers, sub-suppliers and/or any of their personnel or agents, has, directly or indirectly, engaged in any of the prohibited practices defined in IFAD's Anticorruption Policy or integrity violations such as sexual harassment, exploitation and abuse as established in IFAD's Policy to Preventing and Responding to Sexual Harassment, Sexual Exploitation and Abuse[3] in competing for, or in executing, the contract, the EOI may be rejected or the contract may be terminated by the client.

   b. In accordance with IFAD's Anticorruption Policy, the Fund has the right to sanction firms and individuals, including by declaring them ineligible, either indefinitely or for a stated period of time, to participate in any IFAD-financed and/or IFAD-managed activity or operation. A debarment includes, *inter alia*, ineligibility to: (i) be awarded or otherwise benefit from any IFAD-financed contract, financially or in any other manner; (ii) be a nominated sub-contractor, consultant, manufacturer, supplier, sub-supplier, agent or service provider of an otherwise eligible firm being awarded an IFAD-financed contract; and (iii) receive the proceeds of any loan or grant provided by the Fund. The Fund also has the right to recognize debarments issued by other international financial institutions in accordance with its Anticorruption Policy.

   c. Consultants and any of their personnel and agents, and their sub-consultants, sub-contractors, service providers, suppliers, sub-suppliers and any of their personnel and agents are required to fully cooperate with any investigation conducted by the Fund, including by making personnel available for interviews and by providing full access to any and all accounts, premises, documents and records (including electronic records) relating to this selection process or the execution of the contract and to have such accounts, premises, records and documents audited and/or inspected by auditors and/or investigators appointed by the Fund.

   d. Consultants have the ongoing obligation to disclose in their EOI and later in writing as may become relevant: (i) any administrative sanctions, criminal convictions or

[2] The policy is accessible at www.ifad.org/anticorruption_policy.
[3] The policy is accessible at https://www.ifad.org/en/document-detail/asset/40738506.

temporary suspensions of themselves or any of their key personnel or agents for fraud and corruption, and (ii) any commissions or fees paid or to be paid to agents or other parties in connection with this selection process or the execution of the contract. As a minimum, consultants must disclose the name and contact details of the agent or other party and the reason, amount and currency of the commission or fee paid or to be paid. Failure to comply with these disclosure obligations may lead to rejection of the EOI or termination of the contract.

e. Consultants are required to keep all records and documents, including electronic records, relating to this selection process available for a minimum of three (3) years after notification of completion of the process or, in case the consultant is awarded the contract, execution of the contract.

7. The Fund requires that all beneficiaries of IFAD funding or funds administered by IFAD, including the client, any consultants, implementing partners, service providers and suppliers, observe the highest standards of integrity during the procurement and execution of such contracts, and commit to combat money laundering and terrorism financing consistent with IFAD's Anti-Money Laundering and Countering the Financing of Terrorism Policy.[4]

8. **Procedure**: the selection process will be conducted using *Quality and Cost Based Selection (QCBS) method* as laid out in the IFAD procurement Handbook that can be accessed via the IFAD website at www.ifad.org/project-procurement. The client will evaluate the EOIs using the criteria provided in **Annex 2**. The shortlisted consultant(s) will be provided with the detailed TORs and asked to submit a detailed technical and financial offer. The evaluation will include a review and verification of qualifications and past performance, including a reference check, prior to the contract award.

9. Consultants may associate with other firms to enhance their qualifications but should indicate clearly whether the association is in the form of a joint venture and/or a sub-consultancy. In the case of a joint venture, all the partners in the joint venture shall be jointly and severally liable for the entire contract, if selected.

10. **Submission Procedure:** please submit your expression of interest using the forms provided for this purpose. Your EOI should comprise one (1) original copy of each EOI form annexed to this document. EOIs shall be submitted to the address below no later than ***Thursday, 10th December 2026 at 10.00 A.M Cambodia Local Time.*** *EOIs may be submitted in electronically by e-mail address below. Electronic submissions shall consist of a single, searchable and password-free PDF file not exceeding twenty (20) megabytes, with the e-mail subject line quoting the procurement reference number and the title of the assignment. Where the file exceeds twenty (20) megabytes, the EOI may be transmitted in clearly labelled parts (for example, "Part 1 of 2"). The date and time of receipt recorded by the client's e-mail server shall be conclusive for electronic submissions. The client accepts no responsibility for EOIs that are not received by the deadline for any reason, including failure, delay or corruption of electronic transmission. EOIs received after the deadline shall be rejected.*

Climate Adaptive Irrigation and Sustainable Agriculture for Resilience Project (CAISAR)
National Committee for Sub-National Democratic Development Secretariat (NCDDS)
Address #275, Norodom BVLD, Sangkat Tonle Bassac, Khan Chamkar Mon,

[4] The policy is accessible at https://www.ifad.org/en/document-detail/asset/41942012.

Phnom Penh, Cambodia,
Email: ssspheak@ncdd.gov.kh cc to: socheat.chum@ncdd.gov.kh

Yours sincerely,

H.E. Chhun Bunnara, Project Manager,
Climate Adaptive Irrigation and Sustainable Agriculture for Resilience Project (CAISAR)
National Committee for Sub-National Democratic Development Secretariat (NCDDS)
Address #275, Norodom BVLD, Sangkat Tonle Bassac,
Khan Chamkar Mon, Phnom Penh, Cambodia,

Form EOI-1

EOI Submission Form

[Location, date]

[Authorized official]

Re: *Consulting service for the detailed engineering design for rural farm road improvement*

Reference No. CAISAR-PIU-054

We, the undersigned, declare that:

1. We are expressing our interest in providing the consulting services for the above-mentioned assignment and have no reservations to the REOI, the instructions to the consultants and any addenda thereto.

2. Our expression of interest is open for acceptance for a period of ninety (90) days.

3. Our firm, its associates, including any subcontractors or suppliers for any part of the contract, have not been declared ineligible by the Fund and have not been subject to sanctions or debarments under the laws or official regulations of the client's country or not been subject to a debarment recognized under the Agreement for Mutual Enforcement of Debarment Decisions (the "Cross-Debarment Agreement")[5], beyond those declared in paragraph 9 of this EOI submission form.

4. We acknowledge and accept the IFAD Revised Policy on Preventing Fraud and Corruption in its Activities and Operations. We certify that neither our firm nor any person acting for us or on our behalf has engaged in any prohibited practices as provided in ITC Clause 6. Further, we acknowledge and understand our obligation to report to anticorruption@ifad.org any allegation of prohibited practice that comes to our attention during the selection process or the contract execution.

5. No attempt has been made or will be made by us to induce any other consultant to submit or not to submit an EOI for the purpose of restricting competition.

6. We acknowledge and accept the IFAD Policy on Preventing and Responding to Sexual Harassment, Sexual Exploitation and Abuse. We certify that neither our firm nor any person acting for us or on our behalf has engaged in any sexual harassment, sexual exploitation or abuse. Further, we acknowledge and understand our obligation to report to ethicsoffice@ifad.org any allegation of sexual harassment, sexual exploitation and abuse that comes to our attention during the selection process or the contract execution.

7. The following commissions, gratuities, or fees have been paid or are to be paid with respect to the selection process: *[Insert complete name of each recipient, its full*

[5] The Cross-Debarment Agreement was entered into by the World Bank Group, the Inter-American Development Bank, the African Development Bank, the Asian Development Bank and the European Bank for Reconstruction and Development, additional information may be located at: http://crossdebarment.org/.

address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity.]

Name of Recipient	Address	Reason	Amount	Currency

(If none has been paid or is to be paid, indicate "none.")

8. We declare that neither our consulting firm nor any of its directors, partners, proprietors, key personnel, agents, sub-consultants, sub-contractors, consortium and joint venture partners have any actual, potential or perceived conflict of interest as defined in ITC Clause 5 regarding this selection process or the execution of the contract. *[insert if needed: "other than the following:" and provide a detailed account of the actual, potential or perceived conflict].* We understand that we have an ongoing disclosure obligation on such actual, potential or perceived conflicts of interest and shall promptly inform the client and the Fund, should any such actual, potential or perceived conflicts of interest arise at any stage of the procurement process or contract execution.

9. The following criminal convictions, administrative sanctions (including debarments) and/or temporary suspensions have been imposed on our consulting firm and/or any of its directors, partners, proprietors, key personnel, agents, sub-consultants, sub-contractors, consortium and joint venture partners:

Nature of the measure (i.e., criminal conviction, administrative sanction or temporary suspension)	Imposed by	Name of party convicted, sanctioned or suspended (and relationship to the consultant)	Grounds for the measure (i.e., fraud in procurement or corruption in contract execution)	Date and time (duration) of measure

If no criminal convictions, administrative sanctions or temporary suspensions have been imposed, indicate "none".

10. We acknowledge and understand that we shall promptly inform the client about any material change regarding the information provided in this EOI submission form.

11. We further understand that the failure to properly disclose any of information in connection with this EOI submission form may lead to appropriate actions, including our disqualification as consultant, the termination of the contract and any other as appropriate under the IFAD Policy on Preventing Fraud and Corruption in its Projects and Operations.

12. We understand that you are not bound to accept any EOI that you may receive.

13. We further certify to have read, understood and agreed to be bound by the Privacy Policy of IFAD (accessible at https://www.ifad.org/en/privacy).

[Authorized signatory]

[Name and title of signatory]

[Name and address of firm]

Form EOI-2
Organization of the Consultant

Re: *Consulting service for the detailed engineering design for rural farm road improvement*

Reference No. CAISAR-PIU-054

[Provide a brief description of the background and organization of your firm/entity and of each associated firm for this assignment. Include the organization chart of your firm/entity. The EOI must demonstrate that the consultant has the organizational capability and to carry out the assignment. The qualifications document shall further demonstrate that the consultant has the capacity to field and provide experienced replacement personnel on short notice. Key staff CVs are not required at the shortlisting stage.]

Name of the firm	
Date of establishment	
Country of registration	
Full address of the firm	
Focal point: name, position, contact information (telephone, email):	Name:
	Tel:
	Email:
Number of branches in the country	
Country(ies) of operations with number of branches in each country	
Number of full-time employees	
Number of part-time employees	
Field(s)of expertise of the firm	
Number of professional staff with experience related directly to the assignment	
Subsidiary and associated companies (*wherever applicable*): (details in the following format to be provided for all associates) –	

(i) Name of the company (ii) Nature of business (iii) Address of the company (iv) Website of the company (v) Brief description of company (maximum of 120 words)	
Any other information that the consultant would like to add:	

Maximum 10 pages

Form EOI-3

Experience of the Consultant

Re: *Consulting service for the detailed engineering design for rural farm road improvement*

Reference No. CAISAR-PIU-054

[Using the format below, provide information on each relevant assignment for which your firm, and each associate for this assignment, was legally contracted either individually as a corporate entity or as one of the major companies within an association, for carrying out consulting services similar to the ones requested under the preliminary terms of reference included in this EOI. The EOI must demonstrate that the consultant has a proven track record of successful experience in executing projects similar in substance, complexity, value, duration, and volume of services sought in this procurement.

Maximum 20 pages]

Assignment name:	Approx. value of the contract (in current US$):
Country: Location within country:	Duration of assignment (months):
Name of client:	Total No. of staff-months of the assignment:
Address, and contact details (including email address(es)):	Approx. value of the services provided by your firm under the contract (in current US$):

Start date (month/year): Completion date (month/year):	No. of professional staff-months provided by associated consultants:
Name of associated consultants, if any:	Name of proposed senior professional staff of your firm involved and functions performed (indicate most significant profiles such as project director/coordinator, team leader):
Narrative description of project:	
Description of actual services provided by your staff within the assignment:	

Name of Firm: _____

ANNEX 1

PRELIMINARY TERMS OF REFERENCE

National Committee for Sub National Democratic Development Secretariat

Climate Adaptive Irrigation and Sustainable Agriculture for Resilience (CAISAR) Project

TERMS OF REFERENCE

Consulting service for the detailed engineering design for rural farm road improvement

Introduction

The Royal Government of Cambodia (RGC) is implementing the "Climate Adaptive Irrigation and Sustainable Agriculture for Resilience" (CAISAR) Project with financial assistance from the AIIB (US $ 100 million), IFAD (US$ 40 million), and the GCF (USD 80 million). The total project cost is estimated to be USD 240 million. It is being implemented in four provinces of Cambodia, covering the six irrigation schemes as shown in Table 1.

Table 1. Project areas

Province	Irrigation Scheme	Command areas in ha
Pursat	Ou Ta Paong	14874
Kampong Chhnang,	Lumhach	3900
	Kropeutrom	1100
Kampong Chhnang,	Yutasast,	593
Kampong Speu	Brambei Mom	1000
Kandal	Stung Krang	994

The CAISAR project objective is to increase climate adaptation, mitigate the negative impact of extreme climate events, and improve the livelihoods of smallholder farmers and vulnerable rural communities. It focuses on climate adaptation and water use management practices at the farm level with climate-proofed irrigation and flood control infrastructure. The project is being implemented through three components: farm and agricultural system improvements (Component 1), irrigation, drainage and flood control works (Component 2), and institutional strengthening of MoWRAM and NCDD) Component 3),

The first component also involves improvements of existing rural roads that link farms with markets within the project areas. These road improvement works aim to provide better road access and

connectivity to rural Cambodians living in the project target areas. They will also be more climate-resilient to future flooding after proposed improvement works. The improved road network will help communities meet basic needs, access services, and promote economic and social development opportunities. About 90 Kms of farm roads have been identified for improvement, as shown in Table 2. These are mainly existing commune/village-level roads in poor condition, needing intervention at different scales.

The preliminary feasibility studies of the targeted roads were conducted in 2025. A qualified national consulting firm will be hired for the detailed design works, while national contractors shall be employed for the construction implementation.

Table 2. Priority rural roads for improvement

Sub-Scheme	No.	Commune/District	Benefited Villages	Length of road (km)
OU TA PAONG	1	Ou Ta Paong commune	Phsar Andet village	0.74
			ChamKar Khloy village	1.84
			Sdok Khla village	1.6
			Lhong village	2.2
	2	Rum Lech commune	Rum lech village	1.8
			Prasat village	1.7
	3	Svay Doun Kaev commune	Thmei village	2.37
			Nikomleu Village	6.35
			TOTAL:	18.6
LUM HACH	1	Banteay Preal commune, Rolea B'ier District	Toap Srov Village	4.7
	2	Krang Skear commune, Tuek Phos District	Chan trak Village connected to Krang Leav Village, Krang Leav Commune, Rolea B'ier District	10.16
			Chan trak, and Tuol Samraong Village	3.63
	3	Krang Lvea Commune, Sameakki Mean Chey District	Ksach Sar village	1.15
			TOTAL:	19.64
PRAMBEI MOM	1	Prambei Mum commune, Thpong District	Tang Pou and Doun Tip Village	6.3
			Tang Pou Village Village	1.61
	2	Rung Roeang commune, Thpong District	Roleang thlaeung 1 Village	3.63
			Roleang thlaeung 2 Village	2
			Krang Ta Char Village	2.1
			TOTAL:	15.64
KRAPEAU TROM	1		Thmei Khmer village	9.88
			Roleang village	

		Tbaeng Khpos commune, Sameakki mean chey District	Ra village	
			Tbaeng Khpos village	1.72
			Tbaeng Khpos village	
	2	Veal Pong commune	Bourei Rom village	4.4
			Bourei Rom village	1.4
			TOTAL:	**17.4**
YUTASSAS	1	Svay commune, Sameakki Mean Chey District	Trapeang Buon village	1.7
			Thmei village	4.44
			TOTAL:	6.14
STOENG KRANG BAT	1	Long Veaek commune,	Trapeang Samraong,	5
			Trapeang Chambak, and Oknha Pang Village	
		Kampong Tralach District	Boeng Kak village	2.1
	2	Kampong Luong commune, Ponhea Lueu District	Peam Chumnik	2.23
			TOTAL:	**9.33**
GRAND-TOTAL				**86.75**

Objectives

The overall objective of the consulting services is to conduct a detailed engineering survey, design, prepare detailed drawings and a cost estimate, and the bidding documents for the improvements of the targeted rural roads specified in Table 2, and to provide construction supervision services during implementation of the resulting works contracts, as a single integrated assignment as described further in this TOR. The consultant should follow the RGC's PIM, Specifications, design standards, and guidelines as applicable for the rural farm roads.

The Consultant's scope of work shall include initial investigation involving desk studies and field investigation, preparation of DED *(in scheme LUM HACH, PRAMBEY MOM, KRAPEU TROM, YUTASAS, and STOENG KRANG BAT)* including cost estimates, and preparation of procurement documents as required. The specific tasks, but not necessarily limited to the following, are:

- Analyze the existing situation on the topographic map and in the field.
- Conduct a detailed engineering survey of the alignment and its corridor.
- Conduct Hydrological studies for cross-drainage works and fixing embankment height.
- Conduct social and environmental screening and develop an Environmental Management Plan (ESMP) in accordance with the IFAD requirements
- Design the road details.
- Prepare working drawings.
- Prepare cost estimate.
- Prepare survey and design reports.
- Prepare construction packages followed by the bidding documents.

- Supervision the site construction.

This is a single, integrated assignment combining detailed engineering design and construction supervision, since a number of road packages are being procured for construction while the Consultant continues to design subsequent batches of roads. Detailed design of the priority roads in Table 2 is expected to commence in early 2027 and be completed within approximately 7 months, comprising a 3-month initial study phase followed by 4 months for DED. As each design package is approved and its works contract is awarded, the Consultant shall mobilize its construction supervision team to oversee that package, while the rest of the team continues detailed design work on subsequent batches of roads. To allow the Consultant to carry both workstreams concurrently, its construction supervision team is expected to commit an indicative 3 months per year of dedicated supervision effort per road cluster under construction, over the estimated multi-year duration of the assignment; the exact annual supervision allocation shall be confirmed with NCDDS based on the actual procurement and construction schedule of each package. The assignment shall be performance-based with specific outputs and deliverables, as stipulated in the subsequent sections of the TOR. It is estimated that about 45 person-months of experts (engineers and specialists) and 38 person-months of junior experts (surveyor, AutoCAD operator, etc.) are needed for the design component of the Consultant's services; the indicative annual person-month requirement for the construction supervision component is set out in the team composition below.

A. DETAILED ENGINEERING DESIGN

Initial investigation and review

The purpose of this assignment is to detailed Engineering Design for *the scheme LUM HACH, PRAMBEY MOM, KRAPEU TROM, YUTASAS, and STOENG KRANG BAT*. At this stage, this assignment is to arrive at the most feasible design options of the road alignments and the infrastructure. In addition to conventional engineering approaches, the consultant shall explore alternative engineering and nature-based/environmental solutions to arrive at cost-effective, green solutions to enhance the climate resilience of the selected rural roads. Future maintenance requirements shall also be considered when comparing alternatives. Key activities will include:

Data collection: This includes collecting data and information through secondary sources, field observations, and consultations. Key data include: previous studies, especially the feasibility study, national guidelines and standards on rural farm roads; climate and hydrological data; road condition; type, nature, and condition of existing infrastructure; availability of construction materials; and existing traffic movement. All the above activities will also help the consultant familiarize itself with the project rationale, relevant literature (previous studies will be made available by the client) from different available sources. Additional data, if relevant, should be collected at this stage. Data and Information from the feasibility study should be validated again during this initial review.

Field Surveys and Assessments: The Consultant will identify the data/information gaps and, upon consultation with the NCDD and IFAD, will prepare a detailed plan of additional surveys, investigations, and studies required for the preparation of the Detailed Project Report (DPR). Based on this, additional studies should be planned, including but not limited to: road inventory survey, topographic survey, geotechnical survey, hydrological assessments, and environmental issues. The Consultant shall propose suitable methods and technology to produce a detailed topographic map showing elevation contours and terrain features. The hydrologic assessment should define the drainage requirements for the roads. The following should be carried out before the detailed design.

Road Inventory Survey

- Visual inspection of the road surface and sub-grade conditions
- Asset survey of all relevant infrastructures: existing cross drainage and other types of structures and requirements of additional structures
- Side drains requirements Survey (L-drain, catch drain, intercepting drain, etc.)
- Retaining and protection work requirements Survey (retaining wall, breast wall, drops, cascade, benching, etc.)
- The locations of settlements off the road structures, electric poles, streams, and water taps within the area of the plan.

Construction Materials Survey

- At least two potential sources for materials should be identified.
- Investigation of existing road materials on sites.
- Validation of the quality of the potential construction materials

Hydrological and Meteorological Studies

- All relevant meteorological (Rainfall and Temperature) data and recommendations shall be presented.
- Study of the river system: The river system of the area shall be described in the report. Preferably, a river system map of the catchment's area and beyond (whenever applicable) shall be produced.
- At least one cross-section of the river at each crossing shall be produced. In the cross-section, all bed and bank characteristics shall be mentioned.
- Assessment of flood pattern and preliminary estimation of discharges shall be carried out. Similarly, expected HFL shall be fixed, as applicable.
- Information necessary for the design of the side drain and protection works as well as preliminary design of cross drainage structure shall be produced.

The Consultant should also analyze likely social and environmental impacts, and identify mitigation measures at this stage. In addition, Climate Change impacts and Disaster Risk Screening and Assessment should be conducted to minimize the impact of future weather shocks. CAISAR documents on social and environmental safeguards will provide valuable suggestions and feedback for this analysis.

Based on the above information and available type designs from the feasibility study, the consultant is expected to produce typical designs and cost estimation together with the most feasible design options based on cost, buildability, Operation and maintenance requirements, and sustainability. If the proposed design varies considerably from that of the feasibility report, a clear justification should be provided. The designs shall adhere to the existing alignment and remain within the official Right of Way (ROW) to avoid land acquisition.

The above preliminary engineering design shall establish the technical feasibility and initial cost estimate of viable alternatives. The following should be available at this stage:

- Justifications for designs and technical feasibility.
- Comparisons of alternative plans if any and justification for selection of the particular design
- Typical cross-sections and details including carriage width, shoulder, embankments and drains. Estimation of typical design road section and key structures.

- The preliminary engineering design shall be in sufficient detail to permit costs to be estimated +/-25%.
- The preliminary engineering designs shall identify sources, suitability and costs of construction materials.
- Potential sites to obtain construction materials.
- Conclusions and recommendations from the hydrological studies and information on floods.

Once typical designs of various components have been made, comparison shall be made between different options, taking into consideration construction, maintenance, and other costs. While recommending the most feasible alignment in terms of construction cost, comparison shall be made with the operating cost as well as to determine the period during which the extra construction cost will be compensated. Finally, the recommended design options should be approved by NCDD and IFAD before proceeding to the detailed design phase.

Detailed Engineering Design (DED)

Once the design approaches and the typical designs have been approved (NCDD/IFAD), the Consultant shall carry out detailed designs, prepare working drawings and final cost estimations for all road components: road embankments, carriageways and shoulders, bridges, culverts, drainage channels and all other relevant road apparatus. While all designs should comply with the relevant Commune/Sangkat Project Implementation Manual, the Consultant shall develop/refine design standards and material specifications as required, based on accepted Ministry of Rural Development Technical standards and practices subjected to approval from IFAD and NCDD.

The proposed road will be improved as an all-weather graveled road, and the detailed designs will follow accordingly. Specifically, the consultant will carry out detailed designs and prepare construction drawings for the following:

- Road alignment, together with longitudinal and cross sections
- Carriage way, shoulder, embankment and pavement designs
- Cross drainage structures (box culverts, Hume pipe culverts and other structures)
- Other associated structures (eg. retaining walls, slope protection measures)
- Side drains
- Any other infrastructure required based on the topographic survey and visual inspection.

Topographic Surveys

The centerline should be set out with proper establishment of benchmarks, as far as possible, following the existing trail or alignment. Benchmarks shall be fixed at intervals of every 250 m or at 500 m intervals in special cases. Benchmarks shall also be fixed at important infrastructure. These benchmarks shall be designed and established according to national and international standards, being readily identifiable, relatively permanent and recoverable (if destroyed by accident), and maintaining their absolute elevation without change over the construction period. They should be linked with the national geodetic control points.

As these are existing roads, efforts should be made to adjust the alignment to match the existing road track wherever possible. The consultant shall then carry out further survey works necessary for detailed design of the road:

- Traverse survey shall be done by Total station/Theodolite (or other technologies as required) with angles using the double reversed method.
- An appropriate and accurate method shall be adopted for distance measurement between two consecutive transit stations.
- Transit stations shall be pegged and numbered following a sequential order.
- Features like buildings, monuments, cremation center and graveyards, temples, power and telephone lines, pipelines, existing roads and trails shall be located by offset measurements from the traverse line.
- Cross sections shall be taken at 50 m intervals at straight reaches with no abrupt elevation changes, and at closer intervals in places having abrupt slope changes or different soil types. The cross-section shall cover the entire ROW.
- There should be at least 10-12 cross-section points at each interval to arrive at an accurate estimation of volume of works, especially earthworks. Such points should be at the center, carriage way, shoulder, and side drains.
- Classification of soil as required
- Check all levels with the levels of established Benchmarks by fly leveling for accuracy. Single datum, preferably the Cambodian national geodetic control points, shall be used to tie up all levels.
- Grid survey at 1 or 2 m intervals may be necessary at places of sharp curves or difficult places and at all bridge sites.
- Every retaining structure, breast structure, drainage structure, and slope protection measure should be supported by justification and photographs.
- Road Inventory with details such as: existing retaining walls, check dams, chutes, pipe and slab culverts, causeways, drains, rehabilitation of existing cannel works and other structures
- The following accuracy should be maintained: Soft surface topography: ± 5 cm in height (elevation) and ± 5 cm in X, Y . Hard surfaces, existing road surface (gravel, laterite, SBST, DBST, Concrete) and all details of structures (culverts, bridges, etc.): ± 2 cm in height (elevation) and ± 2 cm in X, Y.

All Survey data shall be submitted in print format, with suitable text on a suitable scale as required by IFAD and NCDD, showing all topographical features surveyed, and spot levels with x, y, z, such that these can be used to establish a Digital Terrain Model (DTM). Whenever required, digital photographs and satellite images of important features shall be provided together with the co-ordinates to enhance the visibility of the survey works.

Geometric Design

It involves creating the road alignment and plotting the alignment profile using bearings or coordinates, stations and elevations of points along the proposed route; calculation of sight distances, radii of horizontal curves, and lengths of vertical curves; computation of earthwork quantities, and numerous other analyses and calculations aimed at finding the optimum alignment while satisfying design standards and constraints. Based on the data collected from initial studies and topographic surveys, the Consultant shall identify sections with geometric deficiencies and suggest implementing suitable measures for improvement. The Consultant shall investigate possible causes (such as poor geometric features, pavement condition, etc.) and suggest suitable cost-effective remedial measures for implementation.

The detailed design for geometric elements shall cover, but not be limited to, the following major aspects:

- Horizontal alignment. The horizontal alignment of the road (i.e., center line) should be determined within the survey strip of the proposed corridor of the optimum alignment between control points specified as a result of the engineering investigation.
- Longitudinal profile.
- Cross-sectional elements.
- Junctions and intersections.

The consultant is free to select the software for the geometric design. However, software that allows import of survey data from total stations, drones, and LiDAR (depending on survey methods used), builds 3D terrain surfaces and contours, designs alignment and curves, and calculates earthwork quantities will help save both time and cost.

Pavement Design

This should be based on standard guidelines for pavement design being applied in Cambodia. The detailed design of the pavement shall include:

- Analysis of expected traffic growth and load pattern
- Layer design, using appropriate design principles for both strengthening of existing road pavement and design of new pavements.
- Selection of materials to be used.
- Design of shoulders. The Consultant shall compare the type of paved carriageway and shoulder, considering cost-effectiveness and function.
- Environmental considerations, like temperature, rainfall, flooding issues, etc.

Design of Embankment

The embankment design shall provide for maximum utilization of locally available materials consistent with economy. The Consultant shall consider salient seasonal features or ground and soil conditions such as soft soil, laterite, wet season, etc. The design of embankments shall include the requirements for protection work and traffic safety features. The type of embankments shall be decided based on soil properties, slope stability, issues of flooding and inundation and drainage pattern.

Design of cross drainage and other structures

The Consultant shall prepare general arrangement drawings and alignment plans showing the salient features of the CD structures (box culverts, Hume pipe culverts, slab culverts, causeways etc) and structures proposed to be constructed/reconstructed along the project road sections. The Consultant shall finalize these salient features such as alignment, overall length, span arrangement, cross section, deck level, founding level, type of structure components (superstructure, substructure, foundations, bearings, expansion joint, return walls, etc.) based on hydraulic and geotechnical studies (if required from engineering judgment), cost-effectiveness, and ease of construction.

Design of Drainage System

The Consultant shall ensure adequate surface drainage of the pavement considering local precipitation, water levels and estimated impacts of climate change within the design period. The Consultant shall also identify requirements for the roadside drainage system and the integration of the same with the proposed cross-drainage system for the entire length of the selected roads. In addition to the roadside drainage system, the Consultant will design the special drainage provisions for sections with super-elevated carriageways, high embankments and for road segments passing through cuts. The designed drainage

system shall show locations of turnouts/outfall points with details of outfall structures fitting into natural contours.

Environmental Consideration

The basic intention of environmental consideration is to ensure that the proposed road will not have any detrimental impact on the local environment. Effective environmental consideration helps reduce risks or threats that are likely to damage environmental quality, services and natural wealth. Environmental considerations should, therefore, focus on avoiding or minimizing damages and, at the same time, promoting sensible use of opportunities to improve the natural environment. CAISAR has already prepared relevant frameworks and documents on social and environmental safeguards. Based on these documents, a site-specific environmental and social management plan will be prepared during the road design and shall be cleared by IFAD.

Working Drawings

The construction drawings should clearly show and interpret the proposed works in relation to the existing features with other necessary information for accurate translation of the proposed works in the field. All drawings should follow a uniform standard about size, scale, and details.

Drawing size

The drawing should be of adequate size to accommodate a reasonable length of the road or an independent structure such as a culvert in full detail but, at the same time, should not be excessively large, which may require many folds.

The appropriate size of a drawing sheet is 297 mm x 420 mm, corresponding to A3 size, which can easily be stitched in a folio. The standard size of the folded compact is 297 mm x 210

To facilitate the stitching of drawings into a folio, a margin of 40 mm should be kept on the left-hand side of the drawing sheets.

The following working drawings shall be prepared for implementation of the works using computer software or manually as appropriate:

- General plan of project site showing the distance from the project area to construction materials and quarry sites in appropriate scale. Road plan in 1:1000 scale, which shall include detailed working drawings and setting out data such as center line coordinates, deflection angles and other parameters of horizontal alignment setting
- Description card (D-card) with full details of benchmarks and points along the center line, minimum of 4 reference points per km, i.e., on an average one peg in each 250 m, including location sketches, level and coordinates as appropriate.
- Profile at H1:1000 and V1:200 (for hills) or V1:100 (for plains) scale indicating existing ground situations, proposed designs, existing soil type, lengths and type of drains and mass management and haulage plan.
- Cross-sections incorporating structures at 1:200 scale at all center line pegs at 15-20 m intervals or less and 10 m either side of center line with existing ground situations, proposed designs and data such as existing ground level, proposed ground level, area of cut, area of fill, soil type and drain type etc.
- Detailed working drawings and setting out data - center line coordinates, deflection angles and other relevant data of horizontal alignment setting.
- Vertical alignment setting data.
- Typical working drawings for all other structures.
- Earthwork quantities (cut and fill) shall be prepared on a spreadsheet computer.

b) Component of a set of Project Drawings

- Locality map-cum-site plan
- Key map also called as locality map
- Index map also called as site plan

Key map and index map are usually drawn on a single sheet, and this sheet forms the first sheet in the folio of project drawings.
Where the length of the road is substantially long, the locality map and site plan are separated in such a manner that the locality map is accommodated on one sheet and the site plan on a series of sheets.
The locality map or "Key Map" should be drawn to a scale of 1:250,000 and should have a bird's-eye view of the proposed work with respect to the

- Road network serving the area
- Important town/village centers, and
- Other prominent places.

The sheet which contains the locality-cum-site plan should have a legend to explain the abbreviations and symbols used in subsequent drawing sheets. Alternatively, the legend could be shown on a separate sheet at the beginning of the folio.

The elements in a rural road are generally the same for most of the length. It is therefore desirable to show the elements as a typical section instead of repeating the same details on every cross-section. These elements generally include: Width of carriageway, width of shoulder right of way, side slopes And pavement cross fall. The cross-sections of the road should be presented serially according to the chainage starting from 0+000. Each sheet should accommodate several cross-sections.

Standard design and drawings of cross-drainage structures should be used wherever possible, thus avoiding repetitive design/drawing work for similar structures. The drawings should be prepared for all structures. The drawings should clearly show the details of the foundation, proposed materials, etc., and should be prepared on a scale large enough to accommodate all details comprehensively.

Cost Estimation

Cost Estimation shall be carried out once the technical designs and drawings are completed. The following guidelines will apply for estimation of quantity and cost:

- The quantities of the civil works shall be computed based on the detailed plan, design profiles, and cross-sections following the standard methods of measurement.
- The rate analysis for the civil engineering items will be made following the unified norms and market prices of construction materials, labor, and equipment hiring rates.
- The rates for civil engineering items shall be verified with the mean rates of prevailing contract prices of the last 5 years in the sector and geographical region.
- The cost shall be broken down into direct cost, taxes, physical and price contingencies.
- The work may require a range of skills and expertise that a single contractor may not have.

Once the cost estimation is completed, the consulting firm should propose the number of construction packages with the BOQ based on the expert's technical judgment, ease of implementation and supervision, cost, and other practical considerations. The package should be finalized in full consultation and approval of NCDDS and IFAD.

The BOQ may be broken down into different types of works and shall clearly provide for applied taxes and contingencies. The BOQ should cover all the required items listed in the cost estimate. All the details of labor and materials should be given as a breakdown under respective work item. In general, quantities of the work items and their units should be given in the approved format. Each item shall be clearly described, and corresponding clauses of the standard and special specifications shall be referenced to allow the contractor to find the corresponding specification easily.

Preparation of bidding documents

The consultant will use available Government's SoP standard bidding documents for rural roads in Cambodia in consultation with NCDD and IFAD. The consultant should make necessary modifications and changes as required to the document as per the site requirements of each construction package described above.

Team Composition

The team composition is shown in Table 3. The consultant is free to make required changes, combining or splitting the expertise.

No.	Position	Nos of staff	MM
1	Team leader/Senior Road designer	1	9
2	Road design engineer	1	9
3	Rural infrastructure engineer	1	6
4	Engineering hydrologist	1	3
5	Civil engineer/drainage works	1	4
6	Environmental Safeguards Specialist	1	6
7	Social Safeguards Specialist	1	9
8	Estimator	1	4
9	Surveyor	2	14
10	Procurement specialist	1	3
11	AutoCAD operator	2	10
12	Others (as required, assistants etc)	2	10
	Construction supervision team – see Table 4 below; mobilized after procurement and contract award, and runs concurrently with continued design work on subsequent road batches		

Team Leader

The team leader is responsible for leading the Consulting team and effective communication with the NCDD (PMU). S/he will be responsible for all aspects of the consulting services leading to the successful implementation of the consultant outputs. S/he should ensure that all reports are delivered to the required quality and on schedule. The team leader should have a Master's degree in civil engineering, preferably in the field of Highway/Transportation. He should have 10 years of general experience in road sector design and 3 years of specific experience in similar works, such as design/construction supervision of road projects, as a team leader. Other specific tasks include:

- Lead and manage the team providing necessary supervision and control for timely completion of assigned tasks.
- Prepare an overall implementation plan and a work plan for each specific task, and monitor the execution of these plans.

- Conduct regular field visits, especially during the topographic survey, to ensure all required information for design is recorded and documented.
- Review survey reports and design reports of roads and associated infrastructures and provide necessary technical inputs to ensure high-quality work standards
- Ensure that the designs comply with the social and environmental safeguard framework of the CAISAR project.
- Identify risks and suggest mitigation measures for both the design and construction phase.
- Be responsible for preparation of all relevant reports as outlined in the deliverables.

Road Design Engineer

The Engineer should have a Bachelor's degree in civil engineering with 7 years of experience in design and construction supervision of rural roads (or five years of similar experience if they have a Master's-level degree). S/he is responsible for the design of road sections, ensuring the best-fit longitudinal alignment and cross sections. S/he should be able to apply appropriate software for geometric design of the road. Other tasks involve:

- Design the road alignment and cross sections using the topographic survey data and available hydrological data, including the impact of climate change.
- Provide necessary technical specifications in line with the Ministry of Rural Development Technical Design/Commune/Sangkat Project Implementation Manual.
- Engage with and supervise the survey team to ensure that all relevant data and information are collected during the topographic survey.
- Confirm the benchmark control points as required to prepare the detailed engineering designs and compute construction quantities.
- Guide the AutoCAD operator for producing required drawings
- Guide the estimator for quantity estimation.
- Be responsible for final preparation of quantities, costs, as well as abstract of costs
- Assist the procurement officer to prepare construction packages and bidding documents as required.

Rural Infrastructure Engineer

The engineer will be responsible for the design of associated road infrastructure, such as culverts and other cross-drainage works. S/he should have a bachelor's degree in civil engineering and 7 years of experience in structural design of small-scale rural road infrastructure, including application of relevant software in technical design. Other tasks include:

- Inspect existing structures, identify whether they require replacement or only improvements, and determine whether additional structures are required.
- Guide the survey team during the survey of infrastructure sites
- Work closely with the national hydrologist in determining the drainage discharge and other hydrological information for design of cross drainage infrastructure
- Prepare detailed design for the repair or replacement of existing structures or new construction as required
- Prepare quantity estimation for each infrastructure, assisting the quantity estimator in calculating the volume of works.
- Assist the procurement officer in the design of construction packages, providing necessary cost estimation and specification of works.

Engineering Hydrologist

The hydrologist is expected to provide all relevant data and information on water flow (drainage discharge, flow across the culverts) that are required for the design of associated road infrastructure. S/he will have a degree in engineering hydrology with at least 7 years of relevant experience. Specific tasks include:

- Collect all hydrological data in the target area (rainfall, stream measurements across the CD works, information on inundation, waterlogging, etc.) required for the design of roads and associated infrastructure.
- Review the climate change impact on the local hydrology and suggest possible options for consideration for the design of roads and the infrastructure.
- Compute the design discharge to be considered for the design of roads and the CD works and drainage.

Drainage Engineer

The drainage engineer will conduct the design of side drainages or other drainage structures and will work closely with the road design engineer. S/he will have a civil engineering degree with five years of experience in the same area. Specific tasks will include:

- In consultation with the road design engineer, prepare the drainage design aligning with the road design
- Conduct the required hydraulic and structural design of the drainage section, making use of available hydrological information.
- Provide inputs to the design of the other cross drainage structures as required.

Procurement Specialist

The Procurement Specialist should have a bachelor's degree in engineering, economics, or any other relevant field, with seven years of experience in procurement of infrastructure projects. S/he will have the main responsibility of preparing bidding documents ready for tendering works. S/he is not expected to prepare the document from scratch, but to use a standard document already in use (from IFAD/ADB/JICA or other MRD projects) and make necessary modifications and changes based on site-specific requirements. Key responsibilities include:

- Based on estimates and available bills of quantities, prepare bidding documents for each package.
- In consultation with the design engineers, decide the number of packages to prepare bidding documents for.
- Ensure that the packages prepared are in line with the IFAD and Cambodian requirements for procurement of works.

Environmental Safeguards Specialist

The Environmental Safeguards Specialist is responsible for preparing a site-specific Environmental Management Plan (ESMP) for the proposed roads, covering environmental screening, mitigation measures, and incorporation of the Environmental Codes of Practice (ECOP) into the bidding documents. S/he should have a bachelor's degree in environmental science/engineering or a related field, with seven years of professional experience in preparing ESMPs and environmental safeguard instruments for infrastructure/rural road projects. Other tasks include:

- Review all relevant environmental safeguard documents prepared by CAISAR.
- Provide necessary suggestions and feedback to design engineers for design approaches and construction methods that minimize environmental risks.

- Based on the project's ESMF, conduct environmental screening and develop an Environmental Management Plan (ESMP) in accordance with the IFAD requirements.
- Ensure that ECOP is fully incorporated in the bidding documents.

Social Safeguards Specialist
The Social Safeguards Specialist is responsible for social impact screening for the proposed roads, including temporary land use within the ROW, community consultation, and grievance handling, and for preparing the social safeguard instruments required under the project's ESMF. S/he should have a bachelor's degree in social science or a related field, with seven years of professional experience in preparing social safeguard instruments for infrastructure/rural road projects. Other tasks include:

- Review all relevant social safeguard documents prepared by CAISAR.
- Provide necessary suggestions and feedback to design engineers for design approaches and construction methods that minimize social risks, including land-use and resettlement-related risks.
- Establish and operationalize a project-level Grievance Redress Mechanism (GRM) for the road works, and maintain a log of grievances received and resolved.
- Conduct social screening for gender and social inclusion (GESI) considerations, and ensure community consultations are documented and disclosed.

Inception Report: The consultant shall submit the inception report within 45 days of signing the contract agreement. It should organize an inception workshop to present its findings and invite key stakeholders. The report should highlight any required deviations in the TOR and present the implementation plan for the rest of the task. Any suggestions and feedback from the client should be incorporated for the rest of the work.

Draft report: The consultant shall submit 2 (Two) copies of the draft report together with all relevant soft copies within 6 months of signing the contract agreement for the consulting services. The report should have three volumes. **Volume I** should contain the main report together with design calculations and cost estimate; **Volume II** should contain detailed engineering drawings and maps; and **Volume III** should contain the contract documents (bidding documents together with the technical specifications of each package). The main features of the draft report should be presented to the client by organizing a workshop inviting all relevant stakeholders. Suggestions and feedback from the workshop, as well as additional comments in the documents, should be incorporated in the final report. The outline of the main report is presented in the next section.

Final report: The final report and maps should be in hard (five copies) as well as in soft copies. The final report should be submitted within a month after receiving comments from the Client. The report should also be in three volumes, as mentioned for the draft report.

Payments to the consultant will be as follows: 15% after clearance of the inception report, 50% after submission of the draft report and the workshop, and the remaining 35% after clearance of the final report by the Client.

B. CONSTRUCTION SUPERVISION SERVICES

Following approval of the bidding documents for a given road package and completion of the procurement of the civil works contractor(s) for that package, the Consultant shall mobilize its construction supervision team under this same assignment to provide construction supervision services

for that package, so as to ensure continuity between design intent and construction quality. This construction supervision scope runs alongside, and is not a separate phase from, the detailed design services described above; the Consultant is expected to carry out both concurrently as successive road packages are procured, dedicating an indicative 3 months per year of supervision effort per package under construction while its remaining team continues detailed design work on subsequent batches of roads.

Objective and Scope of Construction Supervision

The objective of this construction supervision component is to supervise construction of the rural road works *(in scheme OU TA PONG, LUM HACH, PRAMBEY MOM, KRAPEU TROM, YUTASAS, and STOENG KRANG BAT)* on behalf of NCDDS, ensuring that the works are executed in accordance with the approved detailed designs, technical specifications, contract conditions, and the project's environmental and social safeguard requirements. Key tasks include, but are not necessarily limited to, the following:

- Review and, where necessary, verify contractor's work programs, method statements, and material submittals prior to approval.
- Supervise and monitor day-to-day construction activities for compliance with approved drawings, specifications, and applicable Cambodian and IFAD standards.
- Carry out or witness quality control testing of materials and workmanship (e.g., compaction, gravel/laterite quality, concrete works) and maintain testing records.
- Verify and certify quantities of work executed for interim and final payment certificates, and assist NCDDS in contract administration, including variation orders and claims.
- Monitor and report on contractor compliance with the project's Environmental and Social Management Plan (ESMP), Environmental Codes of Practice (ECOP), and occupational health and safety requirements at each site, drawing on the Environmental Safeguards Monitoring Officer and the Social Safeguards / GRM Monitoring Officer as appropriate.
- Operate the project Grievance Redress Mechanism (GRM) during construction and support timely resolution of community complaints.
- Prepare and submit monthly progress reports covering physical and financial progress, quality issues, safeguard compliance, and any risks or delays.
- Verify as-built drawings prepared by the contractor(s), and prepare a completion report and defects/snag list ahead of handover.
- Support NCDDS during the defects liability period, including inspection of remedial works.

Duration and Timing

Construction supervision for a given road package will commence upon contract award to the civil works contractor(s) for that package and will run for the duration of the construction contract(s), including the defects liability period, in parallel with the Consultant's continuing design work on subsequent road batches. The exact duration of each package's construction supervision will depend on its construction period established through procurement and is not yet fixed at the time of this TOR; to keep this workable alongside ongoing design work, the Consultant's construction supervision team is expected to commit an indicative 3 months per year of dedicated effort per package under construction. NCDDS and the Consultant shall agree the detailed construction supervision work plan and staffing schedule for each package prior to mobilization.

Construction Supervision Team Composition

Table 4 sets out the indicative construction supervision team, expected to be deployed at an indicative 3 months per year per package under construction, concurrently with the design team's ongoing work. The consultant is free to propose adjustments to the staffing mix and level of effort based on the number and location of construction packages, subject to NCDDS and IFAD approval.

Table 4. Indicative Construction Supervision Team Composition

S.No	Position	Nos of staff	MM (indicative)
1	Team Leader / Resident Engineer (part-time oversight; may be the same person as the design Team Leader)	1	Full construction period (part-time)
2	Site Supervision Engineer(s) (based at site, covering the road clusters/schemes)	3	Full construction period
3	Contract Administration Specialist	1	Full construction period (part-time)
4	Materials and Quality Control Engineer	1	Full construction period (part-time, mobilized for testing milestones)
5	Environmental Safeguards Monitoring Officer	1	Full construction period (part-time)
6	Social Safeguards / GRM Monitoring Officer	1	Full construction period (part-time)
7	Surveyor (for setting-out checks and as-built survey)	1	Full construction period (part-time)

Construction Supervision – Reporting and Payment

The Consultant shall submit monthly progress reports throughout the construction supervision period, and a Construction Supervision Completion Report within one month of substantial completion of the works. Payment for construction supervision services shall be made on a time-based (monthly or quarterly) basis against certified level of effort actually deployed, or on such other basis as agreed between NCDDS and the Consultant at contract negotiation, subject to a ceiling amount to be established once construction packages and durations are known.

Reporting and Payment Schedule

This section covers the reporting and payment schedule for the detailed design component, which is designed for 7 months; construction supervision reporting and payment are described above.

ANNEX 2

Qualification and Evaluation Criteria

Item	Criteria and supporting evidence	Scoring method	Points
A.	**General experience**		**30**
i	**Core business, years of relevant operation, and regional operating experience.** Civil engineering and infrastructure consulting relevant to rural road design and supervision, including assignments demonstrating familiarity with implementation conditions in Cambodia or Southeast Asia. **Evidence:** Form EOI-2, registration documents, firm profile, dated assignment history, Form EOI-3 and supporting assignment records identifying country and services.	**Years of relevant operation (maximum 15 points):** 15 or more years: 15 points; 10–14 years: 10 points; 5–9 years: 5 points; fewer than 5 years: 0 points. Count documented years of relevant operation, not incorporation alone. **Regional operating experience (maximum 5 points):** Two or more evidenced relevant civil engineering/infrastructure assignments in Cambodia or Southeast Asia: 5 points; one: 2.5 points; none: 0 points. This is a preference, not a nationality restriction. **Combined maximum: 20 points.**	20
ii	**Technical and managerial capability of the firm.** Capacity to manage concurrent design and supervision workstreams across road packages. **Evidence:** Form EOI-2, organization chart, descriptions of corporate systems, and evidence of their use on assignments.	Award 2 points for each evidenced capability: (1) project management and coordination; (2) design review/quality assurance; (3) survey, design and drafting resources; (4) site supervision and quality-control systems; (5) staffing continuity and replacement arrangements. Maximum 10 points. Do not score individual staff qualifications.	10
B.	**Specific experiences**		**70**
i	**Detailed engineering design of rural roads and associated infrastructure, and preparation of works procurement packages.** Experience covering road inventory and topographic/geotechnical investigations; alignment, geometric and pavement design; embankments; culverts and other	**Detailed engineering design (maximum 25 points):** Two or more qualifying assignments: 25 points; one: 15 points; none: 0 points. An assignment qualifies where accepted deliverables demonstrate road survey and detailed design, associated drainage/structures, drawings, and quantity/cost estimates. List the services actually	30

	cross-drainage structures; side drains and protection works; working drawings and quantity/cost estimates; and packaging of road works, BOQs, technical specifications and bidding documents consistent with applicable government and development-partner requirements. **Evidence:** Form EOI-3, contracts/TORs, completion or acceptance records, relevant design deliverable extracts, client acceptance records and extracts of completed procurement packages.	performed. **Works procurement packages (maximum 5 points):** Two or more qualifying assignments: 5 points; one: 2.5 points; none: 0 points. Each shall demonstrate preparation of works bidding documents including BOQs and technical specifications. **Combined maximum: 30 points.**	
ii	**Construction supervision and contract administration of rural roads.** Experience in site monitoring, material/workmanship testing, measurement and payment certification, progress reporting, variations/claims support, as-built verification, completion/handover and defects follow-up, where included in the contract. **Evidence:** Form EOI-3, supervision contracts/TORs, client certificates or references, and reporting/testing/certification records.	Two or more qualifying assignments: 20 points; one: 10 points; none: 0 points. A qualifying assignment shall demonstrate successful site supervision, quality control/testing, measurement/payment certification, and reporting. Credit only the firm's documented responsibilities.	20
iii	**Climate-resilient road and drainage design.** Hydrological/meteorological assessments, flood levels and design discharges, embankment and drainage measures, climate/disaster-risk screening, and appraisal of alternative or nature-based solutions considering maintenance and sustainability. **Evidence:** Form EOI-3 and accepted hydrological, climate-risk, drainage or resilient-design deliverable extracts.	Two or more qualifying assignments: 10 points; one: 5 points; none: 0 points. Each shall demonstrate hydrological/flood-risk assessment and its application to climate-resilient road, embankment or drainage design.	10
iv	**Environmental and social safeguards for road/infrastructure works.** Environmental and social screening; site-specific ESMPs; ECOP incorporation; ROW/land-use risk review; documented community consultation, GESI and GRM arrangements; and construction-	Environmental safeguards: 10 points for two or more qualifying assignments, 5 for one, 0 for none. Social safeguards: the same scale, maximum 5 points. An environmental assignment shall evidence screening plus an ESMP or construction monitoring; a	10

	stage safeguard/occupational health and safety monitoring. **Evidence:** Form EOI-3, accepted safeguard instruments, consultation/GRM records, bidding-document extracts or monitoring reports.	social assignment shall evidence screening plus consultation and GRM arrangements. Maximum 10 points combined.	
	Total Points		**100**
	Minimum points required to pass	Only eligible firms meeting the minimum qualification requirements and scoring at least 70 points shall be considered for shortlisting.	**70 points**