



THE KATHMANDU POST

WITHOUT FEAR OR FAVOUR

Nepal's largest selling English daily

Printed simultaneously in Kathmandu, Biratnagar, Bharatpur and Nepalgunj

Vol XXXI No. 1318 pages | Rs. 5
Friday, March 03, 2023 | 19-11-2079

32.2°C -2.0°C
Thangpo Jomsom



Government of Nepal
Ministry of Physical Infrastructure and Transport
Department of Roads
Development Cooperation Implementation Division
Strategic Road Connectivity and Trade Improvement Project (SRCTIP)
Jwagal, Lalitpur

Amendment on Request for Expression of Interest (REOI)

Notice No.: SRCTIP/4/079-80

Date of Publication: 3rd March, 2023

In reference to REOI Notice, published on 8th February 2023, for Consultancy Services of Construction Supervision of Improvement/ Upgrading of Kamala-Dhalkebar-Bagmati Road Section (77 km) and Bridges of Mahendra Highway; SRCTIP-DoR-KDP-CS-QCBS-31, the Expression of Interest submission deadline is extended up to 14th March, 2023.

Interested consultants may obtain Terms of Reference (TOR) for the mentioned assignment title and further detail relevant information from <https://dor.gov.np/home/notices>. Expression of Interest must be delivered in written form to the given address (in Person or by email).

Project Director

TERMS OF REFERENCE

for

**Construction Supervision of Improvement/Upgrading of Kamala -
Dhalkebar- Bagmati Road Section (77Km) and Bridges of Mahendra
Highway.**

1. INTRODUCTION AND BACKGROUND

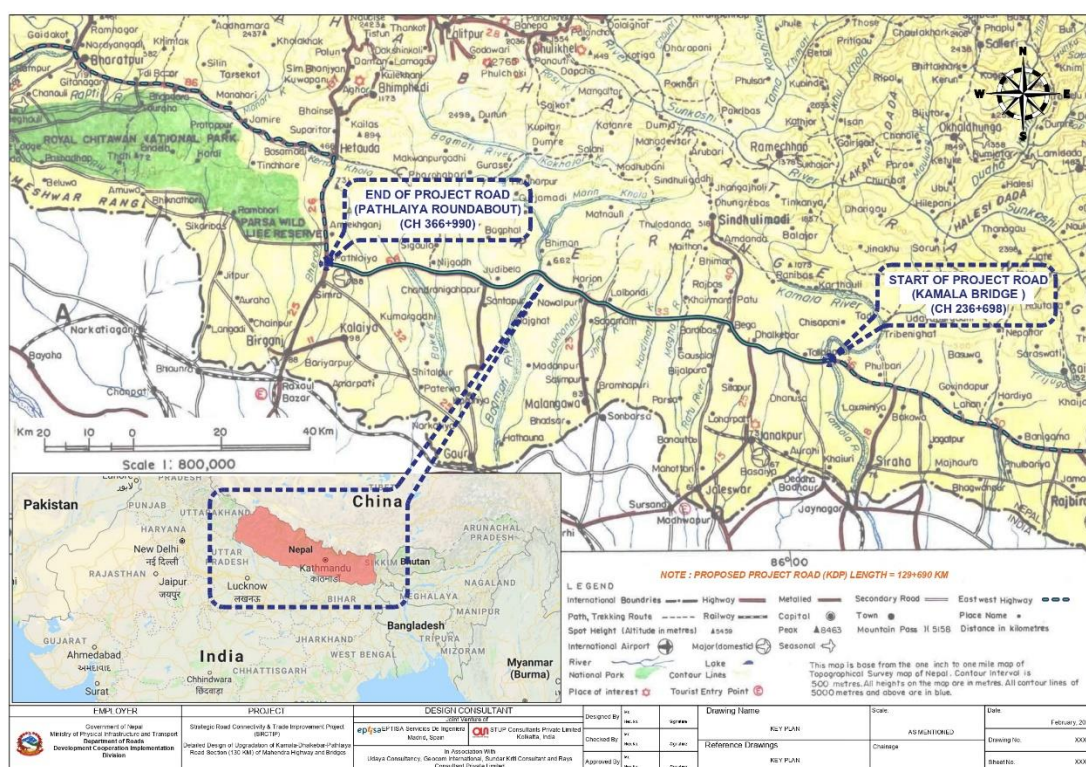
Nepal is geographically small landlocked country situated between India and China. Most of the commercial transaction is done through India. The port complex of Kolkata and Vishakhapatnam in India are mainly used as Nepal's access to the sea and these are the major transit point for third country trade.

Through link roads, the Mahendra Highway also connects to India via its main cross-border points in Biratnagar, Birgunj, Bhairahawa and Nepalgunj. More efficient highway corridor development for seamless vehicle movement and congestion reduction is critical to help significantly reduce GHG emissions. Inclusive development as well as regeneration of the particularly dense and unplanned urban areas crossed along the project highway section from Kamala - Dhalkebar to Pathlaiya is also needed to provide communities with economic opportunities, safer infrastructure that is inclusive of non-motorized transport.

As part of the World Bank's initiatives to develop the transportation infrastructure in Nepal, it is proposed to widen the section of the Mahendra Highway between Kamala River in the East and Pathlaiya in the West. The new construction will involve provision of 2 new traffic lanes in each direction and along the settlements area the service road is also included. This would necessitate the widening of the existing bridges or construction of adjacent new bridges. The length of this stretch is approximately 130km. The existing bridges at Kamala-Dhalkebar section are of two lane standard while the bridges at Dhalkebar -Pathlaiya section are of intermediate lane (5.5 m width) standard and as a result the bridges are now bottlenecks to the traffic. The passenger and freight traffic have been increasing in this highway as a result of trade enhancement due to regional trade agreements such as BIMSTEC, SAFTA, BBIN etc. Further enhancement of trade among the member countries and increasing traffic volume requires an upgrade of this road section to Asian Highway Standards (Class I). Kamala- Kanchanpur section of this highway has been already taken up for upgradation to 4 lane standard under the ADB financing.

Detailed design for the improvement works for road and bridges are under preparation, which is at final stage. Bidding using traditional item rate contracts and Open International Competition procedures will proceed soon after completion of detailed design for approximately 77 km section from Kamala to Bagmati section. It is expected that the Contracts (about 4 contract packages including two bridges Kamal and Bagmati) will be

awarded by August/ September 2023. Section from Bagmati to Pathlaiya (about 53 km) is planned to be implemented through Hybrid Annuity contracting model. Construction will follow five- year performance- based maintenance. Except for two bridges at Kamala and Bagmati, all bridge construction will be included in the respective works contracts. Two bridges at Kamala and Bagmati is planned to be constructed using Design and Build approach. The Government intends to hire consulting services for construction supervision of all the above activities under KDP road upgradation and new construction/ maintenance of 2-lane/4- lane Bridges.



Government of Nepal (GON), Ministry of Physical Infrastructure and Transport, Department of Roads, intends to apply portion of the proceeds from the World Bank finance under Strategic Road Connectivity and Trade Improvement Project (SRCTIP), (IDA credit no. 6673-NP & 6674-NP) to make payments for the proposed contract for this Consulting Services. Consultancy service is intended to be procured under World Bank's Procurement Regulations for IPF Borrowers, **July 2016, Revised November 2020.**

2. OBJECTIVES

The main objectives of this consultancy services are to conduct the Construction Supervision of upgradation/ construction of Kamala bridge to Bagmati Bridge west approach Section (about 77Km) of Mahendra Highway and bridge works including environmental and social management plan, health and safety plan, and other environment and social-related plans, resettlement implementation support, relocation of utility services, quality management, and all aspects of contract management as “Engineer” for the implementation of road and bridge works contracts with Construction Phase of 3 years and 5 years Maintenance Phase.

3. SCOPE OF SERVICES

To fulfill the main objectives as defined above the main scope of services for the consulting services are:

A. Part 1: Construction Phase

- i. Verify the design and drawings included in the Works contracts (Roads and bridges) and check suitability based on the site condition, revise and finalize as necessary as per the site conditions. Checking of design proposed by Contractor of Design and Build Contract for Kamala and Bagmati bridges, comment on it for correction if needed and recommend to Employer for approval.
- ii. Construction supervision of tentatively the following four (4) contracts ((i) Kamala to Barahari Bridge, (ii) Barahari Bridge to Amuha Bridge East approach (iii) Amuha Bridge East approach to Bagmati Bridge west approach and (iv) Design and Build Contract for new construction of Kamala and Bagmati Bridges with approaches.
- iii. Consultant shall supervise and manage the works contracts (roads and bridges) and design-build contract of two bridges with approaches (Kamala and Bagmati) to ensure that the construction is achieved in scheduled time period, within budget and that the work is carried out in complete compliance with the approved and or updated engineering designs as necessary, technical specifications within the terms and condition of the contract documents and sound engineering practices.
- iv. Complete Contract management as an “Engineer” to the contract using FIDIC General Conditions and Design and Build approach (using FIDIC Conditions) for construction of two bridges at Kamala and Bagmati for construction supervision and contract administration ensuring full compliance with the design drawing, quality assurance and control as specified in the specification, and contract document.

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- v. Conduct regular supervision, monitoring, and reporting of the Environment & Social aspects, as per the Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plan (ESMP), Resettlement Action Plan (RAP), Indigenous People Development Plan (IPDP), Environmental and Social Commitment Plan (ESCP), Labor Management Procedures (LMP), Stakeholder Engagement Plan (SEP) and Gender Based Violence (GBV) Action Plan and other environment and social-related plans that the Contractor shall include in their Contractor Environment and Social Management Plan (C-ESMP) such as Occupational and Community Health and Safety Plan, Traffic Management Plan, Labor Influx Management, Incidents and Accidents, etc. or the Contractor may submit these plans as standalone document as well. The Consultant shall ensure that the necessary traffic management plan, OCHS, and other plans mentioned earlier / required by the ESIA, ESMP etc are in place before start of specific road or bridge works and is implemented throughout construction phase.
 - vi. The Consultant shall ensure full compliance with national legislation and World Bank Environmental and Social Framework (ESF) and Good International Industry Practice (GIIP) prior to commencement of construction activities and throughout the construction in a specific location as construction progresses.
 - vii. The Consultant shall support the Client team to develop a communication & outreach plan consistent with the Stakeholder Engagement Plan (SEP) and coordinate with the stakeholders, competent authorities at local level, organization and institutions, traffic police, and road users for the purpose of implementation of the project activities as well as shifting/ removing the utilities or common property resources for construction purpose.
 - viii. The Consultant shall prepare and submit regular progress reporting as well as specific reports necessary for the environmental and social risk mitigation/management status, progress, compliance, performance and challenges/ issues. Consultant shall prepare and submit other reports for extension of time, variation, adjudication, arbitration, disputes, if any. The Consultant shall also report to the Client any project-related incidents and accidents at the work place and at the community level.
 - ix. The Consultant shall advise and assist the Client and the Contractor to incorporate the tested techniques and technological developments, especially on climate resilience and nature-based designs in road and bridges, and road safety.

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- x. The Consultant shall design suitable traffic safety features, measures for safety of community/ road users including elderly and differently abled persons, and road furniture including traffic signals, signs, markings, overhead sign boards, crash barriers, delineators etc for the proposed Structure and its approach roads. The Consultant should also refer to the Network Level Safety Assessment done by iRAP while designing safety features.
 - xi. The Consultant shall act as “Engineer” to the contract and shall deliver their services through their Team Leader/ Representative and team. The Consultant will have roles and responsibilities as defined in the civil works contract under FIDIC conditions regarding contract administration. However, the Consultant shall seek and obtain the Client’s specific approval prior to undertaking actions that would incur additional costs and time for completion of contracts.
 - a. Issuing variation orders which have financial implications or significant in quantities ;
 - b. Revising the Time for Completion of the Works;
 - c. Approving any subcontracting of any part of the works;
 - d. Fixing new rates or prices that are not in the contract,
 - e. Issuance of Taking Over Certificate
 - f. Issuance of Performance Certificate,
 - g. Any other as mentioned in the Contract Documents for works.
 - xii. Further, the Consultant's responsibilities shall include, but not necessarily be limited to, the followings:
 - a. Approve contractor's quality assurance/management plan, work program, method statements, material sources, manpower and equipment deployment, Contractors ESMP (C-ESMP), OCHS Plan, Traffic Management Plan, Site Restoration Plan, Workers’ Camp Management Plan and environment and social-related other plans as required by the ESIA, ESMP, LMP, etc.;
 - b. Ensure at all times the Contractor works in strict compliance with the Contractor's quality assurance/management plan, work plan, and contract specification, including instruction issued as per contract and non-compliance notification;

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- c. Carryout and recommend necessary adjustments in the design/drawing required during construction due to site requirement and considering value for money. Finalize the design drawings approve, and issue working drawings;
 - d. Check and approve the setting out of the works undertaken by the contractors on the basis of the control/reference points;
 - e. Prepare suitable standard formats and establish effective and efficient documentation and reporting procedure for contract administration, monitoring of schedules and quality assurances of the construction works;
 - f. Carry out survey work to provide adequate control points and reference points to the contractor for setting out of the works to be carried out by the contractor. Reconfirm site specific environmental and social features/issues/ conditions and provide data for preparing necessary site plans for mitigation works.
 - g. Prepare Supervision procedures / Manual for supervision staff and ensure that the team follows the Manual.
 - h. Review, approve, and ensure implementation of the Contractor's Environmental and Social Management Plan (C-ESMP), site specific traffic management plan that ensure safety to the road users, construction workers and the locals as well as Labor Management Plan (including Code of Conducts), Worker's Camp Management Plan, OCHS Plan, Site Management Plan, and other plans including working methodology of specific activities. No works shall start before the mentioned plans are prepared, reviewed, approved and being implemented.
 - i. Inspect and supervise the day-to-day operations and activities of the contractor to ensure quality of materials, workmanship and compliance with the specification and contract.
 - j. Review, check and certify acceptance of each part of work as completed based on the submitted Request for Inspection (RFI) from the contractors. Major activity like foundation for structures, reinforcement, and other layer of works should be checked and approved by the Consultant before next layer of work start. The bearing capacity of each foundation should be checked, recorded and approved in the inspection sheet by the authorized site staff and should be submitted in the monthly Progress report.

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- k. Review the Contractor's organizational arrangements, key personnel and work plan, materials and their sources;
 - l. Obtain, check and approve the contractors resource based work program, resource plan, method statements for quality assurance and material sources.
 - m. Monitor progress of works against baseline work plan and advise on measures to be taken to improve progress and quality;
 - n. Conduct regular progress review meetings at site with the contractor to discuss issues and problems affecting the progress, prepare and circulate minutes and report to the Client for necessary action, if any ;
 - o. In the event of variations to the works being required, prepare the necessary documents, verify / discuss with contractor, determine new rates, if necessary, and advise Client for approval. The variations to be well justified and with possible alternatives, and should have prior discussion with the Client's team ;
 - p. Supervise the contractor in all matters concerning Environment Health and Safety (EHS) at work site, workers' personal safety and community health and safety. Ensure that the civil works shall not start without the provision of necessary signs, safety barriers, traffic management measures, lights, fencing, security or safety persons at place;
 - q. Prepare and issue monthly and quarterly progress reports for the contracts and projects in the form acceptable to Client. These reports will include details of the physical and financial status of the contract/project, details of delays and consequences, if any, comments and solution on the quality of works in accordance with the contract. These reports shall also include updated status of all resources like manpower, machinery, materials including imported items, if any for each contract. There should be specific section on the Traffic Management, Occupational and Community Health and Safety, Labor Management, progress/ status/ performance/ challenges related to implementation of measures for mitigations of social and environmental impact/risks, incidents/accidents, if any.

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- r. The Consultant shall make the proper record of contractor's equipment, material and manpower on the daily basis and jointly signed by the Consultant team and Contractors site representative and submit to the Client on monthly basis.
 - s. Regular review/ check of design drawings by the Consultant's team and if necessary, recommend better options to the Client for correcting shortcomings identified during implementation, if any including in safety related aspects. The Consultant shall ensure that engineering measures for safety improvement of all road users such as improved geometry, forward visibility at blind corners and climbing lanes, improved signage and safety features at all bazaars, school zones and public amenities for safety of vulnerable road users (VRUs), and truck laybys for emergency truck stops are designed and implemented along the road.
 - t. Approve and/or issue working drawings, instructions to the contractor as required in accordance with the contract specification and Contractor's quality management plan;
 - u. Measure and keep detailed records of the completed works measurements;
 - v. Supervise the tests in field and in laboratory, analyze and justify the results, and keep the record for all the test results whether failed or passed the test result. If necessary, undertake independent field and laboratory testing if required to verify. On the basis of test results, prepare the non-conformity reports and instruct the rectification work or solution;
 - w. Regularly monitor and evaluate project physical progress and ensure that the works are executed on schedule and meet the established standards of performance and quality.
 - x. Maintain records, correspondence, detailed diaries, photographs and other documents concerning relevant events and activities to assist the Client to process contractor's claims/disputes, if any;
 - y. Review, check and approve interim certificates for progress payments and recommend for payment to the Client as specified in the contract. Before recommending the interim and other payment certificates completion of Environmental and Social mitigation works, Environmental Management Plan, and Social Commitment Plan, EHS Plan and other environment and social-related plans must also be checked.

- z. Periodic checking of contract quantities and a constant check on the cost variation including a quarterly updating of monthly cash flow projections.
- aa. Assess and make recommendations to the Client on the Contractors claims for additional payment, extension of time and any other matters, based on the Engineers interpretation of the contract as per Contractors detailed submissions;
- bb. Assist the Client on preparation of documents and responses for the purpose of presenting to the hearings in case of dispute adjudication board, adjudication, arbitrations or other litigation process with the contractor.
- cc. Assist the Client in maintaining the consolidated project accounts, and with preparation of financial statements and withdrawal applications for submission to the World Bank ;
- dd. Certify completion of works and issue the Taking Over Certificate or Completion certificate as per the provisions of the Contract;
- ee. Provide the Client with complete records of contract, inception, monthly and completion reports, and other specific report, as required. Provide other specialized services upon request of the Client;
- ff. Assist the Client to provide on-site trainings to DoR Engineers/staff on quality assurance, contract administration , Claims management / Avoidance and or other specific area related to the Kamala Dhalkebar Bagmati (KDB) section supervision activities;
- gg. Assist and support the Client to comply with the audit requirements/ observations/ recommendations of the Government as well as the World Bank.
- hh. Assist the Client for necessary communication and coordination for relocation of utilities to be carried out during construction.

Social Aspects:

a. Implementation of Resettlement Action Plan and other measures :

The Consultant will assist the Client in implementing resettlement Action Plan (RAP) and other social mitigation plans. The Consultant will:

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- i. Assist the DOR and respective Chief District Officer (CDO) for acquiring of land, Structures and houses.
 - ii. Improve and work in accordance with the Implementation of RAP.
 - iii. Develop resettlement and rehabilitation (R&R) information campaigns and implements Stakeholder Engagement Plan.
 - iv. Assist the Project Affected Persons (PAPs), especially from indigenous people, vulnerable groups, in resettlement and rehabilitation, including redressing grievances, and coordination with all stakeholders.
 - v. Update the database of PAPs and their entitlements for implementation and monitoring purposes.
 - vi. Monitor and evaluate the construction induced impacts and propose action plan to address the impacts.
 - vii. Monitor and evaluate progress and achievement of resettlement objectives.
- b. The administrative responsibilities of the Consultant will include:**
- i. Working in co-ordination with the Project In Charge and Chief District Officer.
 - ii. The Consultant shall help to promote good working relationships between the PAPs, the Project In Charge and Local Consultative Forum (LCF). This will be achieved through regular meetings with both the LCF and the PAPs. All meetings and decisions taken shall be documented by the consultant.
 - iii. Preparing monthly Progress Reports including action plans with targets in consultation with the stakeholders.
 - iv. Updating the database of PAPs and vulnerable community and their entitlements.
 - v. In consultation with the PAPs, preparing micro-level plans indicating the categories of entitlement, alternative livelihood options, and relevant institutions for obtaining additional training and support. Stakeholders are important to be incorporated in the development of these plans.

- vi. Organizing orientation program to contractor's team regarding Social/ Environmental / Health and Safety/ Gender aspects once in a year.
 - vii. Assist GESU / DOR in preparedness check and monitoring of Social Safeguard compliance and Indigenous People's Development Plan (IPDP).
 - viii. Implementing the recommendations of Resettlement Action Plan
- c. Assist the Client to implement, monitor and ensure the compliance of the approved RAP and IPDP and provide information on the implementation processes and report the progress in the monthly progress reports in line with ESMF provisions.
 - d. Provide necessary support to the PAPs/PAFs to understand the project procedures and receive compensation payment in time.
 - e. Assist the Client for the ownership/deed transfer process of land compensated by the project as well as land used by the existing road.

Environmental Management Aspects

- a. The Consultant shall conduct a preliminary review of standard contract documents, drawings, specifications, materials reports and status of the work for the current contracts to obtain understanding of the scope and complexities of the assignment. This exercise shall also include familiarization with the Environment and Social Framework (ESMF), ESIA, and Environment & Social Management Plans (ESMP) with the assistance from DoR DCID E&S team.
- b. The consultant shall provide technical guidance, orientations, and instructions to the contractor in detailing and implementing environmental risk mitigation and management measures in line with the ESIA, ESMP, and C-ESMP including site-specific plans.
- c. The consultant shall, as needed, brief, orient and aware implementing agency at field including contractor, as well as communities and other stakeholders on ESIA, ESMP provisions/ requirements, environmental good practices, and site-specific issues/ concerns. The Consultant, in consultation with Client, shall ensure that the contractor make the work force engaged in construction fully aware of and comply with the ESMP provisions, environmental requirements, use of OHS PPE, and restrictions related to various works e.g. spoil disposal.

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- d.** Consultant shall ensure that the contractor, in accordance with ESIA and ESMP, prepares, get approval, and implements various Specific Plans for environmental management. The consultant shall review, and approve these plans, and ensure their implementation including the Contractor's Environmental and Social Management Plan (C-ESMP), site-specific environmental management plans, traffic management plan that ensure safety to the road users, construction workers and the locals as well as Labor Management Plan (including Code of Conducts), Worker's Camp Management Plan, OCHS Plan, and other plans including working methodology of specific activities. Site-Specific Plans needs to be prepared for all the activities and sites, for example, spoil disposal/ tipping area, quarry, borrow, material crushing, material stockpiling, concrete mixing, blacktopping/bitumen works, waterlogging & drainage management, etc. No works shall start before the mentioned plans are prepared, reviewed, approved and being implemented. Consultant, jointly with the contractor, shall identify environmentally safe tipping areas or alternatively after duly discussing with the Client propose for Mass Balancing Techniques wherever possible and applicable for surplus mass of excavated or any other material in addition to that specified in the design specifications. Consultant shall ensure that each of the site-specific plans (e.g. site specific plan for quarry, for spoil disposal, for drainage management, etc) show site specific details, as well as current and finished conditions with necessary protection measures.
- e.** The consultant, as needed, shall provide technical guidance and instruction to the contractor and carry out supportive supervision and technical backstopping/ instructions where necessary.
- f.** The consultant will undertake regular site supervision and monitoring of the implementation of ESMP, C-ESMP, ESIA, Environmental Health and Safety Plans, Traffic Management Plan, Site Management Plan, and other plans during construction period, and keep record/ log with evidence (e.g. photographs) of findings/ observations from the site visits, supervision, and monitoring. Consultant shall supervise the contractor in all matters concerning OCHS at work site, workers' personal safety and community health and safety ensuring that contractor follows all OCHS and Emergency measures during construction. Consultant shall ensure that the civil works shall not start without the provision of necessary site

plans and signs, safety barriers, traffic management measures, lights, fencing, security or safety persons at place. The consultant, through supervision, monitoring, providing guidance and instruction, ensure that various sites are operated, activities carried out and reinstated following the respective site-specific plan that is approved. Consultant shall ensure that the contractor implements site restoration plan including removal of all installations and surplus materials and leaves the site in clean condition and restored as specified in the ESIA, ESMP, C-ESMP or standalone site specific- ESMP submitted and approved prior to commencement of work.

- g.** The Consultant will ensure and monitor that the Government's Rules, Regulations and World Bank's Environmental and Social Framework, 2018 requirements are adequately complied with at construction sites and along the direct impact area of the project, including communities along the road corridors.
- h.** The consultant shall coordinate with GESU/DOR-DCID E&S team in monitoring of implementation of ESMP, C-ESMP and other related plans.
- i.** The Consultant shall assist GESU / DOR DCID E&S team in undertaking site inspections/ visits at different times such as to check the preparedness during early stage of implementation (contract mobilization) and periodically throughout during implementation to monitor compliance with environmental mitigation measures.
- j.** The consultant ensure that Contractor fulfills all the requirements stipulated in the ESIA, ESMP or C-ESMP relevant to the time period of payment when claiming for their interim payment. The Consultant's E&S team shall review the contractor's interim payment application before contractor formally submits for payment and provide written confirmation of satisfactory compliance with all the requirements relevant to the payment period which are stipulated in the E&S documents or any written instructions from the Consultant. The Consultant ensure that the Contractor attach the written confirmation of satisfactory compliance with environmental and social compliance along with their interim payment application so that the Consultant/DoR DCID E&S team shall evaluate the Contractor's activities recorded in the monitoring reports while making the applicable interim payments.

- k. Consultant shall, taking guidance and support from DoR DCID E&S team, prepare a reporting system on implementation of environmental mitigation measures including implementation of ESMP/ C-ESMP and prepare reports including Monthly Progress Report (MPR), Quarterly Progress Report (QPR) and Semi-Annual Annual Progress Report with evidence (log of observation and monitoring findings). The reports should have specific dedicated section environmental impact/ risk management highlighting progress/ status/ performance/ challenges related to environment including Traffic Management, Occupational and Community Health and Safety, Labor Management, Noise/ Dust, Pollution, incidents/accidents, if any. Consultant shall submit these reports to DOR, who will share the reports with the World Bank
- l. The Consultant shall prepare and submit report on project-related accidents (Incidental Report) and report to the Client within 24 hours from the occurrence of the accident/incident.

The consultant shall report, in case of unexpected/ surprise environmental impacts/ events during project implementation period and prepare detailed recommendations for remedial actions to handle such impacts/events.

B. Part 2: Maintenance Phase

The consultant's services during the Maintenance phase shall be as detailed below and the services during this period shall be provided on the basis of intermittent input of the consultant's staff.

- a. The consultant, upon completion of the works, shall carry out an inspection of the completed section or sections and recommend to the Client the date or dates of completion. The inspection should also check satisfactory completion of environmental and social mitigation works. Supervision of maintenance works as per the provision of the civil works contracts during the Performance based maintenance (phase II) during the five years period (including 1st year Defects Notification Period) after completion of Phase I- Improvement works. Inspections, reporting and certifying the works during Maintenance shall be as mentioned in Specifications and conditions of the Works contract during the maintenance phase.

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- b. During the Maintenance period, the consultant shall carry out thorough inspection of the works. Consultant shall supervise all type of maintenance works such as routine, recurrent, specific and emergency maintenance works.
 - c. The role of the Engineer, on behalf of the Client, is to enforce the contract by verifying compliance with the agreed Service Levels and with all applicable legislation and regulations..
 - d. Carrying out inspection of the completed works at appropriate interval to note down any defects and issue instructions to the Contractor for the rectification of the defective works and ensuring that the contractors are carrying out their contractual obligations in respect of maintenance, repair and reconstruction of the works.
 - e. Shortly before the end of the Defects Notification Period, the Consultant shall carry out thorough inspection of the works and designate the rectification work to be done and supervise the rectification works. Once all the designated rectification work is completed to the Client's satisfaction the Consultant shall issue a certificate of DNP as per contract. The final inspection report, shall also capture status on the environmental mitigation works implemented in the road providing initial indication on the adequacy, appropriateness and effectiveness.
 - f. Approve the final accounts for contracts and recommend for payments as per contract provisions after the completion of Defect notification period and Maintenance period;
 - g. At the completion of the works, undertake project monitoring and evaluation in the format acceptable by the Client and the World Bank and assist in preparing a consolidated Project Completion Report. Consultant should mention the findings of Contracting approach and Performance based Maintenance system, overall E&S implementation experience during execution of works and recommendation for future improvement etc.
 - h. Submission of "As built" drawings showing details of changes from the original plans in construction details or materials, drainage, utilities, etc. checking and certifying precise and correct "As built "Drawings submitted by the contractor will be the responsibility of the Consultant. The Consultant shall make cost provision for the final print of the checked drawings. Six copies of the approved as built drawings and electronic soft copy shall be enclosed in the Project Completion Report and shall be supplied to the concerned DOR office as instructed by the Client.

- i. Complete a final report highlighting any residual environmental impacts following the completion of construction work, and recommended actions, responsibilities and timeline to mitigate, manage or monitor these impacts.
- j. Issue a certificate of Final acceptance after the completion of Maintenance period. The final inspection report shall also capture status report on the environmental mitigation works implemented in the road providing initial indication on the adequacy, appropriateness and effectiveness.
- k. The consultant shall furnish the important documents, reports, drawing, field data (such as pavement strength, normal and generated traffic etc.) and other necessary information in the DOR acceptable format in soft copies compatible with DOR's Management Information System.

4. DURATION OF THE SERVICES

Considering the Consultant's service requirement up to maintenance phase the service requirement are divided into two parts as:

- i. Part 1: Construction Phase: This phase includes construction supervision and contract management for improvement works of Kamala-Dhalkebar- Bagmati Section (about 77 Km) of Mahendra Highway and Bridges including Maintenance of Existing Bridges during construction. The Consultant's services shall start from the beginning and continue until completion of the works contracts for the road and bridges. The duration of Construction phase (Part 1) is anticipated to be 3 years.
- ii. Part 2: Maintenance phase: This Part 2 will be 5 year including 1 year Defect Notification Period (DNP). DNP for each contract will start after the issuance of Taking over certificate and accordingly the Maintenance for each contract will start as specified in the contract document.

Consultant's services duration is to be planned for total 8 years 2 months (3 year construction and 5 years for Maintenance period including 1 year Defect Notification Period and 2 months for post maintenance period) such that all the responsibilities related to the contractual requirements to be completed within three month after the completion of Maintenance period of the works contracts. In case if there is any ongoing and or new claim, adjudication, arbitration, or disputes even after duration of Part 1 and 2, the Consultant shall provide

necessary information and report to assist the Client/DOR, under the same conditions of engagement as applicable to this Agreement.

5. REPORTING REQUIREMENT

The Consultant shall keep full records relating to all aspects of the work covered by his service contract. Such records shall be available for inspection and use by the Client. All original drawings, work sheets, field notes, computer programs, reports and other documents relating to the study shall become the property of the Client and shall not use in other purpose without approval from the Client. Reports required to be submitted by the Consultant during the course of their services for Part 1 and 2 are as follows:

Part 1: Construction Phase

- a. Inception Report (Six copies each in paper and electronic soft copy in original version)
Within a month of commencement of Part I activities, the Consultant shall submit an Inception report including the detail formats for quality, time and cost control including recording, reporting, payment certificates, quality assurance and quality control, resource plan and details of taking over consulting service of Kamala-Dhalkebar-Bagmati Section (76.702Km) of Mahendra Highway and Bridges. This should provide initial assessment with regard to readiness for environmental and social safeguard measures implementation, and highlight any immediate actions needed. Detailed methodology for checking compliance as specified in the Environment and Social Management Framework (ESMF) including the SS-EMPs, C-ESMP and applicable GoN laws pertaining to environment protection and labor welfare.
- b. Monthly Progress Reports (Six copies each in paper and electronic soft copy in original version)

The Consultant shall prepare a monthly progress reports on the project activities during construction period. It shall include physical and financial status of different construction activities, information on validity of various advance and performance guarantees issued from the banks. Resources mobilized such as construction material requirement and the stock at site, information on equipment requirement and equipment mobilized by the contractor, adequacy of contractor's manpower shall be also part of the report. It shall include the daily records of equipment, material and manpower and jointly signed with contractor and consultant. The Consultant should also record letter issued to the contractors and letter received from the contractors, and weekly/ monthly

progress review meeting minutes. It shall also include the details regarding issues or problems related to the contract or project works, action agreed by the Contractor / Consultant/Client to resolve the issue with due dates, and status. It should also include information on the extension of time, contract variation order, contractor's claims/dispute, if any. For Claim and disputes a separate monitoring format shall be included in the report showing contract wise issues, claims date, engineer's decision, disputes and their status. Report should specifically include the environmental and social safe guard implementation and monitoring part showing the details of activities implemented and their status. Documenting the progress on implementation of ESMP and site-specific EMAP requirements, grievances received, if any and their status towards resolution, accident information, and Road Closure Information is must. Report shall also include brief information on Consultant's and project staff's activities. The report format shall be agreed by the Client during inception period.

- c. Specific reports on the EOT, variation, claims, and or disputes: as per need basis the Consultant are required to prepare and submit specific reports to the Client for necessary approval and or dispute resolution process.
- d. Project Management Report (Six copies each in paper and electronic soft copy in original version)

The Consultant shall prepare Trimester Project Management Reports for monitoring financial, procurement and physical activities including the environmental and social status in agreed format with DOR.

Part 2: Maintenance Phase

- a. Bi-Monthly Progress Reports (Six copies each in paper and electronic soft copy in original version)

The Consultant shall prepare a bi-monthly progress reports (every two months) on the project activities during the maintenance period. The reports shall include the Consultant's team activities and progress status on activities related to the maintenance and defects restoration works, if any.

It shall include physical and financial status, information on validity of various advance and performance guarantees for each contracts, contractor's management team and resources mobilized such as construction material, and adequacy of manpower. It shall include the daily records of equipment, material and manpower, and record letters

exchanged between Consultant, Contractor and Client, if any. It shall also include the details regarding issues or problems related to the contract or project works, action agreed by the Contractor/ Consultant/Client to resolve the issue with due dates, and status. It should also include information variation order and contractor's claims/ dispute, if any. For Claim and disputes a separate monitoring format shall be included in the report showing contract wise issues, claims date, engineer's decision, disputes and their status. Report should specifically include the environmental and social safe guard implementation and monitoring part showing the details of activities implemented and their status. Documenting the progress on implementation of ESMP and site-specific ESMP requirements, grievances received, if any and their status towards resolution, accident information, and Road Closure Information is must. The Consultant should include the routine, recurrent and emergency maintenance plan for the next month and activities performed during the reporting period. The report format shall be agreed by the Client.

- b. Project Management Report (Six copies each in paper and electronic soft copy in original version)

The Consultant shall prepare Trimester Project Management Reports for monitoring financial, procurement and physical activities including the environmental and social status in agreed format with Client/DOR.

- c. Specific reports on the EOT, variation, claims, and or disputes: as per need basis the Consultant are required to prepare and submit specific reports to the Client for necessary approval and or dispute resolution process.
- d. Final Project Completion Report (Ten copies each in paper and electronic soft copy in original version)

Upon completion of each civil works contract's period for construction and issuance of performance certificate, the Consultant shall prepare a contract wise Final completion report. This report shall include the project completion report prepared after completion as Part 1 followed by Part 2 capturing the overall physical and financial activities under design, construction and maintenance period. It should also include the information regarding environmental and social safeguard. The report shall also mention the final financial statement, variation in contracts, claim/ dispute status and future steps, further operation and maintenance guide. The report should include lessons learned and recommendation for improvement in future projects regarding the contract documents,

applied methodology, and use of PBMC contract. A Detail evaluation on the maintenance contract performance, issues in supervision, quality assurance, Environment and social management during maintenance, and needed improvement in the contract provision and management will be required.

- e. Final Confidential Report (Two copies for each contract in paper and electronic soft copy in original version)

The Consultant shall submit a final confidential report on the performance of each contractor upon completion of the Maintenance period. The report format shall be as specified in the Public Works Directive, Nepal. Such performance evaluation shall be based on the guidelines provided in Public Works Directives, Nepal.

6. TIME FRAME AND STAFFING REQUIREMENT

The total time period for the consulting service has been expected to be nearly 98 months including service for the 5 year Maintenance Period and 2 months post Maintenance Period. During the overall period it is estimated that approximately 66 person-months of International staff input, 697 person-months of national technical professional staff and 483 person-month of para professional staff . In addition to the technical professional staffs and paraprofessional staff in the team composition other administrative staff and technical support staff may be required for completion of works during Construction as well as in maintenance phase of the service.

7. QUALIFICATION REQUIREMENT AND TEAM COMPOSITION

The Consulting firm must have sufficient qualification and experience to carry out the assignment.

- (i) The applicant or each member of the Joint Venture applicants must have minimum 10 years of standing and construction supervision of at least one road construction/ improvement project.
- (ii) Experience of Construction Supervision of multilane (two or more lane) road not less than 35 km having consulting fee more than USD 2.00 Million. Experience of the firm outside of the firm's native country with above mentioned experience will have advantage.

(iii) Experience of the firm in multilateral bank financed project in the transportation sector will have advantage.

The Estimated input of Key Experts' time-input for construction and maintenance phase is as follows for the performance of the services specified in the scope of work.

Estimated Team Composition

Position	Quantity	No. of Person Months		Total Person - Months	Remarks
		Construction Supervision	DLP/PBMC		
A. Key Experts					
K-1: Team Leader/ Sr. Highway Engineer (International Experience)	1	36	7	43	
K-2: Highway Engineer (International Experience)	1	6		6	
K-3: Contract Management /Procurement Specialist (International Experience)	1	12	2	14	
K-4: Resident Engineer -1	1	36	62	98	
K-5: Resident Engineer -2	1	36		36	
K-6: Resident Engineer -3	1	36		36	
K-7: Senior Material Engineer-1	1	36		36	
K-8: Senior Material Engineer-1	1	36		36	
Total Key-Specialist Inputs				305	
B. Non-Key Experts					
Senior Road Safety Expert (International Experience)	1	3		3	
Highway Engineer	1	6		6	
Sr. Bridge Engineer/ Structure Engineer	1	36		36	
Road Safety/Traffic Engineer	1	9		9	
Hydrologist	1	4		4	
Geotechnical Engineer	1	6		6	
Assistant Resident Engineer	6	216	62	278	
Environment Safeguard Specialist	1	16		16	
Social Development Specialist	1	16		16	
Health and Safety Specialsit	1	5		5	

Office Engineer/Quantity Surveyor -1	2	72	2	74	
Gender Specialist	1	5		5	
Total Non-Key Specialsit				458	
Total of Professional Staff				763	
C. Para-Professional Staffs					
Inspector of Works-1	6	216	0	216	
Senior Laboratory Technician	3	108		108	
Senior Surveyor	3	15		15	
Social Mobiliser	3	72		72	
Health and Safety Inspector	1	36		36	
Environmental Inspector	1	36		36	
Total Para Professional Staff				483	

Note:

- a) The above Estimated input of Key Specialist' time-input is for Client's estimate. The consultants are advised to assess their own requirement and propose their own staff composition and person-months requirement for efficient performance of their job as per the Terms of Reference. If the proposed consultant's team is found inadequate or not sufficient during the performance of the services then additional staff shall be provided by the consultant at their own cost.
- b) A Technical Proposal shall be considered unsuitable and shall be rejected for further evaluation if it does not respond to important aspect of TOR.

8. TECHNOLOGY TRANSFER

The Consultant shall consider the technology transfer as an important aspect of Construction and Maintenance Period. The consultant should involve 2 DOR Engineers for 1.5 years in the working team of consultants during Contract Administration, Construction supervision, Quality Control and Maintenance as a consultant's team member for their capacity development. The consultant has to pay DOR Engineers per diem as per the Government rules. As per the request of DOR PCU, the Consultant shall brief and demonstrate the working procedure, design concept, pavement design, quality control procedure, software operation, contract management, Maintenance Management procedures, and Claim /Dispute management. The consultant shall assist the DOR PCU and its staff to build their capacity as a part of the on the job training under this project. The Consultant shall also enhance capacities

of its national professional staff through regular trainings on use of different construction management/ supervision tools and procedures, quality management and other aspects of construction management, and increased delegated responsibilities with time.

The Consultant shall arrange the residential workshops/presentations for the progress review of construction activities semi- annually.

The Consultant should provide minimum 3 days residential training to 20 DoR officials by Contract Management Specialist/Procurement Specialist (International Experience) on Fidic Contract and Procurement during the initial phase of service. The schedule and the participant of the training program will be finalized with consent from the Department of Roads.

CONSULTANTS FACILITIES

For the Construction phase, the Consultant should establish their main office in between Hariwon to Dhalkebar and satellite offices at appropriate places to cover the main works from Bagmati to Kamala, including bridges, and the respective key supervision staff should be based on the related offices. For Maintenance phase, the Consultant's office set up may be reduced considering limited scope of supervision for maintenance. The Consultant will need to provide the key technical professional staff, including administrative and support staff needed to carry out their services during the construction phase and maintenance phase. The Consultants will also be responsible for providing all other necessary facilities and logistical support for its staff, including accommodation, sufficient vehicle/transportation, office equipment, Survey equipment, communications, utilities, office supplies and other miscellaneous requirements required to render their services effectively.

The Consultant shall have provision of sufficient transport facilities during the whole period of consulting service and ensure that supervision and other activities are not affected by lack of transport facilities. There should be at least SUV to each International Professional staff and Double cab pickup to each Professional National Staff having full time input for Resident Engineers, Materials Engineers and Senior Bridge Engineer. There should be three double cab pickup for six AREs on sharing basis. There should be sufficient number of vehicles at least 2 SUV/Double cab pickup in pool basis for experts having intermittent inputs in construction phase and one SUV in pool basis for the maintenance phase. There should be at least

motorcycles to each other staff involved in supervision in order to deliver their service effectively during Construction Phase and Maintenance Phase of the service.

Except provision of laboratory and laboratory equipment including laboratory boys, other additional staff and facilities will not be included in the civil works contract.

9. DATA AND ASSISTANCE TO BE PROVIDED BY THE CLIENT

The following shall be provided to the Consultant by DOR/ Client

- Detail design report for roads and bridges within the Kamala-Dhalkebar- Bagmati Section of Mahendra Highway.
- ESIA report for the Kamala-Dhalkebar- Bagmati or up to Pathlaiya Section (130Km) of Mahendra Highway Road and Bridges.
- Access to other available necessary documents and data available in DOR required for the performance of the Consultant's services.

10. CONTRACTUAL ARRANGEMENT

The Consultant's contract will be with Government of Nepal, Department of Roads, Development Cooperation Implementation Division, Strategic Road Connectivity and Trade Improvement Project and will be based on a contract agreement consistent with the standard document based on World Bank Procurement Regulations for IPF Borrowers, July 2016 Revised August 2018.

Annex I

(New Bridges Construction)

Section 7. Terms of Reference

S.No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (Km)	Design Chainage at center of bridge (Km)	Proposed Span arrangement (c/c of expansion joint)	Angle of Skew of Bridge (Degree)	Total Length of Bridge (f/f of dirt wall) (m)	Type of Super structure	Type of Substructure	Type of Foundation	Remarks	Up Stream Bridge Width	Down Stream Bridge Width
1.	Kamala (16-H001-139)	237.323	237+022	114+206+206+114	0	640	Precast PSC Box Girder	RCC Abutments & RCC Pylons	Pile	Superstructure would be monolithic with lower pylons & pylon locations and at ends supported on POT-PTFE Bearings		17.55
2.	Kamala Canal (20-H001-140)	238.398	338+105	15+45+15	0	75	Precast RCC & PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		9.1	17.55
3.	Charnath (20-H001-141)	241.645	241+744	15x21.4	0	321	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		3	11.85
4.	Baluwa (20-H001-142)	245.390	245+228	32+32+32+16	0	112	Precast RCC & PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		3	11.85

S.No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (Km)	Design Chainage at center of bridge (Km)	Proposed Span arrangement (c/c of expansion joint)	Angle of Skew of Bridge (Degree)	Total Length of Bridge (f/f of dirt wall) (m)	Type of Super structure	Type of Substructure	Type of Foundation	Remarks	Up Stream Bridge Width	Down Stream Bridge Width
5.	Jagadav Branch (20-H001-143)	251.100	250+760	1x26.6	0	26.6	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments	Pile		3	11.85
6.	Jagadav (20-H001-144)	251.390	251+090	21.4+2*26.6+21.4	0	96	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		3	11.85
7.	Jalad (20-H001-145)	252.960	252+478	10x26.6	0	266	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		3	11.85
8.	Aurahi (20-H001-146)	255.061	254+663	12x26.6	0	319.2	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		9.1	17.55

S.No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (Km)	Design Chainage at center of bridge (Km)	Proposed Span arrangement (c/c of expansion joint)	Angle of Skew of Bridge (Degree)	Total Length of Bridge (f/f of dirt wall) (m)	Type of Super structure	Type of Substructure	Type of Foundation	Remarks	Up Stream Bridge Width	Down Stream Bridge Width
9.	Basai (20-H001-147)	256.715	256+186	21.4+2*26.6+21.4	0	96	Precast RCC & PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		9.1	17.55
10.	Sukhajor (20-H001-148)	259.230	258+735	2x22	0	44	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		17.55	17.55
11.	Barahari (20-H001-149)	261.540	260+921	23.5+28+23.5	0	75	Precast RCC & PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		27.05	

S.No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (Km)	Design Chainage at center of bridge (Km)	Proposed Span arrangement (c/c of expansion joint)	Angle of Skew of Bridge (Degree)	Total Length of Bridge (f/f of dirt wall) (m)	Type of Super structure	Type of Substructure	Type of Foundation	Remarks	Up Stream Bridge Width	Down Stream Bridge Width
12.	Ratu (20-H001-150)	265.820	265+345	38.5+4*33+38.5	0	209	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile			27.05
13.	Ratu Chahara (21-H001-151)	266.720	266+136	3x6	0	18	Box Girder	Box Girder	Pile		17.55	17.55
14.	Bhupsi (21-H001-152)	268.730	268+310	2x25	0	50	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		9.1	17.55
15.	Atabbe (21-H001-153)	269.970	269+373	1x28.5	0	28.5	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments	Pile		11.85	11.85

S.No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (Km)	Design Chainage at center of bridge (Km)	Proposed Span arrangement (c/c of expansion joint)	Angle of Skew of Bridge (Degree)	Total Length of Bridge (f/f of dirt wall) (m)	Type of Super structure	Type of Substructure	Type of Foundation	Remarks	Up Stream Bridge Width	Down Stream Bridge Width
16.	Janga Pul-1 (21-H001-154)	271.300	270+871	3x25	0	75	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		11.85	11.85
17.	Janga Pul-2 (21-H001-155)	271.595	271+145	1x37.5	0	37.5	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments	Pile		11.85	11.85
18.	Gadhanta (21-H001-156)	271.950	271+514	2x31.25	0	62.5	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		11.85	11.85

S.No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (Km)	Design Chainage at center of bridge (Km)	Proposed Span arrangement (c/c of expansion joint)	Angle of Skew of Bridge (Degree)	Total Length of Bridge (f/f of dirt wall) (m)	Type of Super structure	Type of Substructure	Type of Foundation	Remarks	Up Stream Bridge Width	Down Stream Bridge Width
19.	Belgachhi (Dhungre Khola) (21-H001-157)	275.400	274+925	2x20	0	40	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		11.85	11.85
20.	Tuteshwor-1 (21-H001-158)	276.105	275+630	1x19	0	19	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments	Pile		11.85	11.85
21.	Tuteshwor - 2 (21-H001-159)	277.514	275+856	1x19	0	19	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments	Pile		11.85	11.85

S.No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (Km)	Design Chainage at center of bridge (Km)	Proposed Span arrangement (c/c of expansion joint)	Angle of Skew of Bridge (Degree)	Total Length of Bridge (f/f of dirt wall) (m)	Type of Super structure	Type of Substructure	Type of Foundation	Remarks	Up Stream Bridge Width	Down Stream Bridge Width
22.	Maraha (21-H001-160)	277.559	277+266	4x33	0	132	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		3	11.85
23.	Maraha Kholsi Pul (21-H001-161)	278.830	278+357	1x19	0	19	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments	Pile		11.85	11.85
24.	Dholan (21-H001-162)	279.385	278+913	1x38	0	38	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments	Pile		11.85	11.85

S.No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (Km)	Design Chainage at center of bridge (Km)	Proposed Span arrangement (c/c of expansion joint)	Angle of Skew of Bridge (Degree)	Total Length of Bridge (f/f of dirt wall) (m)	Type of Super structure	Type of Substructure	Type of Foundation	Remarks	Up Stream Bridge Width	Down Stream Bridge Width
25.	Jarlahi (Kholshi Pul) (21-H001-163)	281.064	280+574	1x19	0	19	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments	Pile		11.85	11.85
26.	Batuwa (21-H001-164)	282.490	281+990	1x28.5	0	28.5	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments	Pile		11.85	11.85
27.	Bankhe (22-H001-165)	283.300	282+758	33+36+33	0	102	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		3	11.85

S.No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (Km)	Design Chainage at center of bridge (Km)	Proposed Span arrangement (c/c of expansion joint)	Angle of Skew of Bridge (Degree)	Total Length of Bridge (f/f of dirt wall) (m)	Type of Super structure	Type of Substructure	Type of Foundation	Remarks	Up Stream Bridge Width	Down Stream Bridge Width
28.	Amuwa (22-H001-166)	286.260	285+721	1x19	0	19	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments	Pile		11.85	11.85
29.	Phuljor (22-H001-167)	290.800	290+215	3x30	0	90	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		17.55	17.55
30.	Kalinjor - 1 (22-H001-168)	292.500	291+868	1x28.5	0	28.5	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		11.85	11.85

S.No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (Km)	Design Chainage at center of bridge (Km)	Proposed Span arrangement (c/c of expansion joint)	Angle of Skew of Bridge (Degree)	Total Length of Bridge (f/f of dirt wall) (m)	Type of Super structure	Type of Substructure	Type of Foundation	Remarks	Up Stream Bridge Width	Down Stream Bridge Width
31.	Kalinjor - 2 (22-H001-169)	293.350	292+703	3x22	0	66	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		11.85	11.85
32.	Betini (22-H001-170)	294.770	294+013	2x6	0	12	Box Culvert	Box Culvert	Pile		9.1	17.55
33.	Dumdume (22-H001-171)	296.000	295+383	1x19	0	19	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments	Pile		17.55	17.55
34.	Bastipur (22-H001-172)	296.940	296+286	3x6	0	18	Box Culvert	Box Culvert	Pile		17.55	17.55
35.	Lakhandei (22-H001-173)	301.190	300+466	33+36+2*33+36+33	0	204	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		9.1	17.55

S.No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (Km)	Design Chainage at center of bridge (Km)	Proposed Span arrangement (c/c of expansion joint)	Angle of Skew of Bridge (Degree)	Total Length of Bridge (f/f of dirt wall) (m)	Type of Super structure	Type of Substructure	Type of Foundation	Remarks	Up Stream Bridge Width	Down Stream Bridge Width
36.	Chapani (22-H001-174)	302.300	301+948	3x22	0	66	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		17.55	17.55
37.	Basatol (22-H001-175)	303.164	302+777	1x3	0	3	Box Culvert	Box Culvert	Pile		17.55	17.55
38.	Sukhapokhari (22-H001-176)	306.235	305+773	3x6	0	18	Box Culvert	Box Culvert	Pile		17.55	17.55
39.	Rai Bridge (22-H001-177)	308.265	307+753	1x38	0	38	Precast PSC Girder, Cast-in-situ Deck	RCC Abutments	Pile		17.55	17.55
40.	Dumajor (22-H001-178)	310.516	310+019	2x20	0	40	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments & RCC Wall Type Pier	Pile		17.55	17.55

S.No.	Name of Bridge or Khola / Existing Bridge ID no.	Existing Chainage (Km)	Design Chainage at center of bridge (Km)	Proposed Span arrangement (c/c of expansion joint)	Angle of Skew of Bridge (Degree)	Total Length of Bridge (f/f of dirt wall) (m)	Type of Super structure	Type of Substructure	Type of Foundation	Remarks	Up Stream Bridge Width	Down Stream Bridge Width
41.	Godari (22-H001-179)	312.055	311+587	3x6	0	18	Box Culvert	Box Culvert	Pile		17.55	17.55
42.	Bagmati East Canal (22-H001-180)	313.530	312+474	1x15	0	15	Precast RCC Girder, Cast-in-situ Deck	RCC Abutments	Pile		9.1	17.55
43.	Bagmati Bridge (22-H001-181)	313.930	313+121	99+165+99	0	363	Precast PSC Box Girder	RCC Abutments & RCC Pylons	Pile	Superstructure would be monolithic with lower pylons & pylon locations and at ends supported on POT-PTFE Bearings	17.55	17.55

Annex II

Maintenance of Bridges

S.N.	Bridge Name	Chainage (km.m)	No. of Span	Span Arrangement (m)	Bridge Length (m)	Superstructure Type	Substructure Type	Carriage way Width	Total Deck Width	Remarks
1	Kamala	237.323	24	26.65	639.6	RCC I-Girder	RCC Wall Type	7	7.9	
2	Kamala Canal	238.398	5	14.1	70.5	RCC Slab	Trestle Type	7	7.9	
3	Charnath	241.645	15	21.4	321	RCC I-Girder	RCC Wall Type	7	8	
4	Baluwa	245.39	7	16	112	RCC I-Girder	RCC Wall Type	7	8	
5	Jagadav Branch	251.1	1	26.6	26.6	RCC I-Girder	RCC Wall Type	7	8	
6	Jagadav	251.39	4	21.5+2*26.5+21.5	96	RCC I-Girder	RCC Wall Type	7	8	
7	Jalad	252.96	10	26.6	266	RCC I-Girder	RCC Wall Type	7	8	
8	Aurahi	255.061	12	26.6	319.2	RCC I-Girder	RCC Wall Type	7	8	
9	Basai	256.715	4	21.5+2*26.5+21.5	96	RCC I-Girder	RCC Wall Type	7	7.9	
10	Sukhajor	259.23	2	22	44	Steel Plate Girder	Precast RCC Segments	5.5	7.9	

S.N.	Bridge Name	Chainage (km.m)	No. of Span	Span Arrangement (m)	Bridge Length (m)	Superstructure Type	Substructure Type	Carriage way Width	Total Deck Width	Remarks
11	Barahari	261.54	3	23.5+28+23.5	75	Continuous Steel Plate Girder	Column Frame	7.5	10.74	
12	Ratu	265.82	6	38.5+4*33+38.5	209	PSC I-Girder	RCC Hammer Head	7.5	11	
13	Bhapsi	268.73	4	12.5	50	RCC T-Girder	RCC Wall Type	7	8.5	
14	Atabbe	269.97	3	9.5	28.5	Precast C-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
15	Janga Pul-1	271.3	6	12.5	75	Precast C-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
16	Janga Pul-2	271.595	3	12.5	37.5	Precast C-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
17	Gadhanta	271.95	5	12.5	62.5	Precast C-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
18	Tuteshwor-1	276.105	2	9.5	19	RCC T-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
19	Tuteshwor – 2	277.514	2	9.5	19	RCC T-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
20	Maraha	277.559	8	15+2*18+2*15+2*18+15	132	RCC Continuous T-Girder	Precast Columns forming wall with cast-in-situ RCC Cap	5.5	7.9	
21	Maraha Kholsi Pul	278.83	2	9.45	18.9	RCC T-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
22	Dholan	279.385	4	9.5	38	Precast C-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
23	Jarlahi (Kholsi Pul)	281.064	2	9.5	19	RCC T-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	

S.N.	Bridge Name	Chainage (km.m)	No. of Span	Span Arrangement (m)	Bridge Length (m)	Superstructure Type	Substructure Type	Carriage way Width	Total Deck Width	Remarks
24	Batuwa	282.49	3	9.5	28.5	Precast C-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
25	Bankhe	283.3	6	15+4*18+15	102	RCC Continuous T-Girder	Precast Columns forming wall with cast-in-situ RCC Cap	5.5	7.9	
26	Phuljor	290.8	7	12.5	87.5	Precast C-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
27	Kalinjor – 1	292.5	3	9.5	28.5	Precast C-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
28	Kalinjor – 2	293.35	3	22	66	Steel Plate Girder	Precast RCC Segments	5.5	7.9	
29	Dumdume	296	2	9.5	19	RCC T-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
30	Lakhandei	301.19	12	15+4*18+2*15+4* 18+15	204	RCC Continuous T-Girder	Precast Columns forming wall with cast-in-situ RCC Cap	5.5	7.9	
31	Chapani	302.3	3	22	66	Steel Plate Girder	Precast RCC Segments	5.5	7.9	
32	Rai Bridge	308.265	4	9.5	38	Precast C-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
33	Dumajor	310.516	4	9.45	37.8	RCC T-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	
34	Bagmati East Canal	312.400	1	11.3	11.3	RCC T-Girder	RCC Wall Type	5.5	7.9	
35	Bagmati Bridge	313+400								

Annex III

Bridges to be demolished

S.N.	Bridge Name	Chainage (km.m)	No. of Spans	Span Arrangement (m)	Bridge Length (m)	Superstructure Type	Substructure Type	Carriageway Width (m)	Total Deck Width (m)	Remarks
1	Ratu Chahara	266.72	2	9.5	19	RCC T-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	Replace with Box Culvert
2	Belgachhi (Dhungre Khola)	275.4	4	9.5	38	Precast C-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	Over topping
3	Amuwa	286.26	2	9.5	19	RCC T-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	Over topping
4	Betini	294.77	2	6	12	RCC Slab	RCC Wall Type	8	8.4	Replace with Box Culvert
5	Bastipur	296.94	2	9.5	19	RCC T-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	Replace with Box Culvert
6	Basatol	303.164	2	10.35	20.7	RCC T-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	Replace with Box Culvert
7	Sukhapokhari	306.235	2	9.5	19	RCC T-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	Replace with Box Culvert
8	Godari	312.055	2	9.45	18.9	RCC T-Girder	Precast RCC Column with Cast-in-Situ Cap	5.5	7.9	Replace with Box Culvert

Staffing Requirements

(Note: For Experts requiring international experience- where not specified in qualification/ experience details, minimum international experience shall be 2 years in the relevant sector)

A. K-1: Team Leader/Chief Resident Engineer (TL/CRE) (with international experience)

The Team Leader / Chief Resident Engineer will take the overall responsibility for the implementation of the project in accordance with the Terms of Reference and also for the conduct and the co-ordination of all professional inputs. S/He will be responsible to the Project Director (PD), Strategic Road Connectivity and Trade Improvement Project, Department of Roads. S/He will assist and advice the PD, Project Coordination/ Unit (PCU), and Project Field Offices (PFOs), and Project Team members on all aspects of the Project implementation. S/He will also maintain contact and liaison with the related Project offices, Units of DOR, Federal offices to ensure that the project is implemented in accordance with the Government's / DOR's policies and objectives.

The office as well as residence of the Team leader/Chief Resident Engineer will be in between Hariban and Dhalkebar as agreed with the Client. The Team Leader/ Chief Resident Engineer will be leading the team of consultant for all the works and required to coordinate for the Part 1 and 2. TL/CRE shall be responsible for overall implementation of Project.

The Team Leader / Chief Resident Engineer should be the same person for part 1 and 2 of the services ie; same person for the Construction and Maintenance phase of the service.

Broad Qualification and Requirements:

i	Education	Minimum : Bachelor degree in Civil Engineering Preferable : Master Degree in Highway /Transportation / Construction / Management/ Engineering Management/ Project Management or related field
ii	Experience	

a	General Civil Engineering Works	Minimum : 15 years Preferable : 25 years
b	Experience in Road projects	Minimum : 10 years Preferable : 20 years
c	Experience in similar size Road project	Minimum: a. Shall have international experience of construction supervision of two road projects outside the native country as Team Leader/Resident Engineer/Project Manager b. Experience of having at least construction Supervision of two ICB Contract of size equal or more than US \$50 million as Team Leader/ Resident Engineer/Project Manager using FIDIC Conditions of Contract. Preferable: Experience in a greater number of projects/contracts in above sub-criterion a and b. (<i>Involvement less than 1 year in one project shall not consider in Number of Projects/Contracts</i>)
iii	Language :	Capable of communicating fluently in English Language

B. K-2: Highway Engineer (with international experience)

Highway/Pavement Engineer will assist the Team Leader/Chief Resident Engineer to perform the required works during Design verification, Construction and Maintenance phase of the service.

Broad Qualification and Requirements:

i	Education	Minimum : Bachelor degree in Civil Engineering Preferable : Master's Degree in Highway/ Transportation / Construction Management or related field
ii	Experience	
a	Experience in General Civil Engineering Works	Minimum : 10 Years Preferable : 20Years
b	Experience in Construction Supervision of Road Projects	Minimum : 5 Years Preferable : 15Years
c	Experience in Related field	Minimum: a. Shall have experience of pavement design works in at least 3 road projects. b. Shall have international experience of construction supervision of 3 nos. of road projects with Asphalt Concrete Pavement as Pavement Engineer outside the native country. Preferable: Experience in a greater number of projects/contracts in above sub-criterion a and b .
iii	Language	Capable of communicating fluently in English Language

C. K-3: Contract Management /Procurement Specialist (with international experience)

The Procurement Specialist / Contract Specialist will assist the Team Leader/Chief Resident Engineer in managing the overall works in construction and Maintenance phase. S/He will be responsible for resolving contractual matters/ disputes, delay assessment, variation, during the Construction and Maintenance period.

The Contract Specialist should be the same person for Construction and Maintenance phase of the service.

Broad Qualification and Requirements:

i	Education	Minimum : Bachelor degree in Civil Engineering Preferable : Master Degree in Engineering/ Construction Management /Project Management/ Law or related field.
ii	Experience	
a	Experience in Procurement of civil works/ Claims / Contract Management in Road / Bridge related field	Minimum : 10 Years Preferable : 20 Years
b	Experience in related field	Minimum: a. Shall have experience in Procurement / Claims related works of FIDIC contracts in at least 3 nos. of road project/ 5years. b. Shall have International experience at least in 2 nos. of Construction Contracts as Procurement / Contract Management Specialist outside the native country ! Preferable: Experience in a greater number of projects/contracts in above sub-criterion a and b .
iii	Language	Capable of communicating fluently in English Language

D. K-4: Resident Engineer (RE) (1 nos.)

Resident Engineer (RE) will perform duties under the guidance of the Team Leader/Chief Resident Engineer. RE will responsible for Construction Supervision and Contract Administration and required to make regular visits to site for implementation of effective supervision, verification of quantities, quality control, progress monitoring and reporting etc.

Resident Engineer should be the same person for part 1 and 2 of the service. The RE will act as Deputy Team Leader. He/she will also perform as an acting Team Leader in the absence of Team Leader/Chief Resident Engineer and take overall responsibility of the Project.

Broad Qualification and Requirements:

i	Education	Minimum : Bachelor degree in civil Engineering Preferable : Master Degree in Highway / Project Management / Construction Management or Related field
ii	Experience	
a	General Civil Engineering Works	Minimum : 15 years Preferable : 20 years
b	Experience in Construction Supervision of Double Lane Bituminous Road Projects using FIDIC conditions of contract as Resident Engineer/Project Manager/Contract Manager	Minimum : 5 years or 3 Road Projects Preferable : Experience in a greater number of projects/nos. of years in above sub-criteria. <i>(Involvement less than 1 year in one project shall not consider in Number of Projects)</i>
iii	Language	Capable of communicating fluently in Nepali/ English Language

E. K-5/K-6: Resident Engineer (RE) (2 nos.)

Resident Engineer (RE) will perform duties under the guidance of the Team Leader/Chief Resident Engineer. RE will responsible for Construction Supervision and Contract Administration and

required to make regular visits to site for implementation of effective supervision, verification of quantities, quality control, progress monitoring and reporting etc.

Broad Qualification and Requirements:

i	Education	Minimum : Bachelor degree in civil Engineering Preferable : Master Degree in Highway / Project Management / Construction Management or Related field
ii	Experience	
a	General Civil Engineering Works	Minimum : 12 years Preferable : 15 years
b	Experience in design of Double Lane Bituminous Road Projects	Minimum : 5 years or 2 Road Projects Preferable : 15 years or 5 Road Projects
c	Experience in Construction Supervision of Double Lane Bituminous Road Projects using FIDIC conditions of contract as Resident Engineer/Project Manager/Contract Manager	Minimum : 5 years or 2 Road Projects Preferable : Experience in a greater number of projects/nos. of years in above sub-criteria. <i>(Involvement less than 1 year in one project shall not consider in Number of Projects)</i>
iii	Language	Capable of communicating fluently in Nepali/ English Language

F. K-7/ K-8: Sr. Material Engineer (SME) (2 nos.)

Sr. Material Engineer will work under the guidance of the TL/ CRE and will have responsibility in testing materials, identification of source of materials and other material related activities. For contract wise quality management, the SME shall be supported by the respective AREs, Lab Technicians and IOWs. Before start of works the SME shall establish the laboratory and prepare the necessary quality control procedures, check list, approval formats for materials, approval for foundation of Structures, and record. SME shall also train the Lab technicians, IOWs, Contractor's

relevant personals, and other related project staff on necessary laboratory tests to control the quality of materials, workmanship, and completed works.

Broad Qualification and Requirements:

i	Education	Minimum : Bachelor degree in Civil Engineering Preferable : Master's degree in Geotechnical /Transportation/Construction Management or related field
ii	Experience	
a	General Civil Engineering Works	Minimum : 10 years Preferable : 20 years
b	Experience in related field in Road projects	Minimum : a. 2 Road Projects experience in Construction Supervision having bituminous pavement as Material Engineer/Resident Engineer/Project Manager/Contract Manager b. 5 years or 2 road projects experience in quality assurance and Quality control works in roads having bituminous surface Pavement as Material Engineer. Preferable : i. Experience in a greater number of projects/nos. of years in above sub-criterion a and b . ii. 3 years or 1 road Project's experience of Asphalt Concrete as a Material Engineer. <i>(Involvement less than 1 year in one project shall not consider in Number of Projects)</i>

iii	Language	Capable of communicating fluently in English Language
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G. Non Key (N.K.) 1. Senior Road Safety Engineer (International Experience) (1 nos.)

Sr. Road Safety Expert will assist the Team Leader/Chief Resident Engineer to perform the required works during Design verification and Construction phase of the service. S/He will be overall responsible for the design works related to traffic safety, coordinate with other expert while performing road safety related works as per the requirement during supervision period.

Broad Qualification and Requirements:

i	Education	Minimum : Bachelor degree in Civil Engineering
ii	Experience	
a	Experience in General Civil Engineering Works	Minimum : 10 Years
b	Experience in Road Safety works	Minimum : 5 Years
c	Experience in Related field	• Shall have experience of road safety works in at least 3 nos. of road projects in detail design phase outside the native country as road safety specialist. • Shall have experience of road safety works in construction supervision of 2 nos. of road projects outside the native country as road safety specialist.
iii	Language	Capable of communicating fluently in English Language

H. N.K. 2. Highway Engineer (HE) (1 nos.)

Highway Engineer (HE) will perform duties under the guidance of the Team Leader/Chief Resident Engineer. HE will responsible for design review and preparation of review report considering the value engineering. He/she will support the team for any revision/amendment in design, additional design and preparation of construction drawings for the proper execution of specific site activities.

Broad Qualification and Requirements:

i	Education	Minimum : Bachelor degree in civil Engineering
ii	Experience	
a	General Civil Engineering Works	Minimum : 5 years
b	Experience in design of Road Projects	Minimum : 3 years or 3 Road Projects
c	Experience in Construction Supervision of Road Projects	Minimum : 2 years or 1 Road Project (<i>Involvement less than 1 year in one project shall not consider in Number of Projects</i>)
iii	Language	Capable of communicating fluently in Nepali/English Language

I. N.K. 3. Sr. Bridge Engineer/ Structure Engineer (B.E./S.E.) (1 nos.)

The Senior Bridge Engineer / Structure Engineer will assist the Team Leader/Chief Resident Engineer in managing the Survey, Design verification, Construction Supervision works and responsible for design of structure in case of changes required during construction. S/He shall also coordinate and support the TL/CRE and team in quality assurance during construction supervision.

Broad Qualification and Requirements:

i	Education	Minimum : Bachelor degree in Civil Engineering/Bridge Engineering
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		Preferable : Master Degree in Bridge Engineering/Structural Engineering or related field
ii	Experience	
ii.a	General Civil Engineering Works	Minimum :10 years
ii.b	Experience in Bridge Design	Minimum: 5 Nos.
ii.c	Experience in Bridge Construction Supervision as Bridge/Structural Engineer	Minimum: 3 Nos.
iii	Language	Capable of communicating fluently in English Language

J. N.K. 4. Road Safety/Traffic Engineer (R.S./T.E) (1 nos.)

The Road Safety Expert will assist the Team Leader / Chief Resident Engineer in managing the road safety measures in Road and Bridge approaches. S/He shall also coordinate and assist the TL/CRE and team in reviewing and implementing road safety measures considering the value engineering and best practices.

Broad Qualification and Requirements:

i	Education	Minimum: Master's degree in Highway/Transportation/Construction Management or related field
ii	Experience	
ii.a	General Civil Engineering Works	Minimum: 10 years in Road Works
ii.b	Experience in Road safety audit or design of road safety measures	Minimum: 3 number of road project.

iii	Language	Capable of communicating fluently in English Language
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K. N.K. 6. Hydrologist (HY) (1 nos)

Hydrologist will perform their duties under the guidance of the Team Leader/Chief Resident Engineer. S/He will assist TL/CRE for any modification in design during implementation of project activities considering the value engineering.

Broad Qualification and Requirements:

i	Education	Minimum : Master degree in Hydrology/Hydropower Engineering or related Engineering discipline
ii	Experience	
ii.a	Experience as a Hydrologist	Minimum : 10 years
ii.b	Experience in Road Projects as hydrologist	Minimum : 5 years or completed Five Road Projects
iii	Language	Capable of communicating fluently in English

L. N.K.7.Geotechnical Engineer (G.E.) (1. Nos.)

Geotechnical Engineer (GE) will work under the guidance of the Team Leader. GE will have the overall responsibility for reviewing the geology of road alignment, Bridge Sites and Road slopes as assumed during design of the road and suggest any improvement during construction. S/he shall also assess the geology of the alignment, properties of the soil and actual drainage system and recommend for any improvement for the stability of the alignment.

Broad Qualification and Requirements:

i	Education	Minimum :Master's Degree in Geotechnical Engineering or related field
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ii	Experience	
ii.a	General Civil Engineering Works	Minimum: 10 years
ii.b	Experience in design of Road projects as Geotechnical /Material Engineer	Minimum: 5 years or five roads
ii.c	Experience in Construction Supervision of Road projects as Geotechnical / Material Engineer	Minimum : 3 years or three roads
iii	Language	: Capable of communicating fluently in English Language

M. N.K. 8.Assistant Resident Engineer (A.R.E.) (6 nos.)

ARE will work directly under TL/CRE and will have the responsibility for construction supervision, contract administration including design verification and preparing construction drawings. ARE will be responsible for implementation with quality assurance and quality control, measurement of works, compliance of Environmental and Social Safeguard requirements etc. ARE shall be working in close coordination with the SME/ ESE/ SSE and shall be supported by the Inspector of Works and Lab Technicians. ARE will be responsible for quantity measurement and verification in the role of quantity surveyor.

Broad Qualification and Requirements:

i	Education	Minimum : Bachelor degree in Civil Engineering
ii	Experience	
ii.a	General Civil Engineering Works	Minimum : 5 years
ii.b	Experience in Road works	Minimum :

		• Experience of 5 years as an Assistant Resident Engineer in road projects in construction Supervision/ management of roads having bituminous surface pavement works or • 10 Years as IOW (after completion of Graduation in Civil Engineering) in Road Projects with minimum experience of 2 Road projects in construction Supervision/ management of roads having bituminous surface pavement works
iii	Language	Capable of communicating fluently in English Language

26. N.K.-9. Environment Safeguard Specialist (E.S.S.) (1 nos.)

ESE will perform his/her duties under the guidance of the Team Leader / Chief Resident Engineer. S/he will assist in Environmental and Social Studies for Part 1 and also work in construction supervision during construction and maintenance phase of the service for the implementation of mitigation measures.

i.	Educational Qualification	Minimum :- Bachelor degree in Civil Engineering/ Environmental Science/Environmental Engineering Preferable: - Master's degree in Environmental Engineering/Science or related field
ii.	Experience	
	• Total Experience	Relevant : 10 years Overall : 15-20 years
	• Experience in the Proposed Field of Expertise	▪ Experience of Construction & supervision of of three road projects as an Environmentalist/Environmental Safeguard Specialist or similar position

		Experience of implementation of EIA/ESIA in two Donor funded Road Projects (World Bank/ADB/JICA etc) as an Environmentalist/Environmental Safeguard Specialist or similar position
iii.	Language	Proficiency in English Language

N. N.K.- 10. Social Development Specialist (S.D.S.) (1nos.)

SDE will perform his/her duties under the guidance of the Team Leader/Chief Resident Engineer. SDE will assist in Environmental and Social Studies for Part 1 and support the Construction Supervision team and Project staff in implementing social safeguard activities as per the requirement of World Bank's Environmental and Social Framework and GoN's relevant policies, guideline, frameworks etc.for Part 2

i.	Educational Qualification	
	Minimum :- Bachelor degree in Humanity/ Social Science or related field Preferable: - Master's degree in Social Science/Anthropology/Sociology/Rural Development/Economics or related field	
ii.	Experience	
	Total Experience	Minimum: 10 years Preferable: 20 years
	Experience in the Proposed Field of Expertise	- Experience of preparation of EIA/ESIA for three road projects as an Social Safeguard/Development Specialist or similar position - Experience of implementation of EIA/ESIA in two Donor funded Road Projects (World Bank/ADB/JICA etc) as an Social Safeguard Specialist or similar position
iii.	Language	Communicate fluently in English Language

O. N.K.-11 Health and Safety Expert (H.S.E.) (1 nos.)

The Health and Safety Expert will work under the guidance of the TL/CRE and support team in performing his duty.

Broad Qualification and Requirements:

1. Education	Minimum : Bachelor degree in Civil Engineering / Environmental Engineering/Environmental Science or related field	
2. Experience	a. General Civil Engineering Works	Minimum : 5 years
	b. Experience in the Health and Safety related works in Construction Contract	Minimum : 3 years
iii	Language	Proficiency in English Language

P. N.K. 12. Office Engineer/Quantity Surveyor (O.E./Q.S.) (2 nos.)

O.E./Q.S. Office Engineer / Quantity Surveyor will support the Design works. S/he will also assist in Supervision team and will work under Team Leader/Chief Resident Engineer. S/he will support during the construction and maintenance phase of the service. S/he will assist the team leader in verification of quantities of works performed, design update/modification, preparation of monthly progress report and other required documents during the execution of works.

Broad Qualification and Requirements:

i	Education	Minimum: Bachelor degree in Civil Engineering/ or Related field
ii	Experience	
ii.a	General Civil Engineering Works	Minimum : 10 years
ii.b	Experience in related field (Road and Bridge Works)	Minimum : 10 years
iii	Language	Capable of communicating fluently in English Language

Q. N.K. 13. Gender Expert (GE)

The Gender Expert will work under the guidance of the TL/CRE and support team in performing his duty.

Broad Qualification and Requirements:

i	Education	Minimum: Bachelor degree in Social Science / Gender or related field
ii	Experience	
ii.a	Experience as a Sociologist / Gender Expert	Minimum : 5 years
ii.b	Experience in Construction Projects as a Social Safeguard Expert/Sociologist/Social development and Resettlement Specialist/Gender Expert or related field	Minimum :2 Projects or 2 years
iii	Language	Capable of communicating fluently in English Language

Para professional Staff (Support Staff)**1. Inspector of Works (IOW) (6 nos.)**

IOW should be a Civil Engineering Graduate with minimum 1 years of specific experience in construction supervision of road works with bituminous surfacing works or S/He should have a Certificate/ Diploma in Civil Engineering with minimum 10 years of experience in construction supervision of civil engineering works with minimum 2 years of specific experience in construction supervision of road works with bituminous surfacing works.

2. Senior Laboratory Technician (SLT) (3 nos.)

SLT should have minimum 5 years general experience in Laboratory testing works and 3 years of specific experience in carrying out laboratory and field tests to maintain the quality of road works according to the specifications and a minimum education of Intermediate Level. SLT should also have a minimum of 2 years' experience in conducting Laboratory testing works of bituminous surfacing road works.

3. Senior Surveyor (SS) (3 nos.)

SS should have minimum 6 years general experience in surveying and 4 years of specific experience in surveying of or three projects related to road works as per standard practice. SS should also have a minimum of 3 years' experience in surveying of hill roads or two hill road projects.

4. Social Mobiliser (SM) (3 nos.)

SM should have minimum 5 years general experience in social related mobilization works and SM should have also a minimum education of Intermediate level.

5. Health and Safety Inspector (HSI) (1 nos.)

HSI should have minimum 5 years general experience in Construction works and should have also a minimum education of Intermediate level.

6. Environmental Inspector (EI) (1 nos.)

EI should have minimum 5 years general experience in Environmental related works and at least 1 year in field experience. EI should have also a minimum education of Intermediate level with training in Environment.

Note:

The CV's of Sr. Road Safety Expert and Sr. Highway Engineer Bridge Engineer/ Structure Engineer, Road Safety/ Traffic Engineer and Hydrologist, Geotechnical Engineer, Assistant Resident Engineer, Road Safety Expert, Office Engineer/Quantity Surveyor, Health and Safety Expert, Gender Expert, Inspector of Works, Health and Safety Inspector, Senior Laboratory Technicians, Senior Surveyor, Social Mobilizer and Environmental Inspector will not be used for the evaluation of the Technical proposals but the CV's of proposed Sr. Road Safety Expert and Sr. Highway Engineer Bridge Engineer/ Structure Engineer, Road Safety/ Traffic Engineer and Hydrologist, Geotechnical Engineer, Assistant Resident Engineer, Road Safety Expert, Office Engineer/Quantity Surveyor, Health and Safety Expert, Gender Expert, need to be submitted with the Consultant's proposal.

At commencement of service, the CV's of proposed Inspector of Works, Health and Safety Inspector, Senior Laboratory Technicians, Senior Surveyor, Social Mobilizer and Environmental Inspector need to be submitted for approval from client before their appointment for the job. The approval criteria will be as mentioned above.