Federal Democratic Republic of Ethiopia

Ministry of Water and Energy

Ethiopia Flood Management Project

Terms of Reference (TOR)

For

Consultancy Service for Supervision of Amibara Right side embankment works of Awash river Basin in two lots;

Lot 1: Supervision and Contract Administration Consultancy Services Resilience of Flood Risk Reduction Infrastructure - Amibara Right Bank Embankment Construction Project (Lot 1: Chainage 0+000 to 35+000 km)

Lot 2: Supervision and Contract Administration Consultancy Services Resilience of Flood Risk Reduction Infrastructure - Amibara Right Bank Embankment Construction Project (Lot 1: Chainage 0+000 to 35+000 km)

June, 2026

Addis Ababa
Ethiopia

Federal Democratic Republic of Ethiopia

Ministry of Water and Energy

Ethiopia Flood Management Project

Terms of Reference (TOR)

Supervision and Contract Administration Consultancy Services

Resilience of Flood Risk Reduction Infrastructure – Amibara Right Bank Embankment Construction Project

(Lot 1: Chainage 0+000 to 35+000 km)

March, 2026

Addis Ababa
Ethiopia

Contents

1. Background and Context 4
2. Project Description 4
3. Objectives of the Assignment 6
   1.1.1 Lot 1 – Consultant Specific Objectives 6
4. Scope of Services 7
   4.1. Contract Administration and Construction Supervision 7
   4.1.1. Construction Supervision Services 7
   a) General Supervision 8
   b) Embankment Earthworks and Quality Control 9
   c) Embankment Geometry, Stability, and Seepage Control 9
   d) Rock Revetment, Gabion, and Slope Protection Works 10
   e) Vegetated Slopes and Surface Protection 10
   f) Materials Testing and QA/QC Management 10
   g) Environmental, Social, and Safety Compliance 11
   h) Documentation, Reporting, and Certification 11
   I) Intake Gates and Structural Works 11
   4.2. Contract Administration Services 12
   4.3. Post-Construction Services 12
   4.4. Review of Design, Estimates and Drawings where necessary 12
   4.5. Capacity Building & Community Engagement 13
5. Specific Responsibilities of Key Personnel 13
6. Staffing Requirements 20
7. Deliverables Timelines 27
8. PAYMENT TERMS 28
9. Duration of the Consultancy 29
10. Ethics, Quantity Measurement, Quality Control, and Payment Approval Responsibilities 30
11. Conflict of Interest and Anti-Corruption & Fraud 31
12. Performance Monitoring & Evaluation 32
13. Standards & Reference Documents 32

List of Table

Table 6. 1: Staff Qualification and Experience 20
Table 7. 1: Report Deliverables and timelines ..... **Error! Bookmark not defined.**

List of Figure

Figure 3. 1: Location of the Amibara Right Bank Embankment Construction Project 5

1. Background and Context

The Amibara Right Bank Embankment project is a key component of the Ethiopia Flood Management Project (EFMP), aimed at enhancing flood resilience and safeguarding critical agricultural and irrigation infrastructure along the Awash River. The embankment spans approximately 60 km and incorporates vegetated slopes, rock revetments, gabions, and a gravel access road.

Recurring floods, sedimentation, and climate change impacts have increasingly threatened the embankment and adjacent infrastructure. Strengthening, raising, and upgrading measures are required to enhance resilience to future hydrological and morphological changes. All works will be implemented in accordance with the **FIDIC Red Book (2017)** and **World Bank Procurement Regulations**.

For effective delivery, the project will be implemented through two (2) civil works contract , supervised by two consulting firms. The project lots include river-adjacent sections requiring substantial slope protection, broader floodplain areas with vegetated embankments, and locations with critical infrastructure crossings. Under this arrangement, the supervision consultant for Lot 1 will be responsible for contract administration and oversight of the civil works contract covering the chainage section from 0+000 to 35+000 km.

2. Project Description

The Amibara Right Bank Embankment Construction Project (Lot 1: Chainage 0+000 to 35+000) is part of the broader Resilience of Flood Risk Reduction Infrastructure initiative under the Ethiopia Flood Management Project (EFMP). This project aims to enhance flood protection infrastructure along the right embankment of the Awash River in Amibara Woreda, located in the Middle Awash sub-basin of the Afar region. The intervention is designed to mitigate recurrent flood risks that threaten local communities, agricultural lands, and critical infrastructure.

Floods in Ethiopia have become increasingly severe in recent decades, causing extensive damage to irrigation systems, embankments, and water management structures. The EFMP, launched in partnership with the World Bank and the Ministry of Water and Energy (MoWE), seeks to

improve the resilience of flood-prone areas through strategic embankment construction and rehabilitation.

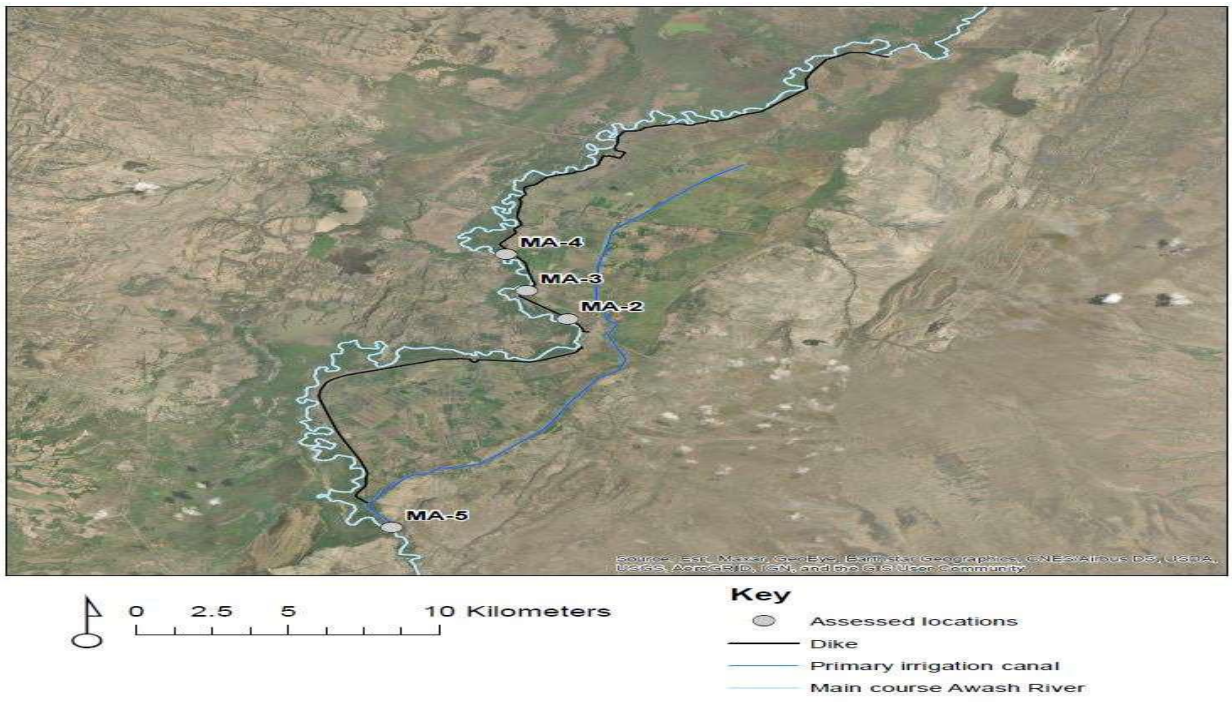

Figure 3. 1: Location of the Amibara Right Bank Embankment Construction Project (Chainage 0+000 to 60+000)

Lot 1 construction supervision should covers a 35 km section of civil work contracts of the right embankment from chainage 0+000 to 35+000. This segment plays a crucial role in protecting agricultural areas and settlements that rely on the Amibara irrigation scheme, which spans approximately 14,000 hectares.

Key Components of Lot 1:

- **Embankment Construction & Protection:**
  - 40% of the embankment includes **rock revetments and scour protection** in high-risk erosion zones.
  - 60% consists of **vegetated slopes** to promote natural flood attenuation.
  - **Gabion structures** for slope stability and channel protection.
- **Crest Road Development:**

- A gravel access road will be constructed atop the embankment primarily for maintenance and monitoring. However, it is anticipated that the local population may also use this road. Therefore, the road should be properly designed, constructed, and subsequently supervised to ensure its durability and continued functionality under both maintenance and community use.
- **Drainage systems** and passing bays will be integrated to ensure road resilience.

- **Environmental & Social Safeguards:**
  - Compliance with the **Environmental and Social Management Plan (ESMP)**.
  - Sustainable design solutions to mitigate climate change impacts.
  - Grievance redresses mechanisms for community concerns.

The construction will be carried out in compliance with **FIDIC Red Book (2017)** and **World Bank Procurement Regulations**, ensuring high-quality execution and sustainable flood protection solutions.

3. Objectives of the Assignment

The objective of the consultancy services is to provide construction supervision and contract administration, including design modifications where necessary, and to ensure that the project works are executed in an orderly and efficient manner. The Consultant shall ensure a high standard of workmanship and the use of specified quality materials, completion within the approved construction schedule, and full compliance with the approved drawings and technical specifications. All services shall be carried out in accordance with the applicable provisions of the FIDIC Red Book (2017), the World Bank Procurement Regulations for IPF Borrowers (Works), acceptable environmental and social standards, and the Client's requirements.

3.1. Lot 1 – Consultant Specific Objectives

The specific objectives of the Consultant under Lot 1 shall include, but not be limited to, the following:

- Provide construction supervision and contract administration services for the civil works contract for the Amibara Embankment, covering chainage 0+000 to 35+000.

- Perform full supervision and contract administration duties in accordance with the FIDIC Red Book (2017).
- Review, assess, and validate the detailed design, drawings, and technical specifications in light of actual site conditions and propose necessary adjustments, subject to the Client's approval.
- Ensure quality control, technical compliance, and adherence to applicable environmental and social safeguard requirements.
- Support the Employer in implementing minor design modifications and technical adjustments as required during construction.
- Monitor and ensure that the Works are executed within the approved 18-month construction period, and in accordance with the approved budget and schedule.
- Provide supervision services for two civil works contract lots under the overall assignment.
- Coordinate closely with the Lot 2 Consultant to ensure consistency in design implementation, construction quality, reporting, and contract administration across both lots.

4. Scope of Services

The scope of services shall include the provision of construction supervision and contract administration services for the civil works contract under **Lot 1 (Chainage 0+000 to 35+000)** of the Amibara Right Bank Embankment Construction Project. The Consultant shall also coordinate, where necessary, with the supervision consultant responsible for Lot 2 to ensure consistency in technical standards, reporting, and implementation across the overall project. The consulting services shall include, but shall not be limited to, the following tasks:

4.1. Contract Administration and Construction Supervision

4.1.1. Construction Supervision Services

The Consultant shall provide full-time construction supervision services for the Amibara Right Bank Embankment works (Lot 1: Chainage 0+000 to 35+000 km) to ensure that all works are

executed in strict compliance with the approved designs, technical specifications, contract conditions, environmental and social safeguards, and quality standards.

The Construction Supervision Services shall include, but not be limited to, the following:

a) General Supervision

- Oversee and supervise construction of works ensuring compliance to details provided in the construction (working) drawings and strict adherence to the Specifications;
- Prepare quality control and assurance plan including a detailed description of the Contractor's required organization, procedures facilities proposed to ensure that the construction is carried out in accordance with the terms and condition of the Contract, Specifications and Drawings in accordance with modern concepts of project management;
- The quality control and assurance plan shall include a system to ensure that the documentation necessary to attest completion of any phase(s) of the works, use of correct materials, completion of required completions and tests, and acceptability of results generated are reviewed, maintained and submitted by the Contractor to the Engineer. The Contractor's test programs shall be suitably documented duly addressing pertinent test pre-requisites parameters;
- Review and process claim for additional time and cost by the Contractor, as per the procedures described in the conditions of contracts and give advice to the Client;
- In the event of contractual dispute which may result in legal action, adjudication or arbitration between the Contractor and the Client, the consultants will, on the instructions from the Client, collate and prepare factual documentation describing the circumstances of the dispute. If required, the consultants will attend hearings and provide all legal and other support to the client;
- Carry out dispute resolution, as per provisions of the Conditions of Contract;
- Witness any acceptance test and advise the Client whether the works or any part thereof have been completed as per specifications and certify outcome of the acceptance test in support of provisional acceptance certificate of completion;
- Testing of materials on-site or off-site when needed and testing and inspection of goods and materials in factory, if needed;
- Review design calculations and shop drawings submitted by the Contractors on all mechanical and electrical works and approve or amend the same in consultation with the client;

- Supervise repairs, replacement and installation of the mechanical and electrical equipment in a satisfactory and safe manner in accordance with the specifications and contract requirements;
- Testing and commissioning of mechanical and electrical equipment in association with the client;
- Carry out measurement of works and agree on quantities with the contractor(s) and certification of Contractor's statements for progress payments in terms of the conditions specified in the contract. Prepare instructions for permissible variations in the works for approval by the Client.
- Monitor contractor mobilization, staffing, equipment deployment, and site organization.
- Coordinate with the Client, Contractor, and Lot 2 Supervision Consultant to ensure uniform technical standards and construction quality across projects.

b) Embankment Earthworks and Quality Control

- Supervise all embankment earthworks, including foundation preparation, stripping, excavation, filling, and compaction.
- Verify suitability and approval of borrow areas and embankment fill materials based on laboratory and field testing.
- Ensure controlled layer-by-layer placement of embankment fill with approved lift thickness and moisture content.
- Enforce compaction requirements and verify achievement of specified density through regular field density tests.
- Reject, suspend, or order reworking of any embankment sections that do not meet quality or specification requirements.

c) Embankment Geometry, Stability, and Seepage Control

- Verify embankment alignment, crest width, elevations, slopes, and toe dimensions through regular surveying and profile checks.
- Ensure compliance with design tolerances before approving progression to subsequent construction stages.

- Supervise foundation treatment, seepage control measures, filters, drainage layers, and geotextile installations.
- Monitor embankment stability during construction, particularly after rainfall or flood events, and require immediate corrective actions where instability, settlement, cracking, or piping is observed.

d) Rock Revetment, Gabion, and Slope Protection Works

- Supervise construction of rock revetments, gabions, and scour protection works in accordance with approved drawings and international standards.
- Verify quality, size, shape, durability, and placement of rock materials and gabion baskets.
- Ensure proper installation of geotextiles, filter layers, toe protection, anchorage, and interlocking of protection works.
- Inspect workmanship to prevent segregation, voids, or improper placement that may compromise embankment performance.

e) Vegetated Slopes and Surface Protection

- Supervise placement of topsoil and implementation of grassing, seeding, or turfing works on designated embankment slopes.
- Ensure vegetated slopes meet design thickness, coverage, and erosion resistance requirements.
- Monitor establishment of vegetation and require corrective measures where inadequate growth or erosion is observed.

f) Materials Testing and QA/QC Management

- Oversee and verify all laboratory and field testing, including soil classification, compaction, permeability, density, and material durability tests.
- Review and approve the Contractor's Quality Assurance and Quality Control (QA/QC) Plan.
- Conduct regular quality audits of contractor testing procedures and laboratories.

- Maintain a comprehensive embankment Quality Control Register, including test results, non-conformance reports (NCRs), corrective actions, and approvals.

g) Environmental, Social, and Safety Compliance

- Ensure construction activities comply with the Environmental and Social Management Plan (ESMP) and Occupational Health and Safety (OHS) requirements.
- Monitor environmental mitigation measures, including erosion control, waste management, dust suppression, and noise control.
- Coordinate with Environmental and Social Specialists to address safeguard issues affecting embankment works.

h) Documentation, Reporting, and Certification

- Maintain daily site diaries, inspection records, testing logs, and photographic documentation.
- Prepare and submit weekly status reports, biweekly quantity takeoff sheets with survey data, and monthly progress reports.
- Certify completed embankment works only after full compliance with quality, testing, geometric, and stability requirements is confirmed.
- Withhold approval or payment for works that are incomplete, substandard, or non-compliant with approved designs and specifications.

I) Intake Gates and Structural Works

- Supervise construction of intake gates, crossing, and other hydraulic and structural components in accordance with approved drawings and specifications.
- Review structural design calculations, shop drawings, and method statements for intake gates and associated structural works.
- Verify reinforcement detailing, formwork, concreting procedures, curing methods, and structural tolerances.
- Witness testing and commissioning of intake gates, mechanical actuators, hoisting mechanisms, and control systems.

- Ensure structural works meet design safety, hydraulic performance, and durability requirements before certification.

4.2.Contract Administration Services

- Administer contract execution in accordance with **FIDIC Red Book (2017)**.
- Certify **interim payments** and assess **claims, variations, and time extensions**.
- Ensure proper documentation and record keeping.
- Provide **early warnings** for potential disputes and propose mitigation strategies.

4.3. Post-Construction Services

- Conduct **final inspections and snagging**.
- Approve **as-built drawings and O&M manuals**.
- Prepare **Final Completion Report**.
- Monitor the **Defects Liability Period (DLP)**.
- Conduct **environmental impact assessment and mitigation verification**.

4.4.Review of Design, Estimates and Drawings where necessary

i. Examine and ensure adequacy of the hydraulic, structural and geotechnical design criteria and make modifications where necessary;

ii. Review and update the detailed designs where necessary;

iii. Prepare agreed amendments to the detailed design and all required construction (working) drawings for all aspects of construction works. The Consultant shall amplify where necessary the contract drawings and specifications by preparing working drawings, which shall be in sufficient detail to enable the appointed contractors to construct the civil, mechanical and electrical works. Working drawings shall be prepared to normal international standards and completed and issued to the contractors in accordance with the agreed program. The Consultant shall also check and approve all designs and drawings prepared by the Contractor.

iv. All design modifications shall be subject to prior approval of the Client;

v. Amend the detail design report based on the additional investigations to be carried out, additional design analyses, applied results of significant additional computation with basic points where necessary;

vi. Prepare Engineer's Estimate as and when required (for new items if any); and

vii. Plan and execute additional surveys and other such activities **where necessary** to provide a basis for both design modifications and subsequent preparation of construction drawings. The cost for survey and other necessary investigations shall be covered by the Client upon the request of the Consultant where deemed necessary.

4.5. Capacity Building & Community Engagement

- Train local stakeholders on **project management and environmental compliance**.
- Establish a **grievance redress mechanism**.
- Conduct **community awareness programs on environmental protection and flood risk management**.

5. Specific Responsibilities of Key Personnel

1) Project manger

- Provide overall leadership and strategic management of the construction supervision services for the embankment and associated flood protection works.
- Ensure that the works are implemented in accordance with the approved designs, technical specifications, contract provisions, and applicable engineering standards.
- Oversee the implementation of the **quality assurance and quality control (QA/QC) system** for all construction activities, including embankment earthworks, compaction, slope protection, and related hydraulic structures.
- Direct and supervise the **Resident Engineer and supervision team**, ensuring effective site supervision, inspection, and monitoring of construction activities.
- Establish and oversee project **monitoring, reporting, and documentation systems**, including review and approval of supervision reports prior to submission to the Client.
- Provide overall oversight of **contract administration under FIDIC Conditions of Contract**, including review of variations, claims, extensions of time, and contractual correspondence.

- Review and endorse **Interim Payment Certificates (IPCs)** and **Final Payment Certificates** prepared by the Resident Engineer prior to submission to the Client for approval.
- Monitor project progress against the approved work program and ensure timely implementation of the works, including resolution of technical and contractual issues affecting progress.
- Coordinate with the Client, contractors, government institutions, and development partners to facilitate effective project implementation
- Provide technical guidance on critical engineering matters, including embankment stability, river behavior, and flood protection performance.
- Ensure compliance with **environmental and social safeguard requirements, occupational health and safety standards**, and other contractual obligations.
- Conduct periodic site inspections and high-level progress review meetings to ensure construction quality and adherence to project objectives.
- Oversee the preparation and verification of **as-built drawings, completion documentation, and final project reports**.
- Advise the Client on project risks, contractual matters, and corrective actions necessary for successful project completion.

2) Resident Engineer (Team Leader)

- Manage the day-to-day **construction supervision activities at site** and coordinate the work of the supervision team.
- Serve as the primary liaison at site between the **Contractor, Client, and supervision team**, ensuring effective communication and coordination.
- Review and approve the contractor's **work programs, method statements, material submittals, and quality assurance plans**.
- Supervise construction activities to ensure compliance with **approved drawings, technical specifications, and contract requirements**.
- Monitor construction progress and advise the Project Manager on potential delays, technical issues, and corrective actions.

- Issue **site instructions, technical directives, and contractual correspondence** in accordance with the Conditions of Contract.
- Evaluate **variations, contractor claims, and requests for extensions of time**, and submit recommendations to the Project Manager.
- Measure completed works and **prepare and certify Interim Payment Certificates (IPCs) & Final payment certificates** for review and endorsement by the Project Manager.
- Prepare and submit **site progress reports and technical documentation** to the Project Manager.
- Chair regular **site progress meetings** with the contractor and maintain records of project correspondence and site activities.
- Supervise quality control testing, inspections, and verification of construction works.
- Ensure proper preparation of **as-built drawings, completion reports, and supporting documentation** for project close-out.

3) Geotechnical Engineer

- Review geotechnical data, including soil investigations, laboratory results, and compaction test reports.
- Supervise earthworks activities (excavation, filling, foundation preparation, and compaction) and verify ground conditions.
- Approve embankment materials (fill, rock, gravel, soil, geotextiles, and vegetation) in compliance with specifications.
- Supervise material sampling, testing, borrow area investigations, and stockpile management.
- Define and monitor testing frequency, locations, acceptance criteria, and maintain complete testing records and reports.
- Monitor embankment stability and geotechnical performance during and after construction through regular field inspections.
- Review and approve mix designs, geotextile properties, and related quality documentation.
- Conduct quality audits of contractor laboratory and field testing operations.

- Assess risks related to settlement, slope instability, seepage, erosion, and piping, and recommend corrective or preventive measures.
- Certify readiness of embankment sections before advancing to subsequent construction stages.
- Provide technical guidance on embankment behavior under extreme weather and flood conditions.

4) Site Engineer

- Supervise the construction of embankments, dykes, riverbank protection, drainage, and erosion control works according to approved drawings, specifications, and QA/QC requirements.
- Ensure proper alignment, grading, shaping, finishing, and protection of embankment crests and slopes.
- Monitor daily construction activities, including quantities, workmanship, safety, and quality compliance.
- Coordinate with contractor staff to resolve technical issues and maintain site records, including daily logs, measurements, inspection reports, and quality checklists.
- Monitor embankment crest and toe stability during construction, coordinating with the Geotechnical Engineer to ensure overall embankment stability and flood resilience.
- Report construction progress, issues, and non-compliances to the Resident Engineer.

5) Quantity Surveyor

- Measure completed works in accordance with contract drawings and specifications.
- Prepare and verify Interim Payment Certificates (IPCs) and supporting documentation.
- Review and evaluate variations, claims, and price adjustments in coordination with the Resident Engineer.
- Maintain updated records of quantities, payments, and contract financial status.
- Assist in preparation of final accounts and contract close-out documentation.
- Ensure all measurements and valuations comply with FIDIC contract provisions.

6) River Engineer

- Review river engineering and hydraulic design documents, including river training works, flood protection structures, embankments, channels, and hydraulic structures.
- Assess the adequacy of the original design in relation to site conditions, hydrological and hydraulic assumptions, and climate and flood risk considerations.
- Propose and develop design modifications and optimization measures, where necessary, to improve flood conveyance, river stability, and overall system performance.
- Prepare revised hydraulic and river engineering calculations, drawings, and technical specifications for design changes, in coordination with the Team Leader and Resident Engineer.
- Ensure that all design modifications comply with relevant national standards, international best practices, and World Bank technical and environmental requirements.
- Coordinate with the Geotechnical Engineer, Electromechanical Engineer, and Environmental and Social Specialists to ensure integrated and sustainable design solutions.
- Review and approve contractor design submissions related to river works and hydraulic structures.
- Provide technical support during construction to address design-related issues and unforeseen site conditions.
- Document all approved design changes and ensures proper incorporation into as-built drawings and project records.
- Report design review findings, recommended modifications, and implementation status to the Team Leader and the Client.

7) Surveyor

- Conduct initial verification surveys to align design with site conditions.
- Review and approve contractor setting-out data.
- Perform regular as-built surveys and maintain survey records.
- Conduct joint measurements with the contractor for progress evaluation.
- Ensure geospatial data accuracy for all structures and features.

8) Environmental Specialist

- Monitor implementation of the Environmental & Social Management Plan (ESMP) within the ESMP.
- Ensure compliance with the World Bank Environmental and Social Framework (ESF) regarding environmental requirements.
- Conduct regular site inspections to assess environmental impacts and the effectiveness of mitigation measures.
- Ensure proper waste management, dust suppression, and noise control on site.
- Prepare quarterly environmental compliance reports.

9) Social Safeguard Specialist

- Monitor the Social Management Plan (SMP) within the ESMP.
- Ensure community safety and effective stakeholder engagement throughout project implementation.
- Address grievances raised by the community and workers in a timely manner.
- Prepare quarterly social safeguard compliance reports.

10) Electro-Mechanical Engineer

- Review and verify the design of electromechanical (E&M) systems, including pumps, gates and valves.
- Supervise installation, testing, and commissioning of electromechanical equipment in accordance with approved drawings, technical specifications, manufacturer recommendations, and QA/QC requirements.
- Ensure compliance of E&M works with relevant international standards, national codes, and contract specifications.
- Inspect workmanship and materials, and identify any defects, non-conformities, or safety issues related to electromechanical installations.
- Coordinate with the Civil and Geotechnical Engineers to ensure proper integration of E&M systems with civil structures.

- Review contractor method statements, shop drawings, and technical submittals for electromechanical components.
- Report progress, technical issues, and non-compliances to the Resident Engineer.
- Provide technical support to the Client during defects liability period and handover of operation and maintenance manuals.

6. Staffing Requirements

Table 6. 1: Staff Qualification and Experience

S/N	Position	Number	Minimum Qualification and Experience	Duration (Months)	Office	Field
1	Project Manger	1	• PHD or MSc degree in Civil Engineering, Hydraulic Engineering, Water Resources Engineering, or a closely related discipline from a recognized university. • Minimum18**/20 years of general professional experience** in planning, design, and implementation of large-scale infrastructure projects. • At least **10/12 years of specific experience** in management and supervision of flood protection works, embankments, dykes, levees, river training works, or related hydraulic infrastructure projects. • Proven **8/10 years of experience in senior management roles** (Project Manager/Project Director/Team Leader) in similar construction supervision assignments. • Demonstrated experience in **overall project coordination, contract management, and stakeholder engagement**, including coordination with government institutions, contractors, and development partners. • Strong experience in FIDIC Conditions of Contract, including oversight of contract administration, variations, claims, certification of payments, and extensions of time.	20	16	4

S/N	Position	Number	Minimum Qualification and Experience	Duration (Months)	Office	Field
			• Minimum 5 years of professional experience in projects financed by international funding institutions (such as the World Bank, AfDB, EU, or other development partners). • Excellent leadership, communication, and reporting skills			
2	Resident Engineer (Team Leader & Contract Specialist)	1	• MSc or BSc degree in Civil Engineering, Hydraulic Engineering, Water Resources Engineering, or a closely related discipline from a recognized university. • Minimum 12/14 years of general professional experience in infrastructure projects. • At least 8/10 years of specific experience in supervision of flood protection works, embankments, dykes, levees, river training works, or related projects. • Proven **6/8 years** of experience as Team Leader/Resident Engineer on similar construction supervision assignments. • Minimum 5/7 years of demonstrated experience in contract administration under FIDIC Conditions of Contract, including certification of payments, variations, claims, and extensions of time.	20	2	18
3	Geotechnical & Materials Engineer	1	• MSc or BSc degree in Geotechnical Engineering, Engineering Geology, Civil Engineering, or a related discipline.	18		

S/N	Position	Number	Minimum Qualification and Experience	Duration (Months)	Office	Field
			• Minimum **6/8 years** of professional experience in geotechnical investigations and supervision of embankment and dyke works. • Demonstrated experience in borrow area assessment, compaction control, slope stability, seepage control, and ground improvement. • Strong experience in materials testing, QA/QC procedures, and compliance with technical specifications.		1	17
4	Site Engineer	1	• MSc or BSc degree in Civil Engineering, Hydraulic Engineering, or a related discipline. • Minimum **6/8 years** of professional experience in site supervision of embankments, dykes, flood protection, or other earthwork-intensive infrastructure projects. • Experience in daily site supervision, measurement of works, quality control, and coordination with contractors.	20	2	18
5	River Engineer	1	• MSc or BSc degree in Civil Engineering, Hydraulic Engineering, River Engineering, or a closely related discipline from a recognized university. • Minimum 6/8 years of experience in river engineering, flood protection, embankments, dykes, river training works, or other earthwork-intensive hydraulic infrastructure projects.	6	1	5

S/N	Position	Number	Minimum Qualification and Experience	Duration (Months)	Office	Field
			• Proven experience in design review, design modification, and hydraulic/river engineering analysis, including preparation of calculations, drawings, and technical specifications. • Experience in site supervision, measurement of works, quality control, and coordination with contractors. • Experience with hydraulic and river modeling (e.g., HEC-RAS, 1D/2D modeling) and flood risk assessment is an advantage.			
6	Quantity Surveyor	1	• MSc or BSc degree in Civil Engineering, Quantity Surveying, Water Resources Engineering, or a related discipline. • Minimum **6/8 years** of professional experience in measurement and valuation of flood protection and embankment works and related infrastructure. • Proven experience in preparation and verification of Interim Payment Certificates (IPCs), variations, and final accounts under FIDIC-based contracts.	18	1	17
7	Environmental Specialist	1	• MSc or BSc degree in Environmental Science, Environmental Management, or a related discipline. • Minimum 6**/8 years** of professional experience in environmental management for infrastructure projects.	10	1	9

S/N	Position	Number	Minimum Qualification and Experience	Duration (Months)	Office	Field
			• Demonstrated experience in implementation and monitoring of Environmental and Social Management Plans (ESMPs), occupational health and safety (OHS), and stakeholder engagement. Experience with the **World Bank Environmental and Social Framework (ESF)** or other IFI safeguard policies is highly desirable			
8	Electro mechanical Engineer	1	• MSc or BSc degree in Electromechanical Engineering, Electrical Engineering, Mechanical Engineering, or a closely related discipline from a recognized university. • Minimum 6/8 years of professional experience in design, supervision, installation, and commissioning of electromechanical systems for hydraulic structures, pumping stations, water infrastructure, or similar large-scale infrastructure projects. • Proven experience in review of electromechanical designs, shop drawings, and technical submittals, and supervision of installation and commissioning of pumps, gates, valves, control systems, power supply, and instrumentation.	4	1	3
9	Social Safeguard Specialist	1	• Degree in Social Anthropology, Sociology, Social Works or a related discipline. • Minimum **6/8 years** of professional experience in social development aspects of infrastructure projects. • Demonstrated experience in implementation and monitoring of social mitigation measures under ESMPs, stakeholder engagement, and grievance redress mechanisms.	10	1	9

S/N	Position	Number	Minimum Qualification and Experience	Duration (Months)	Office	Field
			• Experience with the **World Bank Environmental and Social Framework (ESF)** or other IFI safeguard policies are highly desirable. The expert should have a proven record of working with communities and developing ESIA tools, including Stakeholder Engagement Plans, Resettlement Action Plans, in gender informed resettlement and Grievance Redress Mechanisms.			
10	Surveyor & CAD Technician	1	• BSc degree or Diploma in Surveying, Civil Engineering Technology, or a related discipline. • Minimum **6/8 years** of professional experience in infrastructure projects. • Proven experience in topographic surveys, setting-out, as-built surveys, and preparation of drawings using CAD software. • Experience in flood protection or rilated infrastructure projects is an advantage.	18	1	17

Note:

The Project Manager, Resident Engineer, and Site Engineer shall remain engaged for an additional period of two (2) months, covering both the pre-construction and post-construction phases. This period shall be utilized for activities including contractor mobilization, review and adoption of design documents, site verification, and other pre-construction preparations, as well as project handover, preparation of as-built drawings, compilation of completion reports, and other close-out activities following the completion of construction works.

All assigned key personnel are full-time staff dedicated to the project in accordance with the man-month inputs specified in the ToR

Table 6.2. Vehicles, Field Testing Equipment, and Field Office Facilities Provided by the Consultant

No.	Description	Purpose	Quantity	Duration (Month)	Remarks
1	4WD Vehicle	For site supervision, coordination, and field mobility in flood-prone areas specifically for Team Leader	1	20[1]	Fully equipped with fuel, driver, insurance, and maintenance
2	4WD Vehicles	For parallel site supervision and technical staff mobility	2	18	Same conditions as above
3	Total Station	Surveying, setting-out, level control, quantity verification, and as-built surveys	1	18	Complete with accessories
4	Dynamic Cone Penetrometer (DCP) & Concrete Slump Test Apparatus (Abrams Cone)	Field tests and basic QA/QC support for construction supervision	1	12	Supporting Site and Geotechnical Engineers through field soil strength testing (DCP) and concrete workability testing (slump test) during supervision
5	Field Office Rent	Provision of fully equipped field office for the supervision team, including office furniture, , and space for reporting and coordination activities.	1	18	For coordination activities
6	Reporting & Documentation Support	Preparation of monthly progress reports, completion report, and as-built drawings	1	18	Includes drafting, compilation, printing, and submission to Client

Note: The vehicles and other materials required for the project shall be used by the Consultant exclusively for project implementation. The Consultant is required to quote **monthly service rental rates** for these resources in the financial proposal.

Upon completion of the assignment, all vehicles and materials shall remain the **sole property of the Consultant**, and no ownership shall be transferred to the Client.

[1] The vehicle shall remain available for an additional two months during the pre-construction and post-construction phases to support the Project Manager, Resident Engineer, and Site Engineer

Table 6.3. Reporting & Documentation Support

No.	Description	Purpose / Scope	Unit	Quantity	Remarks
1	Reporting	Preparation and submission of **monthly progress reports**, **Final Completion Report**, and **as-built drawings**	No.	18	Includes drafting, compilation, printing, and submission to the Client
2	Final Deliverables	Preparation and submission of **Final Completion Report**, **As-Built Drawings**, and **Operation & Maintenance (O&M) Manual**	No.	1	Covers review, approval, and formal handover to the Client

7. Deliverables Timelines

Table 7. 1: Report Deliverables and timelines

Deliverable	Submission Timeline
Inception Report	2 weeks
Weekly Status Report together with weekly executed takeoff sheet	weekly
Biweekly Executed takeoff sheet together with surveying Data OGL with As built data	Bi weekly
Monthly Progress Reports	Monthly
Safeguard Compliance Reports	Quarterly
Environmental & Social Compliance Audit	Quarterly
Final Completion Report	Post-construction
As-built Drawings & operation and maintenance manual	Post-construction
Final Payment Certificate	End of project

8. PAYMENT TERMS

Advance Payment:

An advance payment equivalent to 10% of the contract amount shall be made upon submission and acceptance of an unconditional and irrevocable bank guarantee by the Consultant. The advance payment shall be progressively recovered from subsequent interim payments. Full recovery of the advance shall be completed once the project financing has reached 80% disbursement of the contract value.

Interim Payments:

- Bi-monthly, subject to the approval of progress reports, verification of bi-weekly take-off sheets, and satisfactory supervision records covering the respective bi-monthly payment period.
- Covers staff, vehicles, equipment, field offices, and field testing.

Final Payment:

- After successful completion, including QA/QC verification, ESMP compliance, OHS, submission of all deliverables, and handover.
- Includes approval of all deliverables, formal project handover, and contract close-out; ensures all documentation, including as-built drawings and O&M manuals, is submitted and accepted.
- Reflects approved variations, provisional sums, or claims.

General Notes:

- All payments comply with the **contract provisions** and **World Bank Standard Procurement Documents**.

9. Duration of the Consultancy

The consultancy shall cover all phases of the Lot 1 construction supervision assignment, from pre-construction activities to post-construction handover, including supervision during the Defects Liability Period (DLP).

Total Duration: 20 months

The total duration of the consultancy services shall be 20 months, including pre-construction and post-construction activities. The construction supervision phase will be 18 months, while three key staff members will remain engaged for an additional two months beyond the construction period.

Activity	Duration (Months)	Description / Notes
Pre-Construction,	1	Includes site verification, review of designs, and updating of working drawings prior to commencement of construction activities.
Construction Supervision,	18	Full-time supervision of embankment construction, mechanical/electromechanical works, quality assurance and quality control (QA/QC), contract administration, environmental and social safeguards monitoring and coordination with contractors during implementation.
Project Close-Out	1	Includes preparation of as-built drawings, operation and maintenance manuals, final reports, stakeholder training, and formal handover to the Client.

Notes:

- The duration includes all supervision, QA/QC, contract administration, field testing, community training, reporting, and submission of as-built documentation.
- Consultant staff, vehicles, equipment, and field offices shall be mobilized in accordance with the assignment schedule.
- **Final completion** is defined as the issuance of all completion certificates, submission of all deliverables, and formal handover to the Client.

10. Ethics, Quantity Measurement, Quality Control, and Payment Approval Responsibilities

In addition to the tasks listed above, the Consultant shall be responsible for upholding the highest standards of professional ethics and diligence in the execution of their duties, including the following:

- **Ethical Conduct:**
  - All staff of the Consultant must conduct themselves with integrity, impartiality, and transparency in all project activities, including interactions with the Contractor, Client, local stakeholders, and communities.
  - Any form of conflict of interest, favoritism, or unethical practice during supervision, measurement, or certification shall be strictly prohibited.
- **Weekly Measurement, Surveying, and Quantity Verification:**
  - The Consultant shall measure and verify quantities of works executed on a **weekly basis**, using approved surveying methods and instruments.
  - Measured quantities shall be documented in detailed weekly takeoff sheets, accompanied by **surveying data, level measurements, and photographic records**.
  - These Bi-weekly measured quantities, including supporting survey data, shall be **submitted to the Client** for review and record-keeping.
  - Any discrepancies, over- or under-measurements must be immediately reported to the Client, along with recommendations for corrective actions.
- **Quality Control and Issue Reporting:**
  - The Consultant shall continuously monitor and verify the quality of materials, workmanship, and construction methods.
  - All identified quality issues, defects, or non-conformance with approved designs, specifications, or safety standards shall be **documented, reported to the Client, and communicated to the Contractor for immediate corrective action**.
  - A comprehensive quality issue log shall be maintained and included in weekly and monthly reports to ensure traceability and accountability.

- **Payment Certification and Approval:**
    - The Consultant shall review and approve all payment requests (Interim and Final Payment Certificates) based strictly on verified executed works, measured quantities, and quality compliance in accordance with the contract provisions.
    - Payments shall **not** be approved for works that are incomplete, substandard, or non-compliant with the approved designs, technical specifications, or safety standards.
    - All payment certifications must comply with the contract provisions and attach necessary supporting documents (takeoff sheets, survey data, OGL, as-built data, CAD drawings if necessary. Any overpayment or redundancy arising from improper approval by the Consultant shall be recoverable and may result in penalties or sanctions.
- **Accountability and Compliance:**
    - Failure to adhere to ethical standards, proper quantity verification, or quality control and payment procedures may result in sanctions, including formal warnings, withholding of remuneration, suspension, or termination of the consultancy contract, as deemed appropriate by the Client.
    - The Consultant shall maintain comprehensive records of measurements, survey data, quality issues, approvals, and decisions to ensure full transparency and traceability for auditing and oversight purposes.
- Embankment works shall not be certified for payment unless all required compaction tests, material approvals, geometric checks, and stability verifications have been completed and approved by the Consultant.

11. Conflict of Interest and Anti-Corruption & Fraud

- Conflict **of Interest:**
    - ✓ Identify, disclose, and manage any potential or actual conflicts of interest affecting impartiality or objectivity.
    - ✓ The Consultant shall not engage in any activity or relationship that could compromise independence.
    - ✓ Report suspected conflicts to the Client immediately.

- Anti-Corruption and Fraud:
    - ✓ Adhere to the highest standards of integrity and ethical conduct in line with World Bank Anti-Corruption Guidelines.
    - ✓ Prohibit bribery, collusion, coercion, obstruction, or any fraudulent activity.
    - ✓ Report any suspected incidents of corruption or fraud to the Client and cooperate with investigations.
    - ✓ Maintain proper records and procedures to prevent, detect, and address corruption or fraud risks.
- Sanctions for Non-Compliance:
    - ✓ Breach of conflict of interest or involvement in corruption or fraud shall constitute a material breach, potentially resulting in contract termination, legal action, or` referral to relevant authorities

12.Performance Monitoring & Evaluation

- **Timeliness & quality** of deliverables.
- **Effectiveness** in resolving design & technical issues.
- **Contract management** efficiency.
- **Environmental & social compliance monitoring**.

13. Standards & Reference Documents

- FIDIC Red Book (2017)
- World Bank Environmental & Social Framework (ESF)
- CIRIA Rock Manual
- EN 13383, EN 10223 (Geotextiles & Gabions)
- Project Design Documents & BoQ

Federal Democratic Republic of Ethiopia

Ministry of Water and Energy

Ethiopia Flood Management Project

Terms of Reference (TOR)

Supervision and Contract Administration Consultancy Services

Resilience of Flood Risk Reduction Infrastructure – Amibara Right Bank Embankment Construction Project

(Lot 2: Chainage 35+000 to 60+000)

March, 2026

Addis Ababa
Ethiopia

Contents

1. Background and Context 3
2. Objectives of the Assignment 3
3. Project Description 5
4. Scope of Services 6
   4.1. Pre-Construction Services (Design Review & Update) ..... **Error! Bookmark not defined.**
   4.2. Construction Supervision Services 6
   4.3. Contract Administration Services 11
   4.4. Post-Construction Services 11
   4.5. Capacity Building & Community Engagement 12
5. Specific Responsibilities of Key Personnel 12
6. Staffing Requirements 19
7. Deliverables & Payment Terms ..... **Error! Bookmark not defined.**
8. Duration ..... **Error! Bookmark not defined.**
9. Performance Monitoring & Evaluation 31
10. Standards & Reference Documents 31
11. Consultant's Office & Equipment ..... **Error! Bookmark not defined.**
12. Payment Terms ..... **Error! Bookmark not defined.**

List of Table

Table 6. 1: Staff Qualification and Experience 20
Table 7. 1: Report Deliverables and timelines ..... **Error! Bookmark not defined.**

List of Figure

Figure 3. 1: Location of the Amibara Right Bank Embankment Construction Project 5

1. Background and Context

The Amibara Right Bank Embankment project is a key component of the Ethiopia Flood Management Project (EFMP), aimed at enhancing flood resilience and safeguarding critical agricultural and irrigation infrastructure along the Awash River. The embankment spans approximately 60 km and incorporates vegetated slopes, rock revetments, gabions, and a gravel access road.

Recurring floods, sedimentation, and climate change impacts have increasingly threatened the embankment and adjacent infrastructure. Strengthening, raising, and upgrading measures are required to enhance resilience to future hydrological and morphological changes. All works will be implemented in accordance with the **FIDIC Red Book (2017)** and **World Bank Procurement Regulations**.

For efficient implementation, the project is divided into two civil works contracts, supervised by two consulting firms. These lots include river-adjacent sections requiring extensive slope protection, broader floodplain areas with vegetated slopes, and locations with critical infrastructure crossings. Under this assignment (Lot 2), the supervision consultant will be responsible for the supervision and contract administration of the civil works covering the chainage section from 35+000 to 60+000.

2. Project Description

The Amibara Right Bank Embankment Construction Project (Lot 2: Chainage 35+000 to 60+000) is part of the broader Resilience of Flood Risk Reduction Infrastructure initiative under the Ethiopia Flood Management Project (EFMP). This project aims to enhance flood protection infrastructure along the right embankment of the Awash River in Amibara Woreda, located in the Middle Awash sub-basin of the Afar region. The intervention is designed to mitigate recurrent flood risks that threaten local communities, agricultural lands, and critical infrastructure.

Floods in Ethiopia have become increasingly severe in recent decades, causing extensive damage to irrigation systems, embankments, and water management structures. The EFMP, launched in partnership with the World Bank and the Ministry of Water and Energy (MoWE), seeks to

improve the resilience of flood-prone areas through strategic embankment construction and rehabilitation.

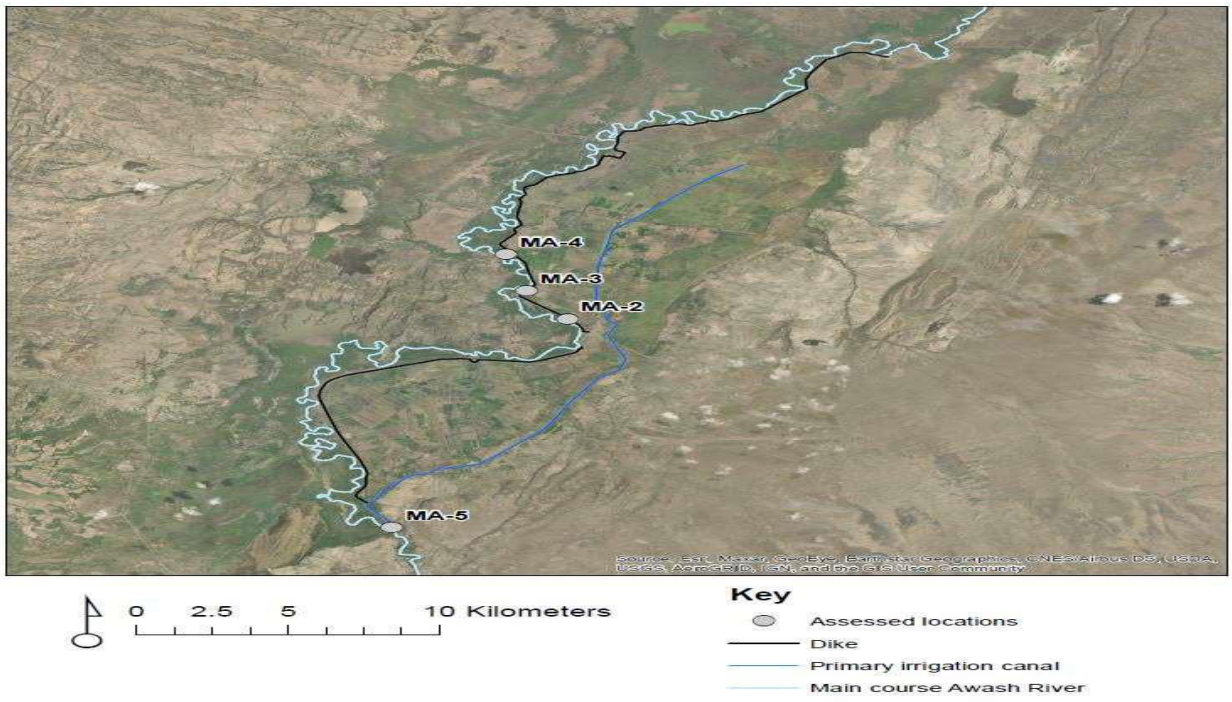

Figure 2. 1: Location of the Amibara Right Bank Embankment Construction Project (Chainage 0+000 to 60+000)

Lot 2 construction supervision should covers a 25 km section of of the right embankment from chainage 35+000 to 60+000. This segment plays a crucial role in protecting agricultural areas and settlements that rely on the Amibara irrigation scheme, which spans approximately 14,000 hectares.

Key Components of Lot 2:

- **Embankment Construction & Protection:**
  - 40% of the embankment includes **rock revetments and scour protection** in high-risk erosion zones.
  - 60% consists of **vegetated slopes** to promote natural flood attenuation.
  - **Gabion structures** for slope stability and channel protection.
- **Crest Road Development:**

- A gravel access road will be constructed atop the embankment primarily for maintenance and monitoring. However, it is anticipated that the local population may also use this road. Therefore, the road should be properly designed, constructed, and subsequently supervised to ensure its durability and continued functionality under both maintenance and community use.
- **Drainage systems** and passing bays will be integrated to ensure road resilience.

- **Environmental & Social Safeguards:**
  - Compliance with the **Environmental and Social Management Plan (ESMP)**.
  - Sustainable design solutions to mitigate climate change impacts.
  - Grievance redresses mechanisms for community concerns.

The construction will be carried out in compliance with **FIDIC Red Book (2017)** and **World Bank Procurement Regulations**, ensuring high-quality execution and sustainable flood protection solutions.

3. Objectives of the Assignment

The objective of the consultancy services is to provide construction supervision and contract administration, including design modifications where necessary, and to ensure that the project works are executed in an orderly and efficient manner. The Consultant shall ensure a high standard of workmanship and the use of specified quality materials, completion within the approved construction schedule, and full compliance with the approved drawings and technical specifications. All services shall be carried out in accordance with the applicable provisions of the FIDIC Red Book (2017), the World Bank Procurement Regulations for IPF Borrowers (Works), acceptable environmental and social standards, and the Client's requirements for construction supervision from 35+000 km to 60+000 km.

3.1. Specific Objectives

The specific objectives of the Consultant under Lot 2 shall include, but not be limited to, the following:

- Provide construction supervision and contract administration services for the civil works contract for the Amibara Embankment, covering chainage 35 +000 to 60+000.

- Perform full supervision and contract administration duties in accordance with the FIDIC Red Book (2017).
- Review, assess, and validate the detailed design, drawings, and technical specifications in light of actual site conditions and propose necessary adjustments, subject to the Client's approval.
- Ensure quality control, technical compliance, and adherence to applicable environmental and social safeguard requirements.
- Support the Employer in implementing minor design modifications and technical adjustments as required during construction.
- Monitor and ensure that the Works are executed within the approved 18-month construction period, and in accordance with the approved budget and schedule.
- Provide supervision services for two civil works contract lots under the overall assignment.
- Coordinate closely with the Lot 1 Consultant to ensure consistency in design implementation, construction quality, reporting, and contract administration across both lots.

4. Scope of Services

The Scope of services for consulting services will include, but not limited to the following:

4.1. Contract Administration and Construction Supervision

4.1.1. Construction Supervision Services

The Consultant shall provide full-time construction supervision services for the Amibara Right Bank Embankment works (Lot 2: Chainage 35+000 to 60+000 km) to ensure that all works are executed in strict compliance with the approved designs, technical specifications, contract conditions, environmental and social safeguards, and quality standards.

The Construction Supervision Services shall include, but not be limited to, the following:

a) General Supervision

- Oversee and supervise construction of works ensuring compliance to details provided in the construction (working) drawings and strict adherence to the Specifications;
- Prepare quality control and assurance plan including a detailed description of the Contractor's required organization, procedures facilities proposed to ensure that the construction is carried out in accordance with the terms and condition of the Contract, Specifications and Drawings in accordance with modern concepts of project management;
- The quality control and assurance plan shall include a system to ensure that the documentation necessary to attest completion of any phase(s) of the works, use of correct materials, completion of required completions and tests, and acceptability of results generated are reviewed, maintained and submitted by the Contractor to the Engineer. The Contractor's test programs shall be suitably documented duly addressing pertinent test pre-requisites parameters;
- Review and process claim for additional time and cost by the Contractor, as per the procedures described in the conditions of contracts and give advice to the Client;
- In the event of contractual dispute which may result in legal action, adjudication or arbitration between the Contractor and the Client, the consultants will, on the instructions from the Client, collate and prepare factual documentation describing the circumstances of the dispute. If required, the consultants will attend hearings and provide all legal and other support to the client;
- Carry out dispute resolution, as per provisions of the Conditions of Contract;
- Witness any acceptance test and advise the Client whether the works or any part thereof have been completed as per specifications and certify outcome of the acceptance test in support of provisional acceptance certificate of completion;
- Testing of materials on-site or off-site when needed and testing and inspection of goods and materials in factory, if needed;
- Review design calculations and shop drawings submitted by the Contractors on all mechanical and electrical works and approve or amend the same in consultation with the client;
- Supervise repairs, replacement and installation of the mechanical and electrical equipment in a satisfactory and safe manner in accordance with the specifications and contract requirements;
- Testing and commissioning of mechanical and electrical equipment in association with the client;

- Carry out measurement of works and agree on quantities with the contractor(s) and certification of Contractor's statements for progress payments in terms of the conditions specified in the contract. Prepare instructions for permissible variations in the works for approval by the Client.
- Monitor contractor mobilization, staffing, equipment deployment, and site organization.
- Coordinate with the Client, Contractor, and Lot 1 Supervision Consultant to ensure uniform technical standards and construction quality across the project.

b) Embankment Earthworks and Quality Control

- Supervise all embankment earthworks, including foundation preparation, stripping, excavation, filling, and compaction.
- Verify suitability and approval of borrow areas and embankment fill materials based on laboratory and field testing.
- Ensure controlled layer-by-layer placement of embankment fill with approved lift thickness and moisture content.
- Enforce compaction requirements and verify achievement of specified density through regular field density tests.
- Reject, suspend, or order reworking of any embankment sections that do not meet quality or specification requirements.

c) Embankment Geometry, Stability, and Seepage Control

- Verify embankment alignment, crest width, elevations, slopes, and toe dimensions through regular surveying and profile checks.
- Ensure compliance with design tolerances before approving progression to subsequent construction stages.
- Supervise foundation treatment, seepage control measures, filters, drainage layers, and geotextile installations.
- Monitor embankment stability during construction, particularly after rainfall or flood events, and require immediate corrective actions where instability, settlement, cracking, or piping is observed.

d) Rock Revetment, Gabion, and Slope Protection Works

- Supervise construction of rock revetments, gabions, and scour protection works in accordance with approved drawings and international standards.
- Verify quality, size, shape, durability, and placement of rock materials and gabion baskets.
- Ensure proper installation of geotextiles, filter layers, toe protection, anchorage, and interlocking of protection works.
- Inspect workmanship to prevent segregation, voids, or improper placement that may compromise embankment performance.

e) Vegetated Slopes and Surface Protection

- Supervise placement of topsoil and implementation of grassing, seeding, or turfing works on designated embankment slopes.
- Ensure vegetated slopes meet design thickness, coverage, and erosion resistance requirements.
- Monitor establishment of vegetation and require corrective measures where inadequate growth or erosion is observed.

f) Materials Testing and QA/QC Management

- Oversee and verify all laboratory and field testing, including soil classification, compaction, permeability, density, and material durability tests.
- Review and approve the Contractor's Quality Assurance and Quality Control (QA/QC) Plan.
- Conduct regular quality audits of contractor testing procedures and laboratories.
- Maintain a comprehensive embankment Quality Control Register, including test results, non-conformance reports (NCRs), corrective actions, and approvals.

g) Environmental, Social, and Safety Compliance

- Ensure construction activities comply with the Environmental and Social Management Plan (ESMP) and Occupational Health and Safety (OHS) requirements.
- Monitor environmental mitigation measures, including erosion control, waste management, dust suppression, and noise control.
- Coordinate with Environmental and Social Specialists to address safeguard issues affecting embankment works.

h) Documentation, Reporting, and Certification

- Maintain daily site diaries, inspection records, testing logs, and photographic documentation.
- Prepare and submit weekly status reports, biweekly quantity takeoff sheets with survey data, and monthly progress reports.
- Certify completed embankment works only after full compliance with quality, testing, geometric, and stability requirements is confirmed.
- Withhold approval or payment for works that are incomplete, substandard, or non-compliant with approved designs and specifications.

II) Intake Gates and Structural Works

- Supervise construction of intake gates, crossing, and other hydraulic and structural components in accordance with approved drawings and specifications.
- Review structural design calculations, shop drawings, and method statements for intake gates and associated structural works.
- Verify reinforcement detailing, formwork, concreting procedures, curing methods, and structural tolerances.
- Witness testing and commissioning of intake gates, mechanical actuators, hoisting mechanisms, and control systems.
- Ensure structural works meet design safety, hydraulic performance, and durability requirements before certification.

4.2.Contract Administration Services

- Administer contract execution in accordance with **FIDIC Red Book (2017)**.
- Certify **interim payments** and assess **claims, variations, and time extensions**.
- Ensure proper documentation and record keeping.
- Provide **early warnings** for potential disputes and propose mitigation strategies.

4.3. Post-Construction Services

- Conduct **final inspections and snagging**.
- Approve **as-built drawings and O&M manuals**.
- Prepare **Final Completion Report**.
- Monitor the **Defects Liability Period (DLP)**.
- Conduct **environmental impact assessment and mitigation verification**.

4.4.Review of Design, Estimates and Drawings where necessary

viii. Examine and ensure adequacy of the hydraulic, structural and geotechnical design criteria and make modifications where necessary;

ix. Review and update the detailed designs where necessary;

x. Prepare agreed amendments to the detailed design and all required construction (working) drawings for all aspects of construction works. The Consultant shall amplify where necessary the contract drawings and specifications by preparing working drawings, which shall be in sufficient detail to enable the appointed contractors to construct the civil, mechanical and electrical works. Working drawings shall be prepared to normal international standards and completed and issued to the contractors in accordance with the agreed program. The Consultant shall also check and approve all designs and drawings prepared by the Contractor.

xi. All design modifications shall be subject to prior approval of the Client;

xii. Amend the detail design report based on the additional investigations to be carried out, additional design analyses, applied results of significant additional computation with basic points where necessary;

xiii. Prepare Engineer's Estimate as and when required (for new items if any); and

xiv. Plan and execute additional surveys and other such activities **where necessary** to provide a basis for both design modifications and subsequent preparation of construction drawings. The cost for survey and other necessary investigations shall be covered by the Client upon the request of the Consultant where deemed necessary.

4.5. Capacity Building & Community Engagement

- Train local stakeholders on **project management and environmental compliance**.
- Establish a **grievance redress mechanism**.
- Conduct **community awareness programs on environmental protection and flood risk management**.
- Operation Maintenance of intake and related structures

5. Specific Responsibilities of Key Personnel

1) Project manger

- Provide overall leadership and strategic management of the construction supervision services for the embankment and associated flood protection works.
- Ensure that the works are implemented in accordance with the approved designs, technical specifications, contract provisions, and applicable engineering standards.
- Oversee the implementation of the **quality assurance and quality control (QA/QC) system** for all construction activities, including embankment earthworks, compaction, slope protection, and related hydraulic structures.
- Direct and supervise the **Resident Engineer and supervision team**, ensuring effective site supervision, inspection, and monitoring of construction activities.
- Establish and oversee project **monitoring, reporting, and documentation systems**, including review and approval of supervision reports prior to submission to the Client.

- Provide overall oversight of **contract administration under FIDIC Conditions of Contract**, including review of variations, claims, extensions of time, and contractual correspondence.
- Review and endorse **Interim Payment Certificates (IPCs)** and **Final Payment Certificates** prepared by the Resident Engineer prior to submission to the Client for approval.
- Monitor project progress against the approved work program and ensure timely implementation of the works, including resolution of technical and contractual issues affecting progress.
- Coordinate with the Client, contractors, government institutions, and development partners to facilitate effective project implementation
- Provide technical guidance on critical engineering matters, including embankment stability, river behavior, and flood protection performance.
- Ensure compliance with **environmental and social safeguard requirements, occupational health and safety standards**, and other contractual obligations.
- Conduct periodic site inspections and high-level progress review meetings to ensure construction quality and adherence to project objectives.
- Oversee the preparation and verification of **as-built drawings, completion documentation, and final project reports**.
- Advise the Client on project risks, contractual matters, and corrective actions necessary for successful project completion.

2) Resident Engineer (Team Leader)

- Manage the day-to-day **construction supervision activities at site** and coordinate the work of the supervision team.
- Serve as the primary liaison at site between the **Contractor, Client, and supervision team**, ensuring effective communication and coordination.
- Review and approve the contractor's **work programs, method statements, material submittals, and quality assurance plans**.

- Supervise construction activities to ensure compliance with **approved drawings, technical specifications, and contract requirements**.
- Monitor construction progress and advise the Project Manager on potential delays, technical issues, and corrective actions.
- Issue **site instructions, technical directives, and contractual correspondence** in accordance with the Conditions of Contract.
- Evaluate **variations, contractor claims, and requests for extensions of time**, and submit recommendations to the Project Manager.
- Measure completed works and **prepare and certify Interim Payment Certificates (IPCs) & Final payment certificates** for review and endorsement by the Project Manager.
- Prepare and submit **site progress reports and technical documentation** to the Project Manager.
- Chair regular **site progress meetings** with the contractor and maintain records of project correspondence and site activities.
- Supervise quality control testing, inspections, and verification of construction works.
- Ensure proper preparation of **as-built drawings, completion reports, and supporting documentation** for project close-out.

3) Geotechnical Engineer

- Review geotechnical data, including soil investigations, laboratory results, and compaction test reports.
- Supervise earthworks activities (excavation, filling, foundation preparation, and compaction) and verify ground conditions.
- Approve embankment materials (fill, rock, gravel, soil, geotextiles, and vegetation) in compliance with specifications.
- Supervise material sampling, testing, borrow area investigations, and stockpile management.
- Define and monitor testing frequency, locations, acceptance criteria, and maintain complete testing records and reports.

- Monitor embankment stability and geotechnical performance during and after construction through regular field inspections.
- Review and approve mix designs, geotextile properties, and related quality documentation.
- Conduct quality audits of contractor laboratory and field testing operations.
- Assess risks related to settlement, slope instability, seepage, erosion, and piping, and recommend corrective or preventive measures.
- Certify readiness of embankment sections before advancing to subsequent construction stages.
- Provide technical guidance on embankment behavior under extreme weather and flood conditions.

4) Site Engineer

- Supervise the construction of embankments, dykes, riverbank protection, drainage, and erosion control works according to approved drawings, specifications, and QA/QC requirements.
- Ensure proper alignment, grading, shaping, finishing, and protection of embankment crests and slopes.
- Monitor daily construction activities, including quantities, workmanship, safety, and quality compliance.
- Coordinate with contractor staff to resolve technical issues and maintain site records, including daily logs, measurements, inspection reports, and quality checklists.
- Monitor embankment crest and toe stability during construction, coordinating with the Geotechnical Engineer to ensure overall embankment stability and flood resilience.
- Report construction progress, issues, and non-compliances to the Resident Engineer.

5) Quantity Surveyor

- Measure completed works in accordance with contract drawings and specifications.
- Prepare and verify Interim Payment Certificates (IPCs) and supporting documentation.

- Review and evaluate variations, claims, and price adjustments in coordination with the Resident Engineer.
- Maintain updated records of quantities, payments, and contract financial status.
- Assist in preparation of final accounts and contract close-out documentation.
- Ensure all measurements and valuations comply with FIDIC contract provisions.

6) River Engineer

- Review river engineering and hydraulic design documents, including river training works, flood protection structures, embankments, channels, and hydraulic structures.
- Assess the adequacy of the original design in relation to site conditions, hydrological and hydraulic assumptions, and climate and flood risk considerations.
- Propose and develop design modifications and optimization measures, where necessary, to improve flood conveyance, river stability, and overall system performance.
- Prepare revised hydraulic and river engineering calculations, drawings, and technical specifications for design changes, in coordination with the Team Leader and Resident Engineer.
- Ensure that all design modifications comply with relevant national standards, international best practices, and World Bank technical and environmental requirements.
- Coordinate with the Geotechnical Engineer, Electromechanical Engineer, and Environmental and Social Specialists to ensure integrated and sustainable design solutions.
- Review and approve contractor design submissions related to river works and hydraulic structures.
- Provide technical support during construction to address design-related issues and unforeseen site conditions.
- Document all approved design changes and ensures proper incorporation into as-built drawings and project records.
- Report design review findings, recommended modifications, and implementation status to the Team Leader and the Client.

7) Surveyor

- Conduct initial verification surveys to align design with site conditions.
- Review and approve contractor setting-out data.
- Perform regular as-built surveys and maintain survey records.
- Conduct joint measurements with the contractor for progress evaluation.
- Ensure geospatial data accuracy for all structures and features.

8) Environmental Specialist

- Monitor implementation of the Environmental Management Plan (EMP) within the ESMP.
- Ensure compliance with the World Bank Environmental and Social Framework (ESF) regarding environmental requirements.
- Conduct regular site inspections to assess environmental impacts and the effectiveness of mitigation measures.
- Ensure proper waste management, dust suppression, and noise control on site.
- Prepare quarterly environmental compliance reports.

9) Social Safeguard Specialist

- Monitor the Social Management Plan (SMP) within the ESMP.
- Ensure community safety and effective stakeholder engagement throughout project implementation.
- Address grievances raised by the community and workers in a timely manner.
- Prepare quarterly social safeguard compliance reports.

10) Electro-Mechanical Engineer

- Review and verify the design of electromechanical (E&M) systems, including pumps, gates and valves.

- Supervise installation, testing, and commissioning of electromechanical equipment in accordance with approved drawings, technical specifications, manufacturer recommendations, and QA/QC requirements.
- Ensure compliance of E&M works with relevant international standards, national codes, and contract specifications.
- Inspect workmanship and materials, and identify any defects, non-conformities, or safety issues related to electromechanical installations.
- Coordinate with the Civil and Geotechnical Engineers to ensure proper integration of E&M systems with civil structures.
- Review contractor method statements, shop drawings, and technical submittals for electromechanical components.
- Report progress, technical issues, and non-compliances to the Resident Engineer.
- Provide technical support to the Client during defects liability period and handover of operation and maintenance manuals.

6. Staffing Requirements

Table 6. 1: Staff Qualification and Experience

S/N	Position	Number	Minimum Qualification and Experience	Duration (Months)	Office	Field
1	Project Manger	1	• PHD or Msc degree in Civil Engineering, Hydraulic Engineering, Water Resources Engineering, or a closely related discipline from a recognized university. • Minimum18**/20 years of general professional experience** in planning, design, and implementation of large-scale infrastructure projects. • At least **10/12 years of specific experience** in management and supervision of flood protection works, embankments, dykes, levees, river training works, or related hydraulic infrastructure projects. • Proven **8/10 years of experience in senior management roles** (Project Manager/Project Director/Team Leader) in similar construction supervision assignments. • Demonstrated experience in **overall project coordination, contract management, and stakeholder engagement**, including coordination with government institutions, contractors, and development partners. • Strong experience in FIDIC Conditions of Contract, including oversight of contract administration, variations, claims, certification of payments, and extensions of time.	20	16	4

S/N	Position	Number	Minimum Qualification and Experience	Duration (Months)	Office	Field
			• Minimum 5 years of professional experience in projects financed by international funding institutions (such as the World Bank, AfDB, EU, or other development partners). • Excellent leadership, communication, and reporting skills			
2	Resident Engineer (Team Leader & Contract Specialist)	1	• MSc or BSc degree in Civil Engineering, Hydraulic Engineering, Water Resources Engineering, or a closely related discipline from a recognized university. • Minimum 12/14 years of general professional experience in infrastructure projects. • At least 8/10 years of specific experience in supervision of flood protection works, embankments, dykes, levees, river training works, or related projects. • Proven **6/8 years** of experience as Team Leader/Resident Engineer on similar construction supervision assignments. • Minimum 5/7 years of demonstrated experience in contract administration under FIDIC Conditions of Contract, including certification of payments, variations, claims, and extensions of time.	20	2	18
3	Geotechnical & Materials Engineer	1	• MSc or BSc degree in Geotechnical Engineering, Engineering Geology, Civil Engineering, or a related discipline.	18		

S/N	Position	Number	Minimum Qualification and Experience	Duration (Months)	Office	Field
			• Minimum **6/8 years** of professional experience in geotechnical investigations and supervision of embankment and dyke works. • Demonstrated experience in borrow area assessment, compaction control, slope stability, seepage control, and ground improvement. • Strong experience in materials testing, QA/QC procedures, and compliance with technical specifications.		1	17
4	Site Engineer	1	• MSc or BSc degree in Civil Engineering, Hydraulic Engineering, or a related discipline. • Minimum **6/8 years** of professional experience in site supervision of embankments, dykes, flood protection, or other earthwork-intensive infrastructure projects. • Experience in daily site supervision, measurement of works, quality control, and coordination with contractors.	20	2	18
5	River Engineer	1	• MSc or BSc degree in Civil Engineering, Hydraulic Engineering, River Engineering, or a closely related discipline from a recognized university. • Minimum 6/8 years of experience in river engineering, flood protection, embankments, dykes, river training works, or other earthwork-intensive hydraulic infrastructure projects.	6	1	5

S/N	Position	Number	Minimum Qualification and Experience	Duration (Months)	Office	Field
			• Proven experience in design review, design modification, and hydraulic/river engineering analysis, including preparation of calculations, drawings, and technical specifications. • Experience in site supervision, measurement of works, quality control, and coordination with contractors. • Experience with hydraulic and river modeling (e.g., HEC-RAS, 1D/2D modeling) and flood risk assessment is an advantage.			
6	Quantity Surveyor	1	• MSc or BSc degree in Civil Engineering, Quantity Surveying, Water Resources Engineering, or a related discipline. • Minimum **6/8 years** of professional experience in measurement and valuation of flood protection and embankment works and related infrastructure. • Proven experience in preparation and verification of Interim Payment Certificates (IPCs), variations, and final accounts under FIDIC-based contracts.	18	1	17
7	Environmental Specialist	1	• MSc or BSc degree in Environmental Science, Environmental Management, or a related discipline. • Minimum 6**/8 years** of professional experience in environmental management for infrastructure projects. • Demonstrated experience in implementation and monitoring of Environmental and Social Management Plans (ESMPs), occupational health and safety (OHS), and stakeholder engagement.	10	1	9

S/N	Position	Number	Minimum Qualification and Experience	Duration (Months)	Office	Field
			Experience with the **World Bank Environmental and Social Framework (ESF)** or other IFI safeguard policies is highly desirable			
8	Electro mechanical Engineer	1	• MSc or BSc degree in Electromechanical Engineering, Electrical Engineering, Mechanical Engineering, or a closely related discipline from a recognized university. • Minimum 6/8 years of professional experience in design, supervision, installation, and commissioning of electromechanical systems for hydraulic structures, pumping stations, water infrastructure, or similar large-scale infrastructure projects. • Proven experience in review of electromechanical designs, shop drawings, and technical submittals, and supervision of installation and commissioning of pumps, gates, valves, control systems, power supply, and instrumentation.	4	1	3
9	Social Safeguard Specialist	1	• Degree in Social Anthropology, Sociology, Social Works or a related discipline. • Minimum **6/8 years** of professional experience in social development aspects of infrastructure projects. • Demonstrated experience in implementation and monitoring of social mitigation measures under ESMPs, stakeholder engagement, and grievance redress mechanisms. • Experience with the **World Bank Environmental and Social Framework (ESF)** or other IFI safeguard policies are highly desirable.	10	1	9

S/N	Position	Number	Minimum Qualification and Experience	Duration (Months)	Office	Field
			The expert should have a proven record of working with communities and developing ESIA tools, including Stakeholder Engagement Plans, Resettlement Action Plans, in gender informed resettlement and Grievance Redress Mechanisms.			
10	Surveyor & CAD Technician	1	• BSc degree or Diploma in Surveying, Civil Engineering Technology, or a related discipline. • Minimum **6/8 years** of professional experience in infrastructure projects. • Proven experience in topographic surveys, setting-out, as-built surveys, and preparation of drawings using CAD software. • Experience in flood protection or related infrastructure projects is an advantage.	18	1	17

Note:-

The Project Manager, Resident Engineer, and Site Engineer shall remain engaged for an additional period of two (2) months, covering both the pre-construction and post-construction phases. This period shall be utilized for activities including contractor mobilization, review and adoption of design documents, site verification, and other pre-construction preparations, as well as project handover, preparation of as-built drawings, compilation of completion reports, and other close-out activities following the completion of construction works.

All assigned key personnel are full-time staff dedicated to the project in accordance with the man-month inputs specified in the ToR.

Table 6.2. Vehicles, Field Testing Equipment, and Field Office Facilities Provided by the Consultant

No.	Description	Purpose	Quantity	Duration (Month)	Remarks
1	4WD Vehicle	For site supervision, coordination, and field mobility in flood-prone areas specifically for Team Leader & Project Manger	1	20[2]	Fully equipped with fuel, driver, insurance, and maintenance
2	4WD Vehicles	For parallel site supervision and technical staff mobility	2	18	Same conditions as above
3	Total Station	Surveying, setting-out, level control, quantity verification, and as-built surveys	1	18	Complete with accessories
4	Dynamic Cone Penetrometer (DCP) & Concrete Slump Test Apparatus (Abrams Cone)	Field tests and basic QA/QC support for construction supervision	1	12	Supporting Site and Geotechnical Engineers through field soil strength testing (DCP) and concrete workability testing (slump test) during supervision
5	Field Office Rent	Provision of fully equipped field office for the supervision team, including office furniture, , and space for reporting and coordination activities.	1	18	For coordination activities

Note: The vehicles and other materials required for the project shall be used by the Consultant exclusively for project implementation. The Consultant is required to quote **monthly service rental rates** for these resources in the financial proposal.

Upon completion of the assignment, all vehicles and materials shall remain the **sole property of the Consultant**, and no ownership shall be transferred to the Client.

[2] The vehicle shall remain available for an additional two months during the pre-construction and post-construction phases to support the Project Manager, Resident Engineer, and Site Engineer

Table 6.3. Reporting & Documentation Support

No.	Description	Purpose / Scope	Unit	Quantity	Remarks
1	Reporting	Preparation and submission of **monthly progress reports**, **Final Completion Report**, and **as-built drawings**	No.	18	Includes drafting, compilation, printing, and submission to the Client
2	Final Deliverables	Preparation and submission of **Final Completion Report**, **As-Built Drawings**, and **Operation & Maintenance (O&M) Manual**	No.	1	Covers review, approval, and formal handover to the Client

7. Deliverables Timelines

Table 7. 1: Report Deliverables and timelines

Deliverable	Submission Timeline
Inception Report	2 weeks
Weekly Status Report together with weekly executed takeoff sheet	weekly
Biweekly Executed takeoff sheet together with surveying Data OGL with As built data	Bi weekly
Monthly Progress Reports	Monthly
Safeguard Compliance Reports	Quarterly
Environmental & Social Compliance Audit	Quarterly
Final Completion Report	Post-construction
As-built Drawings & operation and maintenance manual	Post-construction
Final Payment Certificate	End of project

8. PAYMENT TERMS

Advance Payment:

An advance payment equivalent to 10% of the contract amount shall be made upon submission and acceptance of an unconditional and irrevocable bank guarantee by the Consultant. The advance payment shall be progressively recovered from subsequent interim payments. Full recovery of the advance shall be completed once the project financing has reached 80% disbursement of the contract value.

Interim Payments:

- Bi -Monthly, subject to approved progress reports, verified biweekly takeoff sheets, and satisfactory supervision records.
- Covers staff, vehicles, equipment, field offices, and field testing.

Final Payment:

- After successful completion, including QA/QC verification, ESMP compliance, OHS, submission of all deliverables, and handover.
- Includes approval of all deliverables, formal project handover, and contract close-out; ensures all documentation, including as-built drawings and O&M manuals, is submitted and accepted.
- Reflects approved variations, provisional sums, or claims.

General Notes:

- All payments comply with the **contract provisions** and **World Bank Standard Procurement Documents**.

9. Duration of the Consultancy

The consultancy shall cover all phases of the Lot 2 construction supervision assignment, from pre-construction activities to post-construction handover, including supervision during the Defects Liability Period (DLP).

Total Duration:

20 months Construction Supervision

The total duration of the consultancy services shall be 20 months, including pre-construction and post-construction activities. The construction supervision phase will be 18 months, while three key staff members will remain engaged for an additional two months beyond the construction period.

Activity	Duration (Months)	Description / Notes
Pre-Construction	**1**	Includes site verification, review of designs, and updating of working drawings prior to commencement of construction activities.
Construction Supervision,	18	Full-time supervision of embankment construction, mechanical/electromechanical works, quality assurance and quality control (QA/QC), contract administration, environmental and social safeguards monitoring and coordination with contractors during implementation.
Project Close-Out	1	Includes preparation of as-built drawings, operation and maintenance manuals, final reports, stakeholder training, and formal handover to the Client.

Notes:

- The duration includes all supervision, QA/QC, contract administration, field testing, community training, reporting, and submission of as-built documentation.
- Consultant staff, vehicles, equipment, and field offices shall be mobilized in accordance with the assignment schedule.

- **Final completion** is defined as the issuance of all completion certificates, submission of all deliverables, and formal handover to the Client.

10. Ethics, Quantity Measurement, Quality Control, and Payment Approval Responsibilities

In addition to the tasks listed above, the Consultant shall be responsible for upholding the highest standards of professional ethics and diligence in the execution of their duties, including the following:

- **Ethical Conduct:**
  - All staff of the Consultant must conduct themselves with integrity, impartiality, and transparency in all project activities, including interactions with the Contractor, Client, local stakeholders, and communities.
  - Any form of conflict of interest, favoritism, or unethical practice during supervision, measurement, or certification shall be strictly prohibited.
- **Weekly Measurement, Surveying, and Quantity Verification:**
  - The Consultant shall measure and verify quantities of works executed on a **weekly basis**, using approved surveying methods and instruments.
  - Measured quantities shall be documented in detailed weekly takeoff sheets, accompanied by **surveying data, level measurements, and photographic records**.
  - These Bi-weekly measured quantities, including supporting survey data, shall be **submitted to the Client** for review and record-keeping.
  - Any discrepancies, over- or under-measurements must be immediately reported to the Client, along with recommendations for corrective actions.
- **Quality Control and Issue Reporting:**
  - The Consultant shall continuously monitor and verify the quality of materials, workmanship, and construction methods.
  - All identified quality issues, defects, or non-conformance with approved designs, specifications, or safety standards shall be **documented, reported to the Client, and communicated to the Contractor for immediate corrective action**.

- A comprehensive quality issue log shall be maintained and included in weekly and monthly reports to ensure traceability and accountability.

- **Payment Certification and Approval:**
  - The Consultant shall review and approve all payment requests (Interim and Final Payment Certificates) based strictly on verified executed works, measured quantities, and quality compliance in accordance with the contract provisions.
  - Payments shall **not** be approved for works that are incomplete, substandard, or non-compliant with the approved designs, technical specifications, or safety standards.
  - All payment certifications must comply with the contract provisions and attach necessary supporting documents (takeoff sheets, survey data, OGL, as-built data, CAD drawings if necessary. Any overpayment or redundancy arising from improper approval by the Consultant shall be recoverable and may result in penalties or sanctions.
- **Accountability and Compliance:**
  - Failure to adhere to ethical standards, proper quantity verification, or quality control and payment procedures may result in sanctions, including formal warnings, withholding of remuneration, suspension, or termination of the consultancy contract, as deemed appropriate by the Client.
  - The Consultant shall maintain comprehensive records of measurements, survey data, quality issues, approvals, and decisions to ensure full transparency and traceability for auditing and oversight purposes.
- Embankment works shall not be certified for payment unless all required compaction tests, material approvals, geometric checks, and stability verifications have been completed and approved by the Consultant.

11. Conflict of Interest and Anti-Corruption & Fraud

- Conflict **of Interest:**
  - ✓ Identify, disclose, and manage any potential or actual conflicts of interest affecting impartiality or objectivity.

- ✓ The Consultant shall not engage in any activity or relationship that could compromise independence.
- ✓ Report suspected conflicts to the Client immediately.

- Anti-Corruption and Fraud:
  - ✓ Adhere to the highest standards of integrity and ethical conduct in line with World Bank Anti-Corruption Guidelines.
  - ✓ Prohibit bribery, collusion, coercion, obstruction, or any fraudulent activity.
  - ✓ Report any suspected incidents of corruption or fraud to the Client and cooperate with investigations.
  - ✓ Maintain proper records and procedures to prevent, detect, and address corruption or fraud risks.
- Sanctions for Non-Compliance:
  - ✓ Breach of conflict of interest or involvement in corruption or fraud shall constitute a material breach, potentially resulting in contract termination, legal action, or referral to relevant authorities

12.Performance Monitoring & Evaluation

- **Timeliness & quality** of deliverables.
- **Effectiveness** in resolving design & technical issues.
- **Contract management** efficiency.
- **Environmental & social compliance monitoring**.

13. Standards & Reference Documents

- FIDIC Red Book (2017)
- World Bank Environmental & Social Framework (ESF)
- CIRIA Rock Manual
- EN 13383, EN 10223 (Geotextiles & Gabions)
- Project Design Documents & BoQ