
TBILISI METRO ROLLING STOCK SUPERVISION CONSULTANT

MAY 2026

TABLE OF CONTENTS

1. Background	3
2. Objectives of the Assignment	4
Role and authority of the Consultant	4
Reference to supplier's scope of work	5
3. Scope of Services	6
Task 1 - Review and approve technical design documentation, drawings, specifications and other documents	6
Task 2 - Monitor and supervise manufacturing processes	7
Task 3 - Witness and certify tests	8
Task 4 – Inspection and monitoring of delivery, on-site testing, commissioning, endurance testing, and training activities	9
Task 5 - Assist the Purchaser in the issuance of commissioning certificates, end-of-warranty acceptance certificates, safety acceptance & homologation of the rolling stock	11
Task 6 – Review of Maintenance Systems, Spare Parts, Tools and Driving Simulator	12
Task 7 – Monitor compliance with environmental, social, health & safety performance standards and the Project ESMP.	14
Cross-Reference between supervision services and rolling stock Supplier's scope of work	15
4. Implementation Arrangements	17
Project duration	17
5. Deliverables	19
5.1 Task specific deliverables and timeline	19
5.2 General deliverables:	21
5.3 Terms of payment schedule	22
6. Profile of the Consultant	24
Implementation arrangements	28
Communication and reporting	29
Independence, coordination and working principles	29
7. The Client's Inputs	30
Annex 1 – Supplier's Scope of Work (Outlines)	31

1. BACKGROUND

The Tbilisi Metro, operated by Tbilisi Transport Company (TTC), plays a critical role in the urban mobility network of Georgia's capital. In line with its strategic objectives to modernize and expand metro services, TTC is undertaking the procurement of new metro rolling stock. This initiative is part of a broader urban transport modernization program supported by international financial institutions and aims to enhance the safety, capacity, efficiency, and reliability of metro services in Tbilisi.

Tbilisi Transport Company oversees the metro operations, managing a fleet of 192 metro cars. These metro cars, originally designed with a manufacturing lifecycle of 35 years, have undergone a strategic extension, now extending their operational lifespan to 50 years. This extension reflects a proactive approach to optimizing the utility and efficiency of the existing rolling stock, allowing for a more sustainable and cost-effective utilization of these essential assets.

Notwithstanding the above approach, the metro cars are expected to reach their ultimate operational expiry date in the coming few years. In accordance with the findings from various studies, it is anticipated that Tbilisi will experience a substantial increase in passenger traffic. This anticipation highlights the critical need for a comprehensive infrastructure upgrade to accommodate the growing demand. Aligned with a forward-looking vision, the Tbilisi City Hall and Tbilisi Transport Company have set forth a comprehensive plan to replace and renovate the entire fleet of metro cars within the timeframe spanning from 2024 to 2030. This ambitious initiative reflects a strategic commitment to modernize and upgrade the metro system. Recognizing the integral role that infrastructure plays in the efficiency and sustainability of public transportation, the rehabilitation of the metro depot and associated tunnels has been identified as a crucial aspect of this comprehensive undertaking. Upgrading not only the rolling stock but also the supporting infrastructure ensures a seamless integration of modern technology, improved safety standards, and an overall enhanced passenger experience.

In December 2024 Asian Infrastructure Investment Bank (AIIB, or "the Bank") approved provision of financing in the amount of up to US\$ 140,000,000.00 equivalent towards the cost of the Tbilisi Metro Modernization Project ("the Project"), aimed to enhance the efficiency, reliability, safety and sustainability of the Tbilisi Metro system through the procurement of new rolling stock.

The Project encompasses the procurement of 111 electric metro cars (comprising 14 units of 4-car and 11 units of 5-car metro trains) and a driving simulator. The tendering process for the supply of metro-cars has been carried out and the contract signed in July 2025.

2. OBJECTIVES OF THE ASSIGNMENT

To ensure that the new rolling stock meets the required technical, safety, and operational standards, and that all contractual and regulatory requirements are fulfilled throughout the delivery process, Tbilisi Transport Company (TTC), acting as the Purchaser, seeks to engage the services of a Supervision Consultant (hereinafter referred to as the “Consultant”).

For the purposes of day-to-day project implementation and coordination, TTC has established a Project Implementation Unit (PIU), which acts on behalf of the Purchaser in the management and administration of the Project.

The Consultant will provide professional, impartial, and technically competent oversight of the **design, manufacturing, testing, and acceptance** processes for the new metro cars. This role is essential to support the PIU in safeguarding the quality and compliance of deliverables provided by the rolling stock manufacturer, as well as to mitigate risks associated with production, delivery, and commissioning.

The Consultant appointed to support the Project Implementing Agency with this function will be required to familiarise themselves with the financing (i.e. Loan and Project Agreements) and other documents related to the Project and other AIIB key documents including its policies and directives including, but not limited to the Project specific:

- Environmental and Social Management Plan (ESMP), prepared in August , 2024 (publicly disclosed on October 9, 2024 and available at www.ttc.com.ge)
- Stakeholder Engagement Plan (SEP), prepared in September , 2024 (publicly disclosed on October 9, 2024 and available at www.ttc.com.ge)
- Other related AIIB Policies, Strategies or Directives as may be relevant to the Project

TTC have also engaged the services of an Individual Technical Consultant (hereinafter referred to as “the Individual Consultant”) who is overseeing the design processes for the new metro cars at the initial stage of the project implementation and who will hand over the results of its assignment to the Consultant.

By engaging a Consultant, it is expected that TTC will have access to international best practice in the field of metro engineering and related services.

Role and authority of the Consultant

The Consultant shall act as a technical advisor to the PIU, providing impartial, expert assessments, recommendations, and support throughout the project.

Its primary mission is to **safeguard the interests of the** Tbilisi Transport Company by ensuring that all works, deliverables, and processes related to the rolling stock supply contract are carried out in accordance with the agreed technical specifications, standards, and contractual obligations.

While the Consultant shall carry out reviews, issue observations, and make recommendations on the acceptance or rejection of documentation, test results, or works performed, it shall be clearly

understood that the final authority for approvals, acceptances, and decisions rests solely with the TTC (as the Purchaser for the Rolling stock supply contract).

The Consultant must be entirely independent of the rolling stock manufacturer, its affiliates, and any entities that may pose a conflict of interest. The appointed Consultant shall act with full professional integrity, applying internationally recognized standards, best engineering practices, and the relevant provisions of the contract between TTC and the rolling stock supplier.

Reference to supplier's scope of work

The responsibilities and deliverables of the rolling stock Supplier, which are subject to independent review, verification, and oversight, are detailed in **Annex 1** of these Terms of Reference.

This annex outlines the key contractual obligations of the Supplier concerning the design, manufacturing, testing, delivery, and commissioning of the metro cars. It includes the relevant milestones, documentation to be submitted, and testing and acceptance procedures that shall be subject to independent supervision.

The Consultant is expected to base its technical and commercial proposal on a thorough understanding of these obligations. The proposal must clearly demonstrate how the Consultant will verify, support, and oversee the Supplier's compliance with the contractual requirements outlined in Annex 1.

All activities of the Consultant shall be planned and implemented with reference to this scope, ensuring alignment with the project timeline, deliverables, and acceptance criteria agreed between TTC, acting as the Purchaser, and the Supplier.

3. SCOPE OF SERVICES

The Consultant shall act on behalf of and in close coordination with TTC to deal with the following scope, without limitations:

- **Task 1** - Review and approve technical design documentation, drawings, specifications and other documents submitted by the rolling stock supplier as specified in the Contract between the rolling stock Supplier and the Purchaser
- **Task 2** - Monitor and supervise manufacturing processes at the supplier's and sub-suppliers' facilities to ensure compliance with the agreed standards and specifications
- **Task 3** - Witness and certify type tests, factory acceptance tests (FAT), serial production tests, and other relevant verification activities
- **Task 4** - Inspect and monitor delivery, on-site testing, and commissioning activities, including Site Acceptance Tests (SAT) in Tbilisi
- **Task 5** - Assist the Purchaser in the issuance of commissioning acceptance certificate, end-of-warranty acceptance certificate, safety acceptance & homologation of the rolling stock
- **Task 6** – Review of maintenance systems, spare parts, tools, driving simulator, and Documentation
- **Task 7** - Monitor compliance with environmental, social, health & safety performance standards, and the Project ESMP and provide assistance to PIU to prepare necessary ES documents/management plans as specified in the Loan and Project Agreements.

Task 1 - Review and approve technical design documentation, drawings, specifications and other documents

The objective of this task is to ensure that all documentation and deliverables provided by the Supplier conform with the technical specifications, contractual obligations, safety standards, and industry best practices - both during the design phase and at project closeout. The scope of this task shall be limited to any technical documentation that falls due to review after the commencement of the Supervision Consultant's services. The Consultant shall take into account the results of respective reviews carried out by the Purchaser's Individual Consultant that would be handed over to them at the assignment kick-off meeting.

The Consultant shall be responsible for the review, verification, and recommendation for acceptance of all technical documentation and deliverables submitted by the Rolling Stock Supplier throughout the project lifecycle, taking into account the above scope limitations. This includes design documentation, drawings, technical files, and final as-built documentation, as required under supply Contract.

In pursuit of the above the Consultant shall at least:

- Review and assess technical design documentation submitted during the design phase, including:
 - System specifications, functional descriptions, interface drawings
 - Mechanical, electrical, and control systems drawings
 - Maintenance and operation principles, software documentation, etc.

- Monitor document submission schedule and ensure timely review and response within the contractual timelines
- Issue detailed comments and requests for clarification, correction, or resubmission where required
- Track revisions and version control, ensuring consistency and traceability
- Support coordination meetings between Supplier and Purchaser to resolve technical issues arising from document review
- Review and verify final "as-built" documentation, including:
 - Updated drawings reflecting the final manufactured configuration
 - Certified test reports, conformity declarations, and certificates
 - Final user manuals, operation and maintenance documentation
 - Spare parts lists and tools documentation
- Assess completeness, accuracy, and compliance of all final documentation packages
- Issue formal technical recommendations to the Purchaser regarding:
 - Approval or conditional approval of submitted documents
 - Rejection and required corrective actions
 - Readiness for provisional and final acceptance based on documentation.

Task 1 Deliverables:

- Final design review report including a set of summary reports on design documentation compliance including at least:
 - Reviewed documentation packages with traceable comments
 - Document review logs and version tracking
 - Technical memoranda recommending approval, conditional acceptance, or rejection of documents and deliverables
 - Summary reports on design documentation compliance and final closeout.

Coordination requirements:

All document and deliverable reviews shall be conducted in coordination with the Purchaser's project team. While the Consultant shall issue clear technical recommendations, the final decision on acceptance remains with the Purchaser (TTC).

Task 2 - Monitor and supervise manufacturing processes

The objective of this task is to verify that the rolling stock is manufactured in full compliance with the approved designs, quality standards, contractual specifications, and applicable norms, and to identify and report any deviations or risks in a timely manner.

The Consultant shall be responsible for **monitoring and supervising the manufacturing process** of the metro rolling stock at the Supplier's and, where applicable, sub-suppliers' production facilities. This supervision shall ensure that all manufacturing activities conform to the approved design documentation, contractual requirements, and applicable technical standards.

In pursuit of the above the Consultant shall at least:

- Plan and conduct regular supervision missions to the Supplier's and sub-suppliers' production facilities.
- Monitor manufacturing activities, including component fabrication, assembly processes, welding, painting, wiring, integration of systems, and other critical production steps
- Verify compliance with approved technical documentation, quality plans, production schedules, and applicable standards (e.g. EN, ISO, etc.)
- Assess the implementation of quality control and assurance procedures
- Identify and report non-conformities, deviations, or delays, and follow up on the implementation of corrective actions under the contract
- Witness or review quality assurance inspections and factory internal tests performed by the Supplier
- Provide technical and legal guidance to the Purchaser, as required
- Maintain a permanent record of observations, site visit reports, and photographic documentation
- Advise the Purchaser to suspend or withhold specific manufacturing activities in the event of:
 - Critical non-conformities with approved design or contractual specifications
 - Use of unapproved materials or components
 - Safety concerns or failure to follow approved quality procedures
- Upon the Purchaser's written instruction, issue a formal Stop Work Notice to the Supplier and monitor compliance until corrective actions are implemented and approval to resume is granted.

Task 2 Deliverables:

- Final manufacturing stage reports, for each rolling stock batch, including at least:
 - Manufacturing supervision visit reports
 - Non-conformity reports and corrective action tracking
 - Monthly progress summary reports
 - Photographic documentation.

Coordination requirements:

The Consultant shall coordinate closely with the Supplier to organize access, plan inspections, and align site visits with key production milestones. In the event that serious issues arise, the Consultant shall immediately inform the Purchaser and may recommend the suspension of manufacturing activities. Upon confirmation by the Purchaser (TTC), the Consultant is authorized to issue a Stop Work Notice to the Supplier and shall monitor the situation until resolution and resumption approval.

Task 3 - Witness and certify tests

The objective of this task is to ensure that all required factory-based tests are conducted in accordance with approved procedures, applicable standards, and contractual specifications, and to verify that the rolling stock meets the technical and functional performance criteria before delivery and acceptance.

The Consultant shall be responsible for witnessing, reviewing, and certifying all key verification tests performed on the rolling stock, including type tests, factory acceptance tests (FAT), serial production tests, and other contractual testing activities, at the Supplier's facilities and on-site where applicable.

In pursuit of the above the Consultant shall at least:

- Review and validate test procedures, protocols, and schedules prepared by the Supplier, ensuring alignment with contractual requirements and approved technical documentation
- Witness the execution of tests, including but not limited to:
 - Type tests (first unit validation against specification)
 - Factory acceptance tests (FAT) for each vehicle or system
 - Serial production verification tests for consistency and conformity
 - Functional and interface tests, where applicable
- Monitor the performance of testing equipment, conditions, and methods used by the Supplier to ensure reliability and compliance
- Verify and evaluate test results in real time, and assess whether outcomes meet the defined acceptance criteria
- Record observations, identify deviations or failures, and recommend corrective actions where necessary
- Certify and document the outcome of witnessed tests, issuing technical opinions or certifications of conformity for each relevant test phase
- Follow up on retesting or corrective actions, where required, and confirm resolution of prior non-conformities before issuance of acceptance recommendation.

Task 3 Deliverables:

- Consolidated test summary reports, grouped by vehicle or test category including at least:
 - Pre-test review reports, including comments on procedures, test plans, and readiness
 - Test witnessing reports for each test event, including test conditions, observations, results, and any issues identified
 - Certificates of conformity or technical memoranda, summarizing the Consultant's conclusion regarding each witnessed test
 - Non-conformity tracking logs with status of follow-up actions.

Coordination requirements:

All test-related activities shall be coordinated in advance with the Supplier and the Purchaser. The Consultant shall ensure that test witnessing is conducted in a timely and efficient manner to avoid delays in the project schedule. Final test approvals and formal acceptances shall be issued by the Purchaser, based on the Consultant's documented recommendations.

Task 4 – Inspection and monitoring of delivery, on-site testing, commissioning, endurance testing, and training activities

The objective of this task is to ensure that all delivered rolling stock, and associated systems are received in proper condition, undergo all required site testing and commissioning activities, and that all

training obligations are fulfilled to prepare the Purchaser's personnel for safe and effective operation and maintenance of the vehicles.

The Consultant shall be responsible for inspecting and monitoring all delivery, on-site testing, endurance testing, commissioning activities, and training conducted by the Supplier. This includes participation in and certification of Site Acceptance Tests (SAT) and monitoring of all formal training sessions, both at the Supplier's facility and on site in Tbilisi.

In pursuit of the above the Consultant shall at least:

- Monitor the delivery process of vehicles to Tbilisi, including verification of requisite documentation, transport conditions, unloading, and initial inspection upon arrival
- Conduct or witness post-delivery inspections, confirming absence of damage, verifying identification numbers, and ensuring conformity with the as-built and as-tested configuration
- Review and approve the Supplier's on-site testing and commissioning plans, including resource schedules, procedures, and safety protocols
- Witness on-site testing and commissioning activities, ensuring proper integration with existing metro infrastructure and systems
- Supervise and certify Site Acceptance Tests (SAT), including but not limited to:
 - Static and dynamic testing
 - Communication and control system checks
 - Braking, propulsion, and auxiliary systems
 - Safety, emergency, and passenger information systems
- Monitor and verify endurance test runs, specifically:
 - A 5,000 km endurance run for the first metro trainset on the Tbilisi Metro network
 - A 300 km endurance run for each subsequent trainset
 - Supervision of conditions, performance, and fault recording
 - Verification that endurance tests are completed in accordance with contractual requirements before acceptance or commissioning
- Verify completion of all test procedures and documentation, including logs, certificates, and test records
- Monitor resolution of any defects or issues identified during SAT, endurance testing, or commissioning, and confirm corrective actions
- Provide technical support and recommendation to the Purchaser regarding provisional acceptance of each rolling stock unit
- Monitor and verify training activities, including:
 - Review and approve the Supplier's Training Plan, ensuring it meets the structure and requirements stated in the contract
 - Verify delivery of theoretical and practical training for drivers, maintenance, and operational staff, both at the Supplier's factory and at the Purchaser's site
 - Monitor compliance with training timelines and minimum durations
 - Confirm participation of trainees and suitability of training instructors
 - Ensure that all training is conducted in Georgian or with appropriate translation
 - Witness the evaluation process and certification of trainees
 - Verify the delivery and quality of training documentation and materials

- Ensure all training expenses are covered by the Supplier, as contractually required.

Task 4 Deliverables:

- Training supervision report, including at least:
 - Confirmation of compliance with the approved training plan.
 - Summary of courses delivered
 - Attendance lists
 - Observations on content quality, delivery, and translation
 - List of certified personnel and evaluation results.
- Site acceptance test reports and endurance test reports (SAT + 300/5000 km Test Report) including also at least:
 - Delivery inspection reports for each unit or shipment
 - Daily or weekly site supervision notes during commissioning and endurance test phases
 - Non-conformity or defect reports, if applicable, with follow-up actions and resolution status.

Coordination requirements:

All delivery, endurance testing, and on-site activities shall be planned in close coordination with the Purchaser's (TTC) operational and technical teams. The Consultant shall act as a liaison between the Supplier and the Client to ensure smooth execution of testing and commissioning, while safeguarding the Purchaser's interests. All final acceptance decisions remain under the exclusive authority of the Purchaser.

Task 5 - Assist the Purchaser in the issuance of commissioning certificates, end-of-warranty acceptance certificates, safety acceptance & homologation of the rolling stock

The objective of this task is to support the Purchaser in confirming that the Supplier has fully met all technical, functional, safety, and documentation requirements, enabling the issuance of commissioning Certificates, end-of-warranty acceptance certificates, and ensuring compliance with safety acceptance and homologation processes.

The Consultant shall provide evidence-based technical validation, documentation review, and expert input to verify that the rolling stock is safe, complete, and ready for operation in accordance with contractual requirements and applicable regulatory or institutional standards.

In pursuit of this objective, the Consultant shall at least:

- Verify the completion of all commissioning activities, including Site Acceptance Tests (SAT), integration testing, and resolution of defects
- Ensure all deliverables required for acceptance (e.g., test reports, conformity and safety certificates, technical documentation, software validation, training records) have been received, reviewed, and deemed compliant
- Review the Supplier's acceptance requests and confirm that all contractual conditions precedent to commissioning, commissioning acceptance, and end-of-warranty acceptance have been met

- Conduct final technical inspections of the rolling stock, verifying physical condition, functionality, labelling, and overall readiness for service
- Support the Purchaser in the review of safety-related deliverables and test results, ensuring they meet National safety requirements and lender (e.g., AIIB) standards
- Assist in managing the homologation process, including liaison with the relevant authorities or certification bodies, where applicable
- Confirm closure of all punch list items, non-conformities, and outstanding corrective actions
- Participate in final joint inspections and acceptance meetings with the Purchaser and Supplier
- Prepare formal technical recommendations for issuance of:
 - Safety acceptance / homologation Dossier (as required by State of Art international practices).
 - Commissioning acceptance certificates
 - End-of-Warranty acceptance certificates.

Task 5 Deliverables shall include at least:

- Recommendations for the approval of the safety / homologation dossier (for the first rolling stock batch) including at least:
 - Safety Plan assessment, analyses, testing process
 - RAMS and safety case evaluation report
 - Review of the Safety Acceptance / Homologation Dossier
- Recommendations for the approval of commissioning acceptance certificates (for each rolling stock batch) including at least:
 - Commissioning readiness reports
 - Final inspection reports for each unit or subsystem
 - Contractual compliance checklist for acceptance deliverables
 - Technical recommendation memos for each acceptance milestone
- Recommendations for the approval of the final acceptance certificates (for each rolling stock batch) at the end of warranty.

Coordination requirements:

All activities under this task shall be carried out in close coordination with the Purchaser. The Consultant shall act as a technical advisor, providing independent assessment and documentation. Final decisions regarding the issuance of acceptance and homologation certificates remain the sole responsibility of the Purchaser, in alignment with applicable safety authorities and AIIB Bank requirements (if any).

Task 6 – Review of Maintenance Systems, Spare Parts, Tools and Driving Simulator

The objective of this task is to ensure that the Supplier provides all required maintenance plans, spare parts, tools, support systems, and documentation, including the driving simulator, in accordance with technical and contractual requirements. This shall enable TTC to carry out reliable and efficient long-term operation and maintenance of the rolling stock.

The Consultant shall be responsible for the **review and verification** of all maintenance-related deliverables provided by the Supplier. This includes the maintenance strategy and related documentation, spare parts, special tools, diagnostic equipment, and the driving simulator, to ensure readiness of the Purchaser to operate and maintain the rolling stock in accordance with contractual requirements.

In pursuit of the above the Consultant shall at least:

- Review the Supplier's Maintenance Plan submitted six months prior to first delivery, ensuring:
 - Completeness of maintenance strategies, intervals, procedures, and labour estimates
 - Compatibility with TTC's depot capabilities
 - Proper list of required tools and spare parts
- Verify delivery of spare parts, including:
 - Quantity and condition of consumables and main components
 - Compliance with the spare parts catalogue and documentation
- Check delivery of special tools and diagnostic equipment
- Verify provision and operational readiness of the driving simulator, including:
 - Installation, commissioning, and testing of simulator equipment
 - Consistency with the delivered rolling stock systems and controls
 - Availability of training scenarios and multilingual interface
 - Functionality of instructor/operator modules for monitoring and evaluation
- Verify maintenance documentation, including:
 - Operational manuals
 - Test equipment technical documents
 - Hierarchical structure and version control of manuals.

Task 6 Deliverable:

- Simulator readiness and functionality report
- Recommendation report for acceptance of maintenance-related deliverables including at least:
 - Review memos on the maintenance plan and depot adaptation
 - Spare parts and tools delivery checklists
 - Maintenance documentation compliance memos.

Coordination requirements:

All activities under this task shall be coordinated with the Purchaser's technical and maintenance teams. The Consultant shall maintain regular communication with the Purchaser (TTC) regarding the status of maintenance documentation, spare parts deliveries, tool provision, and simulator readiness. Final approval of these deliverables shall be the sole responsibility of the Purchaser, based on the technical assessments and recommendations provided by the Consultant.

Task 7 – Monitor compliance with environmental, social, health & safety performance standards and the Project ESMP.

The objective of this task is to ensure that the Supplier complies with all applicable environmental, social, health & safety requirements (ESHS), during the design, manufacturing, delivery, testing, and commissioning phases of the rolling stock project, in line with national legislation and the performance requirements of the financing institution (AIIB).

In pursuit of the above the Consultant shall at least:

- Review the Transportation Management Plan for the new rolling stock (prepared by Supplier) and provide assistance to the PIU to finalize it and obtain requisite approval by the bank.
- Prepare the Old RS Decommissioning ESMP as required by the applicable ESHS requirements of the Bank stipulated in the financing agreements.
- Review the Supplier's Environmental, Social, Health & Safety Management Plans (ESHS-MPs), including:
 - Environmental Management Plan (EMP)
 - Occupational Health & Safety Plan (OHSP)
 - Social Management Plan (SMP)
 - Waste Management Plan
 - Hazardous Materials Handling procedures
- Ensure that the plans comply with applicable legal, contractual, and financing institution (e.g. AIIB) requirements including the Project Environmental and Social Management Plan (ESMP), August 2024, Stakeholder Engagement Plan (SEP), September 2024, other related AIIB Policies, Strategies or Directives as may be relevant to the Project.
- Conduct regular inspections at key sites (delivery points, depot areas if applicable) to monitor:
 - Working conditions (worker safety, provision and use of PPEs, fire safety, worker trainings etc.)
 - Compliance with hazardous substances handling and emissions regulations
 - Environmental controls (noise, dust, waste handling and disposal, etc.)
 - Labor practices (non-discrimination, fair treatment, grievance mechanisms)
- Identify non-conformities and propose corrective actions.
- Ensure alignment with applicable:
 - National labour, OHS, and environmental and social laws
 - Lender standards (e.g., AIIB's Environmental and Social Standards)
- Provide support to the Client in interpreting and enforcing compliance
- Provide support to the PIU to deliver necessary trainings to workers related to protection of the environment, health and safety.
- Prepare ES monitoring reports and submit to PIU during the implementation as per frequency specified in the ESMP.

As stated in Project ESMP (approved by the Bank), at the O&M/warranty period stage the ESHS staff of the Consultant will oversee the metro operations, maintenance and decommissioning activities on daily/weekly basis and submit monthly (interim) and quarterly EHS reports to TTC PIU EHS Focal Point

(Deputy Head of TTC EHS Department). The ESHS staff of the SC will review ESMP every six months and update the ESMP if required and will provide input and advice to TTC PIU on activity specific work plans relating to ESMP. The SC ESHS staff will be constantly in contact with the TTC EHS Department to inform promptly on any non-compliances requiring immediate corrective/preventive actions.

Task 7 Deliverables:

- Inception report summarizing the baseline review of Contractor's ESHS documents and compliance with financing institution (e.g. AIIB) requirements including the Environmental and Social Management Plan (ESMP), August 2024, Stakeholder Engagement Plan (SEP), September 2024, other related AIIB Policies, Strategies or Directives as may be relevant to the Project (within 2 months after the contract signature).
- Regular ESHS monthly (interim) and the quarterly reports including at least:
 - Environmental and social compliance report
 - Health and Safety compliance report
 - Non-conformity & corrective action log
 - Incident and accident sub-reports along with corrective action plan (as annexes)
- Semi-annual ESHS monitoring reports (6 months report, summarizing the monthly/quarterly reports) to TTC, for the submission to the Bank.
- Annual ESHS training for TTC workers, summarised in training completion report.
- The final ESHS compliance report (for inclusion in project closure documentation).
- The Transportation Management Plan for the new RS (prepared by Supplier) reviewed/finalized in compliance with AIIB requirements.
- The Old RS Decommissioning Phase ESMP prepared, reviewed and agreed with PIU in compliance with AIIB requirements.

Coordination requirements:

All activities under this task shall be closely coordinated with the Purchaser's ESHS representatives and relevant technical teams. The Consultant shall maintain regular communication with the Purchaser and AIIB, as applicable, regarding ESHS compliance, incident reporting, and corrective actions. Final acceptance of the Supplier's ESHS performance and related documentation shall remain the sole responsibility of the Purchaser (TTC), based on the Consultant's assessments and in alignment with the Bank's requirements (if any).

Cross-Reference between supervision services and rolling stock Supplier's scope of work

For information, the below table provides a structured cross-reference between the defined tasks of the Consultant and the corresponding obligations of the Rolling Stock Supplier, as detailed in Annex 1 of the technical specifications. It ensures full alignment between the supervision services and the Supplier's deliverables throughout the design, manufacturing, testing, commissioning, training, and documentation phases of the project.

Supervision Consultant's Task	Supplier's Scope under Annex 1 Clause
	1.2 Rolling Stock Design

Supervision Consultant's Task	Supplier's Scope under Annex 1 Clause
Task 1 – Review and Approval of Technical Documentation	1.3 Documentation
	1.4 As-Built Documentation
	1.5 Rights to Documentation
	1.6-1.7 RAMS and Safety Case
Task 2 – Supervision of Manufacturing	1.1 Manufacturing Plan
	1.10 Supervision Schedule
	1.11 Purchaser's Staff Visits
	1.12 QA Package
Task 3 – Witnessing and Certification of Tests	1.8 Test and Commissioning Plan
	1.9 Type and Routine Tests
	1.13–1.14 Factory Acceptance & QA
Task 4 – Monitoring of Delivery, Commissioning, Endurance Testing, and Training	1.15 – 1.16 Endurance Tests, commissioning
	1.21 to 1.29 Training
Task 5 – Support for Acceptance Certificates, Safety acceptance, homologation	1.16 Commissioning Certificate
	1.18 Safety Plan
	1.17 – 1.19 Safety acceptance / homologation certificate
	1.20 End of Warranty Certificate
Task 6 – Review of Maintenance, Spare Parts, Tools and driving simulator	1.30–1.31 Spare Parts
	1.32 Special Tools & Simulator
	1.33 Maintenance Facility upgrades
	1.34 Maintenance Plan
	1.35 Maintenance and Operation Docs
Task 7 – Check the compliance with environmental, social, health & safety performance standards	1.36 Environmental impact during train operation
	1.37 to 1.40 Control of product and raw product documentation and compliance with environmental impact. Preparation of Transportation Management Plan.

4. IMPLEMENTATION ARRANGEMENTS

Project duration

The assignment is expected to start in QIV 2026 and have a duration of 72 months for the acceptance of the last batch of rolling stock followed by 3,5 years of limited assistance during the Supplier's warranty period.

The Consultant will provide residential accommodation for their specialists, and local and international transportation. The Consultant will also be responsible for all salaries, fees, allowances, insurance, leave pay and taxes for the staff involved in the assignment.

The main project office of the Consultant shall be located in Tbilisi.

The Rolling stock delivery program is currently estimated as follows:

Line Item N°	Description of Goods	Quantity	Unit	Final Destination (Project Site) as specified in TDS	Delivery (as per Incoterms) Date from the date of Contract Agreement		
					Earliest Delivery Date	Latest Delivery Date	Tenderer's offered Delivery date
1	4-car metro trains	9	pcs	Depot Nadzaladevi at the address: Zestafoni street, 22b, Tbilisi, Georgia	01/01/2026	Latest Delivery Date-Signing of the Contract+20 months	Latest Delivery Date-Signing of the Contract+20 months
		5	pcs	Depot Nadzaladevi at the address: Zestafoni street, 22b, Tbilisi, Georgia	01/01/2027	31/12/2027	31/12/2027
2	5-car metro trains	5	pcs	Depot Gldani at the address: Tskhalsadeni street, 55, Tbilisi, Georgia	01/01/2028	31/12/2028	31/12/2028
		3	pcs		01/09/2029	31/12/2029	31/12/2029
		3	pcs		01/09/2030	31/12/2030	31/12/2030
3	Simulator	1	pcs	Depot Nadzaladevi at the	01/01/2026	Latest Delivery Date- Signing	Latest Delivery Date- Signing of the

				address: Zestafoni street, 22b, Tbilisi, Georgia		of the Contract+20 months, according to the delivery of 4-car metro trains	Contract+20 months, according to the delivery of 4-car metro trains
4	Wearing or consumable spare parts	As per clause 22.10 of the Technical Specification	set	Depot Nadzaladevi at the address: Zestafoni street, 22b, Tbilisi, Georgia	Corresponding quantity of spare parts and consumables shall be delivered together with metro trains		
5	Main spare parts	As per clause 22.11 of Technical Specification	set	Depot Nadzaladevi at the address: Zestafoni street, 22b, Tbilisi, Georgia			
6	Maintenance tools	As per clause 22.12 of Technical Specification	set	Depot Nadzaladevi at the address: Zestafoni street, 22b, Tbilisi, Georgia			

5. DELIVERABLES

- The Consultant's Deliverables shall include both Task specific and General deliverables as detailed and shall be submitted by the deadlines, specified below. All Consultant's Deliverables shall be submitted in English and Georgian, unless agreed otherwise by the Client.

5.1 Task specific deliverables and timeline

Task	Deliverable description	Timeline
Task 1	<ul style="list-style-type: none"> D1 - Final design review report including a set of summary reports on design documentation compliance including at least: <ul style="list-style-type: none"> Reviewed documentation packages with traceable comments; Document review logs and version tracking; Technical memoranda recommending approval, conditional acceptance, or rejection of documents and deliverables; Summary reports on design documentation compliance and final closeout; 	<ul style="list-style-type: none"> Date - Signing of the Contract+20 months
Task 2	<ul style="list-style-type: none"> D2 (1 to 5) - Final manufacturing stage reports, for each rolling stock batch, including at least: <ul style="list-style-type: none"> Manufacturing supervision visit reports; Non-conformity reports and corrective action tracking; Monthly progress summary reports; Photographic documentation; 	<ul style="list-style-type: none"> 1 month before the delivery date of each batch of metro trains
Task 3	<ul style="list-style-type: none"> D3 (1 to 5) - Consolidated test summary reports, grouped by vehicle or test category including at least: <ul style="list-style-type: none"> Pre-test review reports, including comments on procedures, test plans, and readiness Test witnessing reports for each test event, including test conditions, observations, results, and any issues identified Certificates of conformity or technical memoranda, summarizing the Consultant's conclusion regarding each witnessed test Non-conformity tracking logs with status of follow-up actions. 	<ul style="list-style-type: none"> 1 month before the delivery date of each batch of metro trains
Task 4	<ul style="list-style-type: none"> D4 - Training supervision report, including at least: <ul style="list-style-type: none"> Confirmation of compliance with the approved training plan Summary of courses delivered Attendance lists Observations on content quality, delivery, and translation 	<ul style="list-style-type: none"> Maximum 2 months after the delivery date of the first batch of metro trains

	<ul style="list-style-type: none"> ○ List of certified personnel and evaluation results ● D4 (1 to 5) - Site acceptance test reports and endurance test reports (SAT + 300/5000 km Test Report) including also at least: <ul style="list-style-type: none"> ○ Delivery inspection reports for each unit or shipment ○ Daily or weekly site supervision notes during commissioning and endurance test phases ○ Non-conformity or defect reports, if applicable, with follow-up actions and resolution status. 	<ul style="list-style-type: none"> ● Maximum 2 months after the delivery date of each batch of metro trains
Task 5	<ul style="list-style-type: none"> ● D5 - Recommendations for the approval of the safety / homologation dossier (for the first rolling stock batch) including at least: <ul style="list-style-type: none"> ○ Safety Plan assessment, analyses, testing process ○ RAMS and safety case evaluation report ○ Review of the Safety Acceptance / Homologation Dossier ● D5 (1 to 5)- Recommendations for the approval of commissioning acceptance certificates (for each rolling stock batch) including at least: <ul style="list-style-type: none"> ○ Commissioning readiness reports ○ Final inspection reports for each unit or subsystem ○ Contractual compliance checklist for acceptance deliverables ○ Technical recommendation memos for each acceptance milestone ● D5W (1 to 5) - Recommendations for the approval of the final acceptance certificates (for each rolling stock batch) at the end of warranty. 	<ul style="list-style-type: none"> ● Maximum 2 months after the delivery date of the first batch of metro trains ● Maximum 2 months after the delivery date of each batch metro trains ● 1 month before the end of warranty period for each metro train batch
Task 6	<ul style="list-style-type: none"> ● D6.1 - Simulator readiness and functionality report ● D6.2 - Recommendation report for acceptance of maintenance-related deliverables including at least: <ul style="list-style-type: none"> ○ Review memos on the maintenance plan and depot adaptation ○ Spare parts and tools delivery checklists ○ Maintenance documentation compliance memos. 	<ul style="list-style-type: none"> ● Maximum 1 month after the delivery date of the simulator ● Maximum 1 month after the full delivery of spares part, consumables tools and maintenance documentation
Task 7	<ul style="list-style-type: none"> ● D7 - Inception report summarizing the baseline review of Contractor's ESHS documents and compliance with financing institution (e.g. AIIB) 	<ul style="list-style-type: none"> ● Contract signature + 1 Month

	<p>requirements including the Environmental and Social Management Plan (ESMP), August 2024, Stakeholder Engagement Plan (SEP), September 2024, Other related AIIB Policies, Strategies or Directives as may be relevant to the Project.</p> <ul style="list-style-type: none"> • D7 (1 to 12) - Regular ESHS monitoring monthly (interim) and quarterly reports including at least: <ul style="list-style-type: none"> ◦ Environmental compliance memo ◦ Health and Safety compliance memo ◦ Non-conformity & corrective action log ◦ Incident and accident sub-reports (as annexes) • Semi-annual ESHS monitoring reports (6 months report, summarizing the monthly/quarterly reports) to TTC, for the submission to the Bank • The final ESHS compliance report (for inclusion in project closure documentation). • Support to the PIU in delivering necessary ESHS trainings to workers • The Transportation Management Plan for the new RS (prepared by Supplier) reviewed in compliance with AIIB requirements • The Old RS Decommissioning ESMP prepared, reviewed and agreed with PIU in compliance with AIIB requirements. 	<ul style="list-style-type: none"> • Monthly, as required, starting from Month 2 • Every 6 months as required • Once a year; Timing to be agreed with the Client • Before 1st batch of delivery • Before start of Old RS decommissioning
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5.2 General deliverables:

- GD0.1 - Inception report (1 month after the contract signature), covering at least:
 - Revised project programme
 - Revised list of experts
 - Supervision project revised methodology
 - Project risk assessment & management plan
 - Identification of technical and legal issues arising from the supply contract
- GD0.2 (1 to 24) - Quarterly progress reports, covering at least:
 - Overview of completed and pending activities;
 - Summary of findings and open issues;
 - Status of document reviews and test certification;
 - List of non-conformities and resolution progress;

- Comparisons of actual and planned progress of Supply contract including financial forecast and payments progress
- Risk register and mitigation recommendations;
- GD0.3 - Project completion report, covering at least:
 - Results of the supply & commissioning;
 - Supply Contract financial closure report
 - Lessons learnt;
 - Recommendation for the Purchaser in operations and management of the rolling stock.

5.3 Terms of payment schedule

The Consultant's remuneration under this contract is structured as a hybrid arrangement, comprising 60% on a time-based basis for supervision and support services, and 40% on a lump-sum basis linked to the delivery and approval of specific contract deliverables, as outlined in the payment schedule below.

The following table outlines the terms of payment for the Consultant's services, for the lump-sum contract part based on the submission and approval of specific deliverables. Each deliverable is linked to a defined percentage of the contract value, ensuring that regular payments are triggered only upon satisfactory completion and acceptance by the Purchaser. Advance payment will be paid upon contract signing and the final payment will be made upon receipt of a satisfactory completion report. Remaining payments will be issued every six months based on actual deliverables.

Deliverable	Task	Description	Timeline	Format	% of Lump-Sum Amount
0	General	Advance payment upon contract signing	Upon contract signing	N/A	10%
1	Task 7	ESHS inception report	Contract signature + 1 month	Report	2%
2	General	Quarterly progress reports	Every 3 months throughout implementation	Reports	6% total (0.25% per quarterly submission × 24)
3	Task 7	ESHS semi-annual monitoring reports	Every 6 months throughout implementation	Reports	6% total (0.5% per semi-annual submission × 12)
4	Task 1	Final design review report including compliance summaries and recommendations	Contract signing + 20 months	Report	10%
5	Task 2	Final manufacturing stage reports (per rolling stock batch)	1 month before each batch delivery	Reports	10% (2% × 5 batches)

6	Task 3	Consolidated summary reports (per rolling stock batch)	test 1 month before each batch delivery	Reports	10% (2% × 5 batches)
7	Task 4	Site acceptance and endurance test reports (per batch)	test Within 2 months after each batch delivery	Reports	10% (2% × 5 batches)
8	Task 4	Training supervision report	Within 2 months after first batch delivery	Report	4%
9	Task 5	Safety / homologation dossier (first batch)	Within 2 months after first batch delivery	Report / Technical memo	10%
10	Task 5	Commissioning acceptance recommendations (per batch)	Within 2 months after each batch delivery	Reports	10% (2% × 5 batches)
11	Task 6	Simulator readiness and maintenance deliverables	Within 1 month after relevant deliveries	Reports	6%
12	General	Completion report	At completion of assignment	Report	6%
		Total			100%

6. PROFILE OF THE CONSULTANT

This chapter defines the expected organisation, staffing, logistical resources, and communication framework of the Consultant responsible for overseeing the design, manufacturing, testing, commissioning, and acceptance of the new metro rolling stock. These requirements aim to ensure the Consultant can operate effectively, impartially, and with sufficient technical capacity to safeguard the interests of the Purchaser.

The Consultant shall be responsible for planning, implementing and managing all activities described under the defined supervision tasks. This includes planning and conducting reviews, inspections, verifications, and reporting in alignment with the project schedule and the scope of the Supplier's contractual obligations.

The Consultant is expected to:

- Maintain continuous technical oversight of all phases of the project;
- Ensure traceable documentation and communication;
- Support the Purchaser in the approval process through objective and substantiated recommendations.

Final decisions on approvals, rejections, and acceptance remain solely with the Purchaser.

The Consultant shall be a firm or a consortium of firms and required qualifications and relevant experience described below:

1. General Technical Competence in Rolling Stock Supervision:

For a single entity firm: The Consultant shall have at least ten (10) years (since 2015) of experience in rail-based public transportation projects; and shall demonstrate at least ten (10) years (since 2015) of experience in rolling stock engineering, including independent supervision of rolling stock design, manufacturing, testing, commissioning, and acceptance for metro or urban electric multiple unit (EMU) trainsets.

For a Joint Venture: Each member shall have at least ten (10) years (since 2015) of experience in rail-based public transportation projects; and the leading member shall demonstrate at least ten (10) years (since 2015) of experience in rolling stock engineering, including independent supervision of rolling stock design, manufacturing, testing, commissioning, and acceptance for metro or urban electric multiple unit (EMU) trainsets.

2. Rolling Stock Supervision Experience:

For a single entity firm: The Consultant shall have successfully completed, over the last ten (10) years (since 2015):

At least three (3) contracts under which the Consultant provided independent third-party supervision of new rolling stock for metro or urban electric multiple unit (EMU) trainsets and these contracts shall collectively cover supervision of not less than ten (10) trainsets, or forty (40) metro or EMU cars.

For a Joint Venture: All members combined shall meet the above requirements; and the leading member shall have supervised at least one (1) contract covering a minimum of five (5) trainsets or twenty (20) cars.

Each referenced contract shall have included supervision activities covering at least three (3) of the following phases:

- rolling stock design review;
- manufacturing supervision;
- factory and/or site testing;
- commissioning;
- provisional and/or final acceptance.

Experience gained as rolling stock manufacturer, supplier, operator, or maintainer shall not be considered equivalent.

3. Technical depth, systems integration, and standards know-how:

The Consultant shall demonstrate technical depth, systems integration capability, and standards know-how in rolling stock supervision.

This shall be demonstrated through concise project reference descriptions submitted under Criterion 2, in which the Consultant shall describe its direct technical involvement, as applicable, in:

- a) Supervision of key rolling stock subsystems, such as traction and propulsion systems, braking systems, bogies and running gear, TCMS, doors, HVAC, passenger information systems, and onboard electrical equipment;
- b) Systems integration and interface management, including interfaces between rolling stock subsystems and with external systems such as signalling and depot installations;
- c) Supervision of rolling stock compliance with applicable European and international standards, including as a minimum EN 50126 / EN 50128 / EN 50129 (RAMS), EN 45545 (fire safety), and relevant ISO standards applicable to rolling stock design, manufacturing, and testing;
- d) Participation in, or supervision of, type tests, routine tests, and commissioning activities for new rolling stock;
- e) Technical involvement in resolution of non-conformities, design deviations, and acceptance issues during manufacturing and commissioning phases.

The indicative inputs and required qualifications for the project Key personnel are presented below.

All key personnel shall be fluent in English - knowledge of the local language will be considered an asset - and be fully computer literate.

The Consultant shall propose a qualified team with demonstrated experience in rolling stock projects, with a strong preference for metro systems. Experience with EMUs and, to a lesser extent, DMUS and tramways may also be considered relevant. The team shall have proven expertise in the supervision

of rolling stock design, manufacturing, acceptance processes, ESHS and contractual management. The staffing shall comprise, but not necessarily be limited to, the following key personnel:

Position / Key Experts	International /National (based on qualifications and experience, not citizenship)	Qualification Requirements	Indicative Input Person-Months (21 working days a month)
KE1: Team Leader / Project Coordinator	International	Railway/transport engineer with minimum 15 years' experience, including at least 2 rolling stock contracts as lead supervisor/supervision consultant or project manager. Strong coordination/reporting skills.	25
KE2: Rolling Stock Mechanical Engineer	International	Minimum 10 years' experience in mechanical systems, car body design, bogies, and structural verification.	8
KE3: Electrical Systems Engineer	International	Minimum 10 years' experience with HV/LV systems, traction, onboard electronics, and interface integration.	7
KE4: Testing and Commissioning Expert	International	Minimum 10 years' experience in witnessing/writing FAT/SAT protocols, dynamic tests, and system validation. Familiar with EN 50215, IEC 61133.	12
KE5: Railway RAMS/Safety Expert	International	Minimum 8 years' experience in RAMS according to EN 50126/128/129; able to review Safety Case documentation.	5
KE6: Interface integration expert	International	Minimum 8 years' experience in Rolling stock interface management, on board integration of signalling system.	5
KE7: Maintenance and Training Specialist	International	Minimum 8 years' experience in fleet maintenance planning and evaluation of technical training programmes.	4
KE8: Contract Management Specialist	National	Minimum 8 years of experience in contract administration and management of rolling stock or infrastructure contracts. Familiarity with MDB (World Bank, ADB, EBRD, etc.) consulting services contract administration practice in Georgia will be a distinct advantage	5
KE9: Disbursement and financial expert	National	At least 8 years of experience in financial management of infrastructure or fleet contracts, including disbursement procedures under IFI-financed projects. Experience with payment certificates, withdrawal applications, and financial monitoring is required.	4

Position / Key Experts	International /National (based on qualifications and experience, not citizenship)	Qualification Requirements	Indicative Input Person-Months (21 working days a month)
		Project experience in Georgia and fluency in Georgian are mandatory.	
KE10: Legal expert	National	At least 8 years of experience in legal support for infrastructure or rolling stock international supply contracts, including claims, dispute resolution, and compliance with IFI-funded contract frameworks. Familiarity with Georgian legislation and fluency in English and Georgian are mandatory.	3
KE11: ESHS expert	National	Minimum 8 years of experience in environmental, social, health & safety performance management and monitoring, preferably in transport or industrial projects. Experience with IFI E&S standards and Georgian national regulations is required. Fluency in English and Georgian is mandatory.	6

Other specialists (e.g., international or local experts) shall be provided as needed (Indicative Input Person- Months in total 13 months (21 working days a month):

Non-Key experts :
Bogie expert
Brake system expert
Door specialist
PIS, CCTV expert
ITS Signalling expert
Bodyshell structure
ITS expert
Interior fitting expert
Other experts

Implementation arrangements

The Consultant shall:

- Establish on site visits at the Supplier's factory (as required in the scope of work) and sub-suppliers' sites during critical manufacturing, inspection, and testing stages;
- Be physically present in Tbilisi during:
 - Delivery and on-site inspections;
 - Commissioning and SAT;
 - Endurance testing;
 - Training sessions;
 - Acceptance procedures;
- Maintain minimum availability of key experts during peak activity periods (to be specified in the proposal's work plan);
- Be responsible for its own travel, accommodation, local transport, and daily expenses unless otherwise agreed.

The Consultant shall also be responsible for:

- Establishing a local coordination office in Tbilisi or ensure access to TTC premises if mutually agreed;
- Ensuring access to reliable tools for document handling, file exchange, and collaborative review;
- Maintaining a dedicated back-office team to:
 - Support document reviews;
 - Prepare formatted reports;
 - Maintain test logs and issue tracking;
 - Translate or coordinate translation of technical documents if required.

Communication and reporting

The Consultant shall:

- Submit regular progress reports (monthly or as agreed), summarising:
 - Activities completed;
 - Outstanding issues and risks;
 - Status of deliverables under review;
 - Summary of inspections, tests, and certifications;
- Highlight any deviations from approved technical documentation, manufacturing plans, or schedules;
- Identify non-conformities, quality issues, or safety concerns, and monitor their resolution;
- Provide technical assessments and recommendations regarding corrective actions, recovery measures, or technical solutions;
- Issue specific technical memoranda or incident reports when urgent issues require immediate attention or decision by the Purchaser;
- Maintain traceable logs and registers of reviewed documents, test results, inspections, and site activities;
- Prepare consolidated milestone reports, such as completion of design review, completion of FAT, SAT, or provisional acceptance phases;
- Support the Client during internal or external audits, stakeholder briefings, or project reviews by supplying relevant technical, legal and financial documentation and summaries.
- Issue technical memoranda and recommendations for all reviewed documents and test results;
- Maintain structured logs for:
 - Non-conformities and deviations;
 - Document review cycles and revisions;
 - Test witnessing and approval tracking;
- Prepare and maintain a Master Supervision Register summarising the project's technical oversight status;
- Use formats, templates, and timelines agreed with the Purchaser.

Independence, coordination and working principles

- The Consultant shall act independently from the Supplier and any affiliated party;
- All findings, observations, and recommendations shall be based on objective evidence and technical expertise;
- All coordination with the Supplier shall be done transparently and with the knowledge of the Purchaser;
- The Consultant may participate in Supplier-Purchaser technical meetings, as observer or adviser;
- In case of a serious non-conformity or risk, the Consultant may propose a Stop Work Recommendation to the Purchaser, and upon formal instruction, transmit a Stop Work Notice to the Supplier ;
- All project data and communications shall remain the property of the Purchaser and treated as confidential.

7. THE CLIENT'S INPUTS

Tbilisi Transport Company has established a dedicated project implementation unit (PIU) that brings together relevant individuals from finance, legal, procurement, technical (including E&S & OHS) and donor relations divisions. Metro Modernisation Project PIU also includes specialists from the Metro Operations Department of TTC supported by E&S compliance lead. The PIU is responsible for the comprehensive management of the project, from preparation through execution. This includes leadership and coordination, operational oversight, procurement and financial management, legal compliance, and donor relations.

As part of its project preparation activities, TTC team have developed the project-specific Environment and Social Management Plan (ESMP) and Stakeholders Engagement Plan (SEP) that were publicly disclosed in 2024.

In the course of the assignment implementation the Client's PIU, including representatives from the TTC Metro Operations Department, will be the prime point of contact for the Consultant.

Upon contract award, the Consultant will be provided with all relevant documentation, including procurement and contract documents for the supply of metro rolling stock, that was signed in July 2025.

It is expected that project-related meetings involving TTC and the Supplier will take place at TTC offices.

ANNEX 1 – SUPPLIER’S SCOPE OF WORK (OUTLINES)

This annex outlines the key contractual obligations of the rolling stock Supplier concerning the design, manufacturing, testing, delivery, and commissioning of the metro cars. It includes the relevant milestones, documentation to be submitted, and testing and acceptance procedures that shall be subject to independent supervision.

The Consultant is expected to base its technical and commercial proposal on a thorough understanding of these obligations. The proposal must clearly demonstrate how the Consultant will verify, support, and oversee the Supplier’s compliance with the contractual requirements outlined in this Annex.

All activities of the Consultant shall be planned and implemented with reference to this scope, ensuring alignment with the project timeline, deliverables, and acceptance criteria agreed between the Purchaser and the Supplier.

1.		Scope of work of the rolling stock Supplier
Manufacturing plan	1.1.	<p>In the first month after the contract is signed, the Supplier shall submit a manufacturing work plan, which contains at least the following information:</p> <ul style="list-style-type: none"> - Methods of verification of manufacturing processes in terms of work and manufacturing; - Schedule of review meetings; - Schedule of inspection and control stages in the manufacturing process; - Document submission schedule. <p>The Purchaser or its representative (independent expert Consultant) will analyse the plans, submit its comments and make a corresponding entry in the Column of the Control Stages Schedule.</p>
Rolling stock design	1.2.	<p>Within the two first months after the contract signature (design period), the Supplier shall provide detailed design documentation for the review and approval of the Purchaser shall include at least:</p> <ul style="list-style-type: none"> - The detailed description of the technical solutions proposed; - General drawings of the car, interior, driver's cab and sub-car space, electrical and pneumatic schemes; - Calculations notes; - Final interior layout agreed with the Contracting Authority during the design stage and before the start of vehicle manufacturing stage; - And in general all elements to be discussed, clarified agreed before to start the vehicle manufacturing phase required in this specification. <p>It does not prevail on the obligation of the Supplier to submit all design documents required and to be approved for homologation, commissioning and acceptance all along the project phases to the Purchaser or its representative (independent expert Consultant).</p>

1.		Scope of work of the rolling stock Supplier
Documentation to be provided by the rolling stock Supplier	1.3.	<p>Documentation shall as a minimum comprise the following and other documentation requested in this specification:</p> <ul style="list-style-type: none"> - . technical specification and vehicle description for mechanical and electrical parts - drawings (car body and bogies with assembly and installation, components and identification numbers) - maintenance plan and maintenance procedures with comprehensive maintenance schedule and maintenance manual - information about welding and gluing technologies and materials used - list of all components with information about supplier, name / identification of the device and typical technical data - list of spare parts with identification numbers, delivery times and prices - test certificates for materials - clearances and swept envelope - calculated and verified axle and wheel-load distribution - jacking and re-railing concept - firefighting and evacuation concept - fire prevention certification according to EN 45545 or NPB 109-96 - breakdown list of which vehicle operation is to stop Mechanical: - rail / wheel interface plan including wear limits - fatigue of bogies - brake concept and brake calculation - calculation of suspension including spring characteristics - calculation of safety against derailment - strength calculation of body shell - verification of fatigue resistance of wheel sets - fire resistance of all non-metallic materials - door concept and door control - design of driver's cab and arrangement of control elements - visibility conditions of rear-view cameras - design and description of front and intersectional end Pneumatical: - pneumatic plan of mechanical brake system - pneumatic plan of suspension - calculation of suspension including spring characteristics - pneumatic brake system - compressor - valves - limit valves - air filter and dryer Electrical: - circuit diagram and equipment list - software list and description - heat balance for driver's cab and passenger compartment - energy balance of traction and low-voltage voltage systems

1.		Scope of work of the rolling stock Supplier
		<ul style="list-style-type: none"> - logic diagrams - parameters, drawings and description of all I/O-interfaces - earthing concept - cabling scheme - scheme for pin and terminal assignment - EMC compliance certificates for all components Safety Case <p>This documentation shall be submitted on USB flash memory with a hard-copy version (5 copies in English and Georgian).</p> <p>Advanced technical information can be delivered only in English. All electronic format files shall be compatible with Microsoft Office products.</p>
As built documentation	1.4.	<p>The supplier shall include all changes during manufacture, commissioning or warranty in the documentation without inappropriate delay. This revision service has to be comprehensible for the Purchaser, exempt from charges and contemporary. This is required both for changes in hardware and in software.</p>
Right of documentation	1.5.	<p>The Purchaser shall receive all rights on the documents for maintenance and repair works also for third parties. The handover of documents to third parties is strictly limited to absolute necessary document sections for dedicated repairs or overhaul works.</p>
RAMS	1.6.	<p>The manufacturer shall design and manufacture the proposed metro trains by using RAMS management methods to ensure high quality by elaboration of systems definition, risk analysis, hazard rates and safety-cases.</p> <p>During the design stage within 2 after the contract signature, the Tenderers shall present a draft Safety Plan (ref. EN 50126) for the safety work for the project, hereunder how the supplier intend to secure compliance with the requirements.</p> <p>The Safety Plan shall contain a plan for reviews, analyses, testing and assessments and shall demonstrate conformity with safety requirements according to EN 50126 / -128 / -129.</p>
	1.7.	<p>The result of the safety work shall be documented in the Safety Case, including but not limited to the following:</p> <ul style="list-style-type: none"> - Description of the supplier's safety management - Basic analysis - Hazard analysis and risk assessments - Analysis and identification of Safety Critical Functions and measures to eliminate or control hazards by design solutions, operational and maintenance procedures - List of all limitations or constraints applying to the systems - List of all safety related maintenance tasks - List of all safety related driver tasks

1.		Scope of work of the rolling stock Supplier
		<ul style="list-style-type: none"> - List of all safety related type tests - References to the complete safety documentation <p>The Supplier shall provide a Man- Machine-Interface critical operation analysis of the driver's cabin design.</p> <p>As a result of the risk analyses safety related maintenance tasks and driver procedures shall be separately marked in the operation and maintenance documentation.</p>
Tests and commissioning plan	1.8.	<p>For test and commissioning activities, the Supplier will develop and implement a test and commissioning plan, which includes qualification tests according to EN 50215, IEC 61133 or equivalent.</p> <p>The Supplier shall submit to the Purchaser for confirmation the tests and commissioning plan at least 2 months before the start of the first metro train delivery for the first metro train to conduct separate special tests. The Purchaser or its representative (independent expert Consultant) will review and comment the plans and enter in the appropriate column the Witness and Hold Points.</p> <p>The purpose of the test and commissioning plan is:</p> <ul style="list-style-type: none"> – to provide evidence as to how the Supplier will plan his computer program tests and inspection and test activities; – to allow the Purchaser or his designated representative to indicate their witness and hold points for selected operations. <p>The Purchaser or its representative (independent expert Consultant) will analyse the plans, submit its comments and make a corresponding entry in the Column of the Control Stages Schedule.</p> <p>The purpose of the test plan and commissioning:</p> <ul style="list-style-type: none"> – provide evidence of the description on the Supplier plans its computer program tests, inspection and testing activities; – to enable the Purchaser or his designated representative to indicate their control stages for the selected measures. <p>The test and commissioning plan shall include in particular the following aspects:</p> <ul style="list-style-type: none"> – inspection, testing and acceptance, which are carried out in respect of certain parts during and after manufacture; – verification, testing and acceptance, which are carried out with respect to the components, if any, of these parts; – on-site inspections or tests; – testing, checking and inspection of systems assembled on site and in the shop. <p>In general, the Supplier shall develop a test and commissioning plan that should include manufacturing activities in the shop (recent actions: review of the Quality Assurance Data Package, quality control and shipment) and other inspection and testing plans to include test and commissioning activities. It is necessary to include a complete list of technical documentation, which should be applied to each action.</p>

1.		Scope of work of the rolling stock Supplier
		<p>The Supplier is responsible for the performance and documentation of all inspections and tests included in the test plan and commissioning. All specifications of materials manufacturing and testing must be included in the material acceptance certificates.</p>
Rolling stock tests	1.9.	<p>The test and commissioning activities shall be divided between “Type” and “routine test”:</p> <ul style="list-style-type: none"> – Type tests are performed to demonstrate that the vehicle conception system or components are conformed to the performance specifications and requirements; – Routine tests. These tests are performed on each vehicle to verify if the principal requirements checked for the type test are respected. <p>Basically, the Supplier or its sub-contractors, or independent bodies is responsible for the execution and recording of all inspections and tests which are to be found on the test and commissioning plan. All the technical conditions of the material manufacturing and testing have to be included in the component acceptance certificates.</p> <p>The Supplier will perform the commissioning and Acceptance Tests using its own tools, simulators, instruments, etc.</p> <p>Test and commissioning activities developed in the Plan and implemented shall cover at least the following aspects (T= type tests, R= routine tests):</p> <ul style="list-style-type: none"> – The tests are carried out following approved procedures (T & R); – The tests, result of these tests and approval are compliant with relevant norms and standards (T & R); – The methods and conditions enforced by the test procedures are complied with (T & R); – The test results are recorded and in conformity which the acceptance specified criteria and/or the deviations (if any) are properly documented (T & R); – The test results are properly established by the Supplier verified and accepted by its QA Organisation prior to transmittal to the Purchaser (T & R); – Completion of the train set according to contractual requirement (R); – Compliance with functionalities of the train set according to contractual requirements(R); – Energy feeding tests (R); – On track behaviour (R); – curve radius behaviour (T); – Brake, acceleration performance testing (R); – Braking performance in degraded situations – Energy consumption testing (T); – Lifting possibility as indicated in this specification (T); – Weight tests (T); – Water tightness of doors and windows (T);

1.		Scope of work of the rolling stock Supplier
		<ul style="list-style-type: none"> – Noise and vibrations tests (method to be proposed by the Contractor) (T) – Battery charging tests (R); – On board Computer management system (R); – Safety devices; – Maintainability tests (accessibility...) (T). <p>Implementation of this Plan and acceptance certificates does not prevail on the obligation of the Supplier to submit all test and commissioning documents, plans required and to be approved by the Purchaser or its representative (independent expert Consultant) for homologation, commissioning and acceptance all along the project phases.</p>
Surveillance / during design and manufacturing	1.10.	<p>Within 2 months after the contract signature (design period), the Supplier shall provide a supervision schedule with main milestones and schedule for independent supervision by the Purchaser or its representative (independent expert Consultant) of all operations involved in completion of the contract. This work is mainly performed by inspectors through:</p> <ul style="list-style-type: none"> – systems of control stages; – control of the solution of discrepancies or technical problems when necessary. <p>Supervision is concerned at the same time with:</p> <ul style="list-style-type: none"> – Design activities. – manufacturing technical activities; – associated technical documents; – the implementation of metro trains Supplier (or its sub-contractor for parts) QA Plan and inspection and test plan. – This supervision is directed to check: – materials (and their certificates); – manufacturing process. qualification, implementation and control carried out along the entire manufacturing process; – electrical tests; – data processing verification; – computer program tests – final operations controls; – assembling and tests; - shop and site functional tests.
Purchaser' staff visit (or Individual Consultant)	1.11.	<p>The Supplier shall cover transport costs for the Purchaser's staff visit (5 persons maximum) to the Supplier's plant: air / train tickets (economy class), maximum 3 round trips, single room accommodation at min 3 stars hotel, for a total of 15 nights. The hotel shall be located at a distance of no more than 3 km from the Supplier factory.</p>
QA package before delivery	1.12.	<p>Prior to the shipment, the Supplier shall prepare a documentation to confirm quality assurance for metro train.</p>

1.		Scope of work of the rolling stock Supplier
		<p>Upon completion of the factory manufacturing, the Supplier shall provide a Quality Assurance Data Package to the Purchaser.</p> <p>The Quality Assurance Data Package is an appropriately recorded document that contains all quality records and/or certificates issued during the manufacturing of the equipment.</p> <p>Accordingly, the Quality Assurance Data Package shall be drawn up by the Supplier (or its part contractor) at the first material procurement stage and is constantly updated throughout the manufacturing process of each item of equipment (or set of identical equipment, if appropriate).</p> <p>Reasons for preparing, issuing, and distributing Quality Assurance Data Packages are to:</p> <ul style="list-style-type: none"> – provide documentary evidence of the quality of the equipment after manufacturing is completed; – provide basic data for the work, namely: – maintenance, processing, repair, replacement or modification of equipment; – determination of the cause of an event or malfunction; – inspections during operation. <p>Proper preparation of such Quality Assurance Data Packages is required, among all other things, as a prerequisite for the issuing by the Purchaser or his representative of the quality certificate on the passport of the manufacturer.</p> <p>The Quality Assurance Data Package includes:</p> <ul style="list-style-type: none"> – References to all main units or pieces of equipment – All requirements included in the contract and its technical or administrative annexes which have been fulfilled – All documents (acts, protocols) certifying the manufacturing, inspection and testing activities performed by qualified personnel in accordance with the specifications approved by the Purchaser (if applicable) and their results meeting the specific acceptance criteria – All non-compliance with contractual requirements submitted and accepted by the Supplier – Report on sanitary and epidemiological examination of the contents of dangerous chemicals inside the cars and their compliance with the acceptable limit values and applicable regulatory documents – Inspection protocols for noise, vibration, microclimatic parameters, lighting in car boxes and conclusions regarding their compliance with sanitary regulations and standards. <p>The contents of the Quality Assurance Data Package meet the contract requirements.</p> <p>The Certificate of conformity shall be one of the conditions for issuing the Quality Certificate confirmation by the Purchaser or his representative (independent expert Consultant) and is included in the Quality Assurance Data Package.</p>

1.		Scope of work of the rolling stock Supplier
		<p>The Supplier Quality Assurance Data Package (or its contractor to the parts) is usually the last checkpoint that must be agreed by the Purchaser or his representative before issuing the Quality Certificate.</p> <p>This important document, after approval by the Purchaser or its representative (independent expert Consultant) shall be sent for permanent storage as a record of the equipment.</p>
Factory acceptance and Quality	1.13.	<p>Upon completion of all manufacturing, inspection and tests operations with satisfactory results, the shipment of the item concerned is subjected to a Quality Verification issued by the Purchaser or its representative (independent expert Consultant).</p> <p>Prior to the issuance of the QA Verification the Purchaser or its representative will have:</p> <ul style="list-style-type: none"> – checked the metro train Supplier's certificates of compliance – reviewed and accepted the Supplier's Quality Assurance Data Package corresponding to the equipment <p>The Supplier shall enclose a copy of the Quality Verification to the shipping papers attached to the equipment for its transportation and delivery to the destination (Project Site).</p>
	1.14.	<p>Before the shipment of metro car and when all the series tests have been performed, the Supplier shall submit to the Purchaser for signature a Factory Acceptance Certificate with all the information to identify each metro car.</p> <p>Each metro car and train set shall be individually identified by a serial number.</p>
Endurance tests	1.15.	<p>The first metro train set shall be presented for commissioning after an endurance run of 5 000 km at City metro network. Specific type tests for commissioning shall be achieved including all tests required as part of the homologation process.</p> <p>For other metro train sets, an endurance run of 300 km shall be performed before the metro train set is presented for acceptance.</p> <p>All costs including costs resulting of energy consumption, cost of driving, operation management by the Purchaser shall be supported by the Supplier and included in the financial proposal.</p> <p>It is pointed out that the endurance run on site can only be achieved if the homologation of the vehicle type has been delivered.</p>
Commissioning Certificate / Safety acceptance certificate, homologation	1.16.	<p>Commissioning of metro train set shall be submitted for approval to the Purchaser when all the conditions required are fulfilled:</p> <ul style="list-style-type: none"> – The homologation certificates, certification conformity for the vehicle type has been obtained, all other certificates required for each individual metro train set are obtained – All tests including endurance test runs and verifications have been performed. – The metro train set is in perfect and safety functioning state and ready for operating service.

1.		Scope of work of the rolling stock Supplier
		<p>– All tests and checking documentation was supplied to the Purchaser.</p> <p>A “Commissioning Certificate” shall be used to formalise this agreement. When this document is signed by the Purchaser or similar set of documents required, the train set is declared as "suitable for commercial service" and the Purchaser will get the legal property of the vehicle (transfer of goods property).</p> <p>The individual guarantee period begins as well as the collection of the reliability and availability information.</p>
	1.17.	<p>There is not any specific National regulation for type approval, safety acceptance or homologation of metro rolling stock in Georgia. Therefore, approvals and safety acceptance will take place on TTC's own authority. The Purchaser will be supported by an independent expert consultant, who shall examine and evaluate the technical concepts, proposal, design and acceptance process in order to authorize the new rolling stock to run in revenue service</p>
	1.18.	<p>The Supplier shall design and manufacture the proposed metro trains by using RAMS management methods to ensure high quality by elaboration of systems definition, risk analysis, hazard rates and safety-cases. The Tenderer shall present a draft Safety Plan (ref. EN 50126) in its proposal for the safety work for the project, hereunder how the supplier intend to secure compliance with authorities requirements.</p> <p>Final version of the Safety plan shall be presented for approval by the Purchaser within 2 months after the contract signature</p> <p>The Safety Plan shall contain a plan for reviews, analyses, testing and assessments and shall demonstrate conformity with safety requirements according to EN 50126 / -128 / -129</p>
	1.19.	<p>The result of the safety work shall be documented in the Safety Case, including but not limited to the following:</p> <p>Description of the supplier's safety management</p> <ul style="list-style-type: none"> • Basic analysis • Hazard analysis and risk assessments • Analysis and identification of Safety Critical Functions and measures to eliminate or control hazards by design solutions, operational and maintenance procedures • List of all limitations or constraints applying to the systems • List of all safety related maintenance tasks • List of all safety related driver tasks • List of all safety related type tests • References to the complete safety documentation <p>The Supplier shall provide a Man-Machine-Interface critical operation analysis of the driver's cabin design. As a result of the risk analyses safety related maintenance tasks and driver procedures shall be separately marked in the operation and maintenance documentation.</p>
End of Warranty	1.20.	<p>The End of Warranty Acceptance Certificate of metro train set shall be submitted for approval to the Purchaser at the end of the guarantee</p>

1.		Scope of work of the rolling stock Supplier
Acceptance Certificate		<p>period of 3,5 years or 350 000 km (or call defect notification period defined in the Contract) when all the availability and reliability targets required in the performance part of the contractual agreement are reached.</p> <p>A “End of Warranty Acceptance Certificate” (draft form proposed in the Tender documents) shall be used to formalise this agreement. When this document is approved by the Purchaser (signature), the final acceptance of the metro train set is declared.</p>
Training	1.21.	<p>The Supplier is required to train metro drivers and repair shop personnel to ensure proper handling and maintenance of the new metro trains.</p> <p>Tenderers shall specify the necessary subjects and training effort for:</p> <ul style="list-style-type: none"> - maintenance staff for light maintenance - maintenance staff for heavy maintenance and overhaul - operating and updating of software e.g. for passenger information and other programmable vehicle systems. - Instructors and drivers <p>The cost of training must be included in the tender price.</p>
Training description	1.22.	<p>The Supplier is required to train the above-mentioned staff to ensure proper handling and maintenance of the trains.</p> <p>The Supplier must train the purchaser's technical personnel on all matters, which are vital for preparation of trains for operations as well as for their maintenance and repair. In the aftermath of such training, the purchaser's personnel must be able to operate, maintain and repair the trains, in a safe and efficient manner, and provide all monitoring of equipment service and maintenance, on the basis of the knowledge derived from the training course.</p> <p>The purchaser's personnel shall be trained according to the Suppliers' training program and pursuant to the Suppliers' instructions. The Contracting Authority's personnel will be sufficiently experienced in their fields, enabling them to receive training as an update to their current knowledge.</p> <p>The training location at the purchaser's site shall be determined by the purchaser.</p>
Training courses	1.23.	<p>The training must include both theoretical and practical courses and should be held in two stages: in the manufacturer's factory and at the purchaser's site. The duration of each program shall be proposed by the Tenderer based on best practice for the respective area, provided it satisfies the minimum requirements stated below. The training course for the maintenance and operational staff must be conducted in two phases:</p> <ul style="list-style-type: none"> - Prior to the delivery, at the Manufacturer's factory – a minimum of 5 (five) training days per person; - Upon the acceptance of first (s), a minimum of 10 days per person;

1.		Scope of work of the rolling stock Supplier
		The course of training at the factory must focus, mainly, on the diagnostics and repair of train systems.
Staff to be trained	1.24.	<p>The training course for the drivers must be a minimum of 5 days per person (or longer if deemed necessary) and include all relevant aspects of train operation, economic and defensive driving, and specific operational issues of all train systems. The following number of the purchaser's personnel shall be involved in the training at the following times: Maintenance staff:</p> <ul style="list-style-type: none"> - at the Manufacturer's factory: 5 persons <p>Phase 1: 4 weeks prior to the first delivery of trains</p> <ul style="list-style-type: none"> - at the purchaser's site: 15 persons <p>Phase 2: within 7 days after delivery of the first two trains;</p> <p>Drivers:</p> <ul style="list-style-type: none"> - at the purchaser's depot: 10 persons starting within 7 days after the first delivery of trains. <p>The Supplier shall recommend the 6 drivers-trainers from the pool of drivers- candidates proposed by the purchaser prior to running the program. The selection method shall be determined by the Supplier noting that the trainees should subsequently be required to cascade the training program to the rest of the drivers.</p>
Evaluation after training	1.25.	Upon completion of each training course, the Supplier shall examine its trainees (maintenance, operational staff and drivers) for their knowledge of the theory and practical skills, train equipment and driving skills and give its written opinion in English or Georgian concerning the standard reached by each of the trainees and issue a participation certificate.
Training instructors	1.26.	<p>The instructors must deliver the technical knowledge in a clear intelligible way and be able to explain any technical issues and problems, whatever, however complicated they may be.</p> <p>The whole course must be taught in Georgian language or in English language with translation into Georgian language.</p> <p>The Supplier's instructors must be highly qualified experts having practical experience in operation, maintenance and repair of the equipment used in efficient and safe driving of metro trains.</p>
Training costs	1.27.	The Supplier shall bear all training expenses, including provision of all training equipment required (PC, OHP, etc.), training devices, printed and other teaching materials, accommodation expenses of the purchaser's specialists during their traineeship at the manufacturer's factory, as well as travel, accommodation and per diem expenses of the Supplier's specialists. The purchaser shall provide free of charge to the Supplier's instructors equipped training facilities for their training program at the purchaser s premises.

1.		Scope of work of the rolling stock Supplier
Training course supporting documentation	1.28.	The Supplier shall provide the purchaser with full documentation of all training courses in soft copy (MS Office readable).
Training plan	1.29.	<p>4 months before the arrival of the metro train to the destination (Project Site), the Supplier shall submit to the purchaser a training plan which specifies the consistency of the training programme including</p> <ul style="list-style-type: none"> - The place, duration and organisation of the training. - Equipment and installation required. - Basic knowledge of the trainees. - The consistency and pedagogic purpose of the training. <p>Description of the training documentation.</p>
Wearing or consumable spare parts	1.30.	<p>The Tenderer shall include in his proposal a set of consumable / wearing spare parts for each wear spare part in the amount that will be delivered, in accordance with the maintenance plan (quantity and reason required). The goal is to have enough parts to perform regular maintenance for 3.5 years period.</p> <p>Consumable / wearing spare parts are part of the supplies.</p> <p>All wear or consumable spare parts must be new and unused.</p> <p>Quantity of spare parts and materials for 3,5 years of metro train set operation and maintenance shall be determined by the manufacturer based on operation and repair documents for this equipment with consideration of experience in operating this equipment, reliability of its operation and average metro train set mileage</p>
Main spare parts	1.31.	<p>The Tenderer shall include in his proposal a set of main spare part with the following quantities. Main spare parts are part of the supplies. The objective is to have enough parts to perform main maintenance or exchanges of main components of the train set and exchanges for individual overhaul or repairs. All the main spare parts shall be new and unused.</p>
Special tools for maintenance	1.32.	<p>The purchaser shall be able to provide efficient and high quality maintenance and repair of metro trains with the use of modern diagnostic equipment.</p> <p>The Supplier shall supply all specific tools and test equipment necessary for technical maintenance in the conditions of the metro depot, taking into account the technological capabilities set out in Annex J.</p> <p>List of special instruments and diagnostic equipment shall be sufficient for maintenance and repair of the metro train set equipment.</p> <p>A driving simulator is also included as part of the Supplies</p>

1.		Scope of work of the rolling stock Supplier
Maintenance facility upgrades	1.33.	<p>The Tenderer shall consider that during the 2 first years of operation, existing maintenance facilities will be used with any major modification. Taking the opportunity of major refurbishment of the maintenance facilities (or construction of a new depot) to provide more suitable conditions for the maintenance of new train sets.</p> <p>The Tenderer shall describe in its proposal the optimum organisation and equipment required in the maintenance facilities as for example:</p> <ul style="list-style-type: none"> - Underground drop table for bogie removing / fitting - Lateral roof gangways - Washing machine - Specific pits - Cranes - Etc.
Maintenance plan	1.34.	<p>The Supplier shall submit for approval of the purchaser the maintenance plan of the train 6 months before the delivery to the destination (Project Site) of the metro train.</p> <p>This plan should include:</p> <ul style="list-style-type: none"> - The concept of maintenance (schedule, type of work...); - Maintenance documentation; - Labour intensity; - List of tools and equipment needed to complete the work; <p>Spare part catalogue (including wearing parts)</p>
Maintenance and operation documentation	1.35.	<p>The Supplier shall provide the following documentations:</p> <ul style="list-style-type: none"> - operational documentation for drivers; - technical documentation of test instruments; - training documentation for technical personnel and drivers. <p>All documentation should be organized in a hierarchical manner, also there must be a way to easily identify new editions.</p> <p>This documentation shall be submitted on USB flash memory with a hard-copy version (5 copies in English and Georgian).</p> <p>The Supplier shall submit the documentation for approval of the purchaser at least 2 months before acceptance of the first car at the Supplier's production site or 2 months before the start of operation (training).</p>
Environmental, social, health and safety	1.36.	During operational activities, metro cars and their systems should not adversely affect the environment.
	1.37.	The metro train structure and materials used for car manufacturing must provide for their safe scrapping or recycling after the car life service period expiry

1.		Scope of work of the rolling stock Supplier
performance standards	1.38.	Recycling of metals and other materials shall be considered in design, manufacture and replacement
	1.39.	The metro train shall have design solutions to prevent emissions of lubricant and aggressive materials in the environment. Emissions of coal graphic material wear out products shall not exceed 0.5kg/year.
	1.40.	Raw products, materials and procured products used for car manufacturing shall be accompanied with the documents verifying their quality and safety as of the supply schedule with the first train at the stage of homologation