Environmental and Social Consulting Services for the Baku Metro Expansion Project

Environmental and Social Management Planning Framework (ESMPF), December 2025

Prepared by Baku Metropolitan CJSC for Baku Metro Expansion Project

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Acronyms and Abbreviations

Acronym	Full term / Definition
ADB	Asian Development Bank

Acronym	Full term / Definition
AIIB	Asian Infrastructure Investment Bank
ANAS	Azerbaijan National Academy of Sciences
AZ DTN	Azerbaijan Building Code (e.g., “AZ DTN 2.3-1” seismic design code)
BMEP	Baku Metro Expansion Project
BOD	Biological Oxygen Demand
BTR	Biennial Transparency Report
CESMP	Contractor Environmental & Social Management Plan
CHS	Community Health & Safety
CJSC	Closed Joint Stock Company
COD	Chemical Oxygen Demand
DIN	Deutsches Institut für Normung (e.g., DIN 4150-3 vibration)
E&S	Environmental & Social
EBRD	European Bank for Reconstruction and Development
EHS	Environmental, Health & Safety (IFC/World Bank EHS Guidelines)
EIA	Environmental Impact Assessment
EIAs	Environmental Impact Assessments
ESAP	Environmental & Social Action Plan
ESF	Environmental & Social Framework (AIIB)
ESIA	Environmental & Social Impact Assessment
ESMP	Environmental & Social Management Plan
ESMPF	Environmental & Social Management Planning Framework
ESMS	Environmental & Social Management System
ESP	Environmental & Social Policy (AIIB)
ESDD	Environmental & Social Due Diligence
FS	Feasibility Study
FPICon	Free, Prior, Informed Consultation

Acronym	Full term / Definition
GAP	Gender Action Plan
GBVH	Gender-Based Violence and Harassment
GIIP	Good International Industry Practice
GM	Grievance Mechanism
GoA	Government of Azerbaijan
GOST	Interstate Standard (ex-Soviet "GOST")
HR	Human Resources
HV	High Voltage
IFC	International Finance Corporation
IoAE	Institute of Archaeology and Ethnography (ANAS)
ISR	Interstate Construction Regulations
KBA	Key Biodiversity Area
LARPF	Land Acquisition & Resettlement Policy Framework
LMP	Labor Management Procedures
LOTO	Lock-Out Tag-Out
MAC	Maximum Allowable Concentration
MENR	Ministry of Ecology and Natural Resources
MES	Ministry of Emergency Situations
MPD	Maximum Permissible Discharge (in wastewater permits)
MPN	Most Probable Number (bacteria)
MoCT	Ministry of Culture and Tourism (now State Service under MoC)
NTS	Non-Technical Summary
O&M	Operation & Maintenance
OHS	Occupational Health & Safety
PIU	Project Implementation Unit
PPE	Personal Protective Equipment

Acronym	Full term / Definition
PPM	Project-affected People's Mechanism (AIIB)
PRs	Performance Requirements
RAP / RP	Resettlement Action Plan / Resettlement Plan
SanPiN	Sanitary Rules and Norms
SEP	Stakeholder Engagement Plan
SEEA	State Environmental Expertise Agency (under MENR)
SLCC	State Land and Cartography Committee
SNiP	Soviet-era Construction Norms and Rules
TBM	Tunnel Boring Machine
TSS	Total Suspended Solids
ToR	Terms of Reference
WGM	Worker Grievance Mechanism

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Executive summary

The Environmental and Social Management Planning Framework (ESMPF) for the Baku Metro Expansion Project (BMEP) provides a structured approach to identifying, assessing, and managing environmental and social (E&S) risks and impacts associated with the construction and operation of metro infrastructure financed under the Asian Infrastructure Investment Bank (AIIB). The ESMPF establishes a unified methodology and set of procedures to guide preparation of site-specific Environmental and Social Management Plans (ESMPs) and/or Environmental and Social Impact Assessments (ESIAs) for future stations and depot facilities once detailed designs become available.

The ESMPF builds upon the findings of the ESIAs conducted previously for the depots, site visits and first-hand data collection, and desk studies of information made available from Baku Metro Project Implementation Unit (PIU) and publicly available data. It aligns fully with the AIIB Environmental and Social Policy (ESP 2024) and its Environmental and Social Standards (ESSs)—in particular:

- ESS 1: Environmental and Social Assessment and Management
- ESS 2: Involuntary Resettlement
- ESS 3: Indigenous Peoples

Purpose and Scope

The ESMPF serves as an overarching instrument to ensure that all Phase I and Phase II components—whether newly constructed stations, depots, or auxiliary facilities—are designed and implemented in an environmentally sound, socially responsible, and sustainable manner. It defines:

- The screening and categorization process for subprojects;
- The institutional responsibilities of the Baku Metro PIU, contractors, and supervision engineers;
- The procedures for preparing, reviewing, and approving site-specific ESMPs;
- The monitoring, reporting, and supervision requirements; and
- Mechanisms for stakeholder engagement and grievance redress.
- Grievance Mechanisms to handle complaints and grievances related to the Phase I and Phase II Projects.

Key Framework Components

The ESMPF sets out detailed guidance on:

- **Identification of Risks and Impacts:** The key environmental and social risks and impacts from both Phase I and Phase II works are set out in tabular format.
- **Mitigation and Monitoring:** Standard mitigation measures and monitoring requirements covering construction impacts such as air and noise pollution, vibration, soil contamination, waste management, and occupational health and safety (OHS).
- **Roles and Responsibilities:** A clear institutional structure assigning accountability to the PIU's Environmental and Social Specialists, construction contractors, and the supervising Engineer.
- **Capacity Building:** Training plans to strengthen the capacity of implementing agencies and contractors in ESMP implementation, AIIB requirements, and national environmental legislation.
- **Public Consultation and Disclosure:** Integration of meaningful consultation and continuous engagement with affected communities consistent with the Stakeholder Engagement Plan (SEP).

- **Grievance Mechanisms:** Establishment and operation of both community and worker grievance redress mechanisms to ensure concerns are addressed promptly and transparently.

Implementation and Oversight

Implementation of the ESMPF will be managed by the Baku Metro PIU, supported by the Engineer and the contractors. Site-specific ESMPs/ESIAs will be prepared once final designs and exact locations are confirmed. Each ESMP will specify:

- Environmental and social baseline conditions;
- Mitigation and monitoring plans;
- Emergency response and chance-find procedures;
- Budget estimates and staffing arrangements; and
- Reporting templates aligned with AIIB's monitoring requirements.

The PIU will provide quarterly E&S performance reports to AIIB summarizing ESMP implementation status, key indicators, grievances received and resolved, and compliance findings.

Conclusion

The ESMPF provides the foundation for systematic E&S risk assessment and management across all current and future components of the Baku Metro Expansion Project. By applying the principles and procedures outlined in the Framework, the Project will ensure that environmental protection, occupational and community safety, and social inclusion are integral to project design and implementation—consistent with both AIIB requirements and national legislation.

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1. Introduction

1.1. Objective of the ESMPF

The ESMPF will be used as a practical guidance during program formulation, design, implementation, and monitoring for the Baku Metro Expansion Project (BMEP).

The exact design, construction sequencing, technology choices, and footprint of several components of BMEP, particularly the four new underground stations and associated tunnels of the Green Line extension, will only be finalized during the detailed engineering stage. Because the full extent of environmental and social (E&S) risks and impacts cannot be fully defined at this stage, preparation of standalone project-specific ESIAs and ESMPs is not yet feasible, and therefore the ESMPF approach is taken which allow framework-based assessment for multi-component projects where designs and detailed technical information will be finalized during implementation.

This document will be followed during project preparation and implementation for ensuring environmental and social integration in planning, implementation, and monitoring of project supported activities. For ensuring good environmental management in the proposed BMEP, the ESMPF will provide guidance on pre-investment works/studies (such as environmental and social assessment (ESIA), environmental and social management plans (ESMP), etc.), provide set of steps, process, procedure, and mechanism for ensuring adequate level of environmental and social consideration and integration in each investment in the project-cycle; and describes the principles, objectives and approach to be followed to avoid or minimize or mitigate impacts and risks according to AIIB Environmental and Social Policy (ESP).

The specific objectives are to:

- Identify environmental and social impacts of the projects that are not known as yet and account for appropriate mitigation measures
- Integrate the environmental and social concerns into the identification, design and implementation of all project interventions in order to ensure that those are environmentally sustainable and socially feasible;
- Ensure all relevant environmental and social issues are mainstreamed into the design and implementation of the projects/sub-projects and also in the subsequent phases of BMEP;
- Consider in an integrated manner the potential environmental and social risks, benefits and impacts of the program and identify measures to avoid, minimize and manage risks and impacts while enhancing benefits;
- Ensure compliance with national and AIIB's requirements. The ESMPF presents potential impacts of BMEP, mitigation, enhancement, contingency and compensation measures, environmental and social management and monitoring plan, and institutional framework including inter-agency cooperation for implementing ESMP. The ESMPF will facilitate compliance with the Government of Azerbaijan's policies, acts and rules as well as with the AIIB's environmental and social standards (ESSs) of the Environmental and Social Framework (ESF), and
- Guide conducting the detailed ESIA/ESMP of the later stages of BMEP as appropriate to the project components/sub-components.

The ESMPF translates AIIB Environmental and Social Standards into operational procedures as follows:

ESS 1: Environmental and Social Assessment and Management

- Establishes project-wide screening, categorization, and risk ranking.

- Defines procedures for ESIA/ESMP preparation, review, approval, disclosure, and monitoring.
- Provides standard mitigation measures for air quality, noise/vibration, spoil, wastewater, waste, cultural heritage, community and worker safety.
- Requires Contractors to prepare CESMPs aligned with AIIB and GIIP.

ESS 2: Involuntary Resettlement

- Links directly to the standalone Land Acquisition and Resettlement Policy Framework (LARPF).
- Requires screening of land needs and legacy impacts (e.g., prior grave relocations at Darnagul) and preparation of RAPs where needed.
- Ensures livelihood restoration and access to grievance mechanisms.

ESS 3: Indigenous Peoples

- Screening confirms that no Indigenous Peoples (as defined by AIIB) are present in the Project area.
- The ESMPF includes procedures for ongoing screening if the Project area is expanded.

Together, these procedures ensure that all AIIB ESS requirements are applied consistently across Phase I and Phase II activities.

1.2. Coverage of ESMPF

The ESMPF covers all activities funded by AIIB and any associated facilities. This includes:

- Phase I:
    - Darnagul Depot
    - Khojasan Depot
    - Refurbishment of 10 green line stations
- Phase II:
    - Green line Extension

This ESMPF does not cover topics relating to:

- Labour and working conditions (including occupational health and Safety) – a separate Labour Management Plan has been developed for the Project and includes specific requirements relating to this topic.
- Climate Change – separate documents have been prepared for this topic.
- Land Use (including resettlement and livelihoods) – a standalone Land Acquisition and Resettlement Plan Framework (LARPF) has been prepared for the Project.

No associated facilities require assessment under this ESMPF because operations of the existing metro system are technically and financially viable without the proposed AIIB-financed works. Existing stations, tunnels, and operational depots are therefore not considered associated facilities under AIIB policy. In addition, all subprojects financed under BMEP will be screened against the AIIB Environmental and Social Exclusion List, and any activities listed will be deemed ineligible for financing, development, or implementation under the Project. Excluded activities include, inter alia, forced resettlement without mitigation, harmful child/forced labor, and environmentally destructive resource extraction.

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1.3. Links to other Documents

This ESMPF is part of a package of documents for BMEP, they include:

- Labor Management Procedures (LMP) – provides for the management of Labor and working conditions in both construction and operational phases of the project (Phase I, II and III).
- Stakeholder Engagement Plan (SEP) – provides the requirements for stakeholder engagement, disclosure and grievance management in both construction and operational phases of the project (Phase I, II and III).
- Land Acquisition and Resettlement Plan Framework (LARPF) – provides the overarching framework for any potential land acquisition and resettlement issues that may arise during project preparation and implementation (Phase I, II and III).
- Environmental and Social Action Plan (ESAP) – Prepared for the Khojasan and Darnagul depots.
- Gender Action Plan (GAP) – For Phase I, II and III
- Climate Risk Assessment (CRA) – Provides a suite of climate change assessments for all Phases.

1.4. Report Structure

This ESMPF is structured as follows:

1. Introduction: The section in-hand.
2. Project Description: Summary information about project activities for all Phases, including construction and operation and maintenance (O&M) aspects.
3. Project Standards: Summary of key national legislation, AIIB and good international industry practice (GIIP). Project standards are also provided along with a gap analysis between national requirements and AIIB ESF.
4. Baseline Conditions: Summarizes the existing conditions in the wider Baku area as well as more focused discussion of conditions at depots and station sites.
5. Risks, Impacts and Mitigation: Summarizes the key potential risks and impacts that may arise as a result of project activities, both during the construction and O&M phases.
6. Implementation Plan: Outlines how the ESMPF will be implemented and any capacity building requirements to ensure smooth implementation.
7. Stakeholder Engagement, Disclosure and Grievance Mechanism: Describes the procedures for stakeholder engagement and disclosure of the ESMPF. Includes details of the Projects grievance mechanism (GM), including a workers grievance mechanism (WGM)

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2. Project Description

2.1. Overview Of Project

The Government of Azerbaijan (GoA), through Baku Metropolitan Closed Joint Stock Company (Baku Metro), is implementing the Baku Metro Expansion Project (BMEP) to enhance the city's public transport network in line with national transport and urban development strategies. The project is planned for financing by the Asian Infrastructure Investment Bank (AIIB), with potential parallel financing from other multilateral development banks.

Baku Metro currently operates three lines, comprising 27 stations and serving over 620,000 passengers daily. Under the Conceptual Development Plan and the State Program on Transport Infrastructure (2025–2030), aligned with the General Plan of Baku City (2020–2040), the system is set for significant expansion. The vision is to develop a modern, efficient, and sustainable metro network consisting of five lines, 76 stations, and 119.1 km of track.

The project is a part of Azerbaijan's State Program on the Improvement of Transport Infrastructure in Baku City and Surrounding Areas for 2025–2030 (the "State Program"), approved on 30th January 2025 and programmed Climate Change Mitigation measures, included in the 2024 Biennial Transparency Report (BTR).

The Project includes numerous components, which will be implemented by Phases. It is currently designed to include the following three phases:

A. Phase I:

The RoA intends to enter into a loan with the AIIB to finance the following components:

(i) **Darnagul Depot:** Construction and equipment supply for the Darnagul depot.

(ii) **Khojasan Depot:** Construction and equipment supply for the new Khojasan depot.

(iii) Enhancement of Existing Stations: Enhancing environmental, social, safety, and climate performance of the existing Green Line stations.

(iv) **Related Services:**[1] Provision of consulting services for project preparation, design review, construction supervision, environmental and social impact assessment, and implementation support.

B. Phase II:

(i) **Green Line Extension:** Khatai to Hazi Aslanov - 4 stations and approx. 8.6 km of TBM tunneling.

(ii) Construction works of inter-station tunnels of the Green Line from Khatai to Y15 can be accelerated with financing from the national budget to provide reversible dead end behind station "Khatai".

C. Phase III:

(i) Covers the purchase of the rolling stock for both the purple and green lines.

[1] These related services are not considered as associated facilities per AIIB definitions.

2.2. Phase I Depots

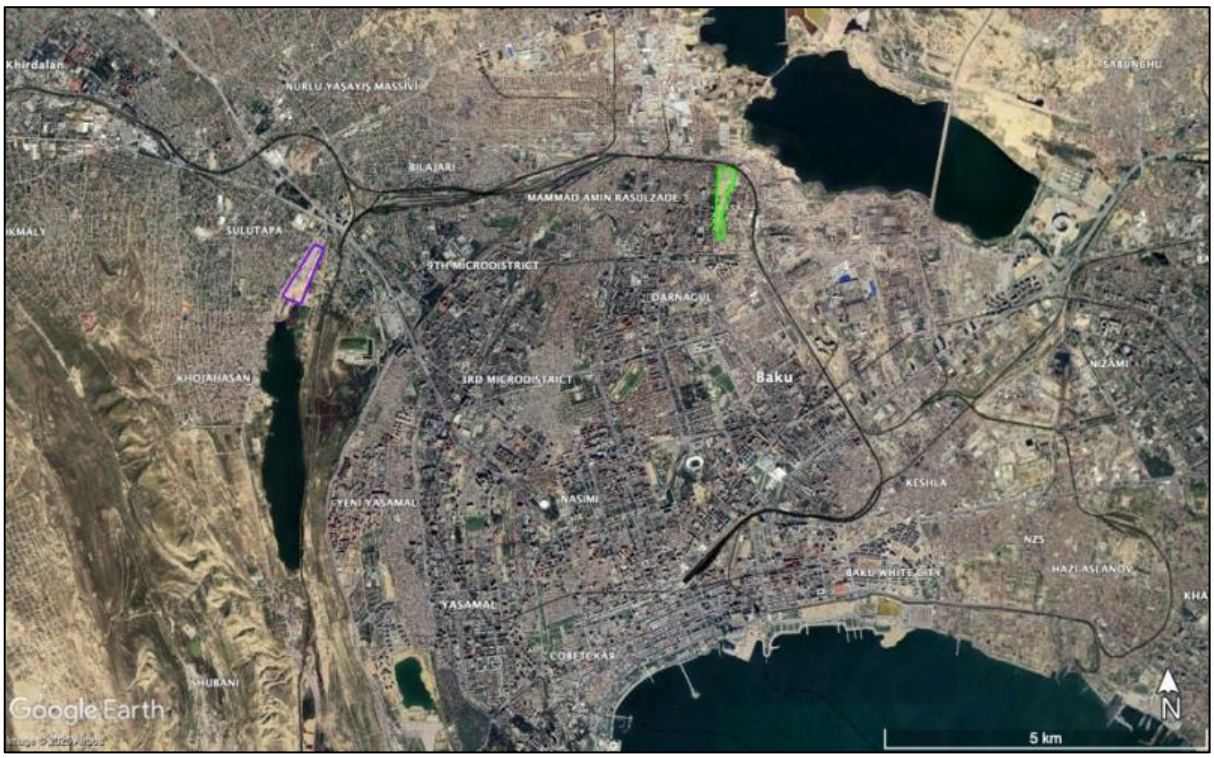
2.2.1. Overview

Phase I activities include the development of Darnagul and Khojasan Depots as follows:

- Construction completion and equipment supply of the Darnagul Depot on the Green line. This depot has partial foundation already laid and need to be built.
- Construction completion and equipment supply of the Khojasan Depot on the Purple line. This depot is to be built to accommodate the extension of the purple line.

AIIB intends to fund the completion of the construction works at the depots.

Figure 1: Locations of Darnagul (Green line) and Khojasan Depot (Purple Line) in Baku



Trains will stop at the Depots at night and, if they break down, repairs will be carried out. The main task of the depot is to ensure reliability and safety on the metro, as well as to maintain the existing train interval during peak hours. The main functions of the depots are:

- arrivals of trains for maintenance and departures from the depot to the train line;
- monitor the parameters of control equipment; and
- conduct diagnostics on trains and identify malfunctions.

2.2.2. Depot Components with Key E&S Risk Characteristics

These depots include train repair workshops, washing facilities, fuel and lubricant handling, wastewater treatment, mechanical and electrical maintenance areas, and storage zones. The main activities with potential E&S implications are:

- Large-scale earthworks, excavation, and utility installation
- Use and storage of fuel, lubricants, solvents, paint, batteries, and chemicals

- Train washing and wastewater discharge (oil–water separation required)
- Noise and vibration from 24-hour maintenance and shunting operations
- Spoil and hazardous waste generation

Additionally, historical soil contamination is possible at Khojasan, due to legacy oil industry activity, requiring targeted investigations and appropriate handling and disposal protocols.

2.2.3. Overview if Depot Components

Darnagul Depot

The Darnagul Depot is located on a state-owned plot within a residential area of Baku, adjacent to industrial businesses and various public facilities. Site preparation has been ongoing for nearly a decade, including utility relocation and partial construction of several buildings, some of which remain unfinished and are being evaluated for incorporation into the project. Connections to municipal water and sewage networks have already been secured.

The depot will include facilities for train maintenance, repair, washing, diagnostics, wheel machining, and storage of spare parts and chemicals. Key infrastructure includes repair workshops, washing and electrical-cleaning facilities, a locomotive maintenance area, control and security checkpoints, wastewater and stormwater pumping stations, traction and power substations, and water storage for drinking and fire protection. These functions create potential environmental and social concerns related to wastewater management, noise, hazardous materials handling, and operational safety.

Khojasan Depot

The Khojasan Depot lies west of Baku in the Yasamal district, surrounded by urban settlements with residential, educational, and commercial facilities, including major beverage factories. The depot area covers approximately 23.7 hectares and is connected to city utilities through an on-site substation. Above-ground train operations are planned, and wagon parking and washing facilities are under construction, with potential future expansion to include a wagon manufacturing facility.

The depot will house maintenance and repair workshops, washing systems with water treatment, passenger and locomotive platforms, a fuel station, lubricants warehouse, wastewater and stormwater treatment infrastructure, and storage facilities for oils, gas cylinders, and spare parts. Security checkpoints, loading areas, and service accommodations are also included. The range of mechanical, chemical, and fuel-handling activities creates key E&S considerations such as hazardous waste generation, wastewater discharge, fire and explosion risk, traffic movement, and community and worker safety.

2.2.4. Construction and Operation Activities

Construction

Construction/installation works are planned to be carried out according to the following program:

- Preparatory work, engineering survey work in the field
- Earthworks, site clearance, communication works;
- Drainage system installation;
- Installation of a fire protection system;
- Construction/installation of facilities in the complex;
- Preparation of infrastructure;
- Laying of electrical lines, etc.

The main construction equipment to be used during construction/installation includes: Excavators, cranes, bulldozers, welding machines, compressors and other construction equipment and auxiliary

equipment. In addition to earthworks, the following works are expected to be carried out in the construction area:

- Welding works;
- Piling, foundation and body construction;
- Concrete works (ready-mixed concrete will be purchased from concrete production facilities;
- Painting works; and
- Installation works.

Construction and installation works are expected to take approximately 1.5 years. The exact completion date will depend on the start of construction activities. Once construction and installation are finished, landscaping and greening works will be implemented across the site.

Operations
Operational activities at both depots will focus on: overnight stabling; scheduled and corrective maintenance; wheelset diagnostics and machining; washing/cleaning with treatment and recycling (incl. oil-water separation where applicable); materials and spares handling; controlled entry/exit and internal movements; and administrative functions. Energy and water efficiency features (e.g., rooftop PV, rain/greywater systems) are planned to bolster reliability and reduce utility demands.

2.3. Green Line

2.3.1. Overview

Phase 2 investments by AIIB involve the design and construction of four new stations of the Green Line as part of the extension of the line from Khatai to Hazi Aslanov. The following table summarizes the current and proposed features of the green line under this Project.

Table 1: Summary of Green Line

Basic Parameter	Unit	Green Line
Starting Year of Investments	Year	2026
Completion Year of Investments	Year	2029
Starting Year of Operations	Year	2030
Length of Existing Line	Km	14.50
Length of New Line (the Project)	**Km**	**7.04**
Length of Future Extensions	Km	10.66
Total Length of Line	Km	32.20
Average Speed	Km/Hour	40.50
Average Tour Period	Minutes/Round Trip	95.41
Operating Speed	Km/Hour	40.50
Number of Existing Stations	No.	10

Basic Parameter	Unit	Green Line
Number of New Stations (the Project)	**No.**	**4**
Number of Future Stations	No.	5
Number of Total Stations	No.	19
Operating Period	Hour/Day	18
Number of Operating Days Per Year	Days/Year	360
Peak Hour Factor	%	12
Annual Rate of Increase in Ridership	% per year	1.00
Maximum Ridership		
- 2030	Passenger/Direction/Hr	45,812
- 2059	Passenger/Direction/Hr	61,312
No. of Vehicles Per Train Set	Vehicles/Train	5
Standing Passengers Per m^2		
- 2030	Passengers/m^2	5
- 2059	Passengers/m^2	7
Vehicle Capacity	Passengers/Vehicle	229,20
Theoretical Train Capacity		
- 2030	Passengers/Train	1.146
- 2059	Passengers/Train	1.494
Capacity Utilization Rate	No.	0,95
Spare Vehicles Required	Spare Vehicle Percentage	2,0
Number of Vehicles Required	No.	72

2.3.2. Green Line Components with Key E&S Risk Characteristics

Phase II involves tunneling and construction of four deep underground stations. These works present the most intensive E&S challenges of the overall project, including:

- Tunnel Boring Machine (TBM) operations, producing large spoil volumes requiring transport and licensed disposal

- Groundwater control and potential drawdown impacts, requiring pumping, treatment, and reuse or discharge
- High-noise operations such as drilling, piling, diaphragm wall construction, and blasting (where relevant)
- Underground works in confined spaces, requiring ventilation, emergency rescue planning, and strict OHS measures
- Adjacent building settlement risk and vibration impacts, requiring monitoring and protection measures
- Traffic disruption and community safety concerns from construction traffic, haul routes, and material delivery

These risks require specialized engineering controls (e.g., settlement monitoring, TBM slurry handling, groundwater quality monitoring) and robust community engagement around affected access routes and construction zones.

Planned Works

Phase II green line extension works will involve the construction of four stations and their associated tunnels linking these four stations. The following summarizes the typical work phases.

1) Pre-construction & Enabling

- Site investigations: boreholes, labs, utility mapping, ground-water monitoring, building condition surveys.
- Consents & temporary works: traffic management plans, haul routes, environmental controls, community liaison.
- Utility diversions & protection: water/gas/power/telecom relocations; temporary drainage and stormwater control.
- Site establishment: fencing, welfare, power/water, sediment control, noise/dust monitoring.

2) Station Boxes (4 below-ground)

- Perimeter walls: diaphragm or secant-pile walls; guide walls; plunge columns if required.
- Groundwater control: dewatering wells, recharge, cut-off grouting as needed.
- Excavation & support: top-down or bottom-up; struts/props or anchored slabs; platform cavern if separate.
- Base slab & anti-flotation: blinding, base waterproofing, reinforcement, large pours with uplift control.
- Internal structure: columns/walls, concourse and platform slabs, back-of-house rooms, plant rooms.
- Waterproofing & drainage: external membranes/injections, sump pits and pumps.
- Fit-out readiness: openings for TBM adits, cross-over/cross-passage interfaces, MEP risers and penetrations.

3) TBM Launch, Drive & Reception (~4 km)

- Launch shaft(s): assemble TBM in the first station box or a dedicated shaft; install cradle/gantry, power, slurry plant.

- Segment production & logistics: precast yard setup, segment delivery sequencing, storage, and QA.
- TBM drive: face-pressure management, ring segment erection, back-grouting, continuous survey control.
- Spoil handling: conveyor or slurry treatment plant; transport to licensed tip or reuse.
- Ground treatment (as required): compensation grouting/jet grouting under sensitive assets.
- Cross-passages: SCL/NATM mined links between running tunnels; ground freezing or grouting if needed; waterproof and fit-out.
- Reception: breakthrough into reception box/station; secure, disassemble/transfer TBM if multiple drives.

4) Station Fit-Out & Entrances (at grade)

- Superstructure at ground level: entrance boxes, canopy/roof, façade, public realm hard/soft landscaping.
- Vertical circulation: lift shafts, escalators, stairs, headhouses.
- Architectural finishes: platforms and concourses (walls, ceilings, flooring), wayfinding.
- MEP & building systems: HVAC (tunnel/station ventilation fans), electrical rooms, UPS, fire detection & suppression, drainage, plumbing.
- Safety systems: smoke extraction, pressurisation, fire doors, emergency lighting, egress routes.

5) Tunnel & Trackwork Systems

- Track slab & trackwork: base slab, resilient fastenings, turnouts/crossovers near stations.
- Power: traction power (third rail or OCS), substations, cable routes, bonding/earthing.
- Signalling & train control: interlockings, wayside equipment, CBTC hardware if applicable.
- Communications: fibre backbone, CCTV, PA/VA, radio, passenger info systems.
- SCADA & controls: integration of stations, ventilation, drainage, and traction systems.
- Walkways & emergency systems: egress walkways, hydrants, emergency phones, cross-passage doors.

6) Integration, Testing & Commissioning

- Static tests: pressure tests, insulation resistance, ventilation performance, sump systems.
- Dynamic tests: track geometry, trial train running, signalling integration, braking curves.
- Fire & life safety: smoke tests (hot/cold), evacuation drills, acceptance with authorities.
- Reliability growth & trial operations: endurance running, defect clearance, O&M handover.

A range of ancillary and support facilities for construction works will be required and will include:

(i) Concrete batching plants and casting yard

(ii) Pre-cast yard for piers and viaducts

(iii) Laydown areas for tunneling and other equipment

(iv) Materials storage areas

(v) Truck/vehicle parking areas

(vi) Waste storage areas

(vii) Temporary road diversions

The number and size of these facilities will affect the size of the overall construction footprint and the land acquisition requirements for the project.

2.4. Associated Facilities

Consistent with AIIB definitions, associated facilities are those not legally part of the Project but (a) directly and materially related, (b) carried out/planned contemporaneously, and (c) necessary for the Project's viability such that they would not be undertaken without it.

In terms of the project, all existing parts of the metro network can operate without the proposed interventions proposed for funding by AIIB, with the exception of the Purple line extension to be funded by ADB as the extension requires the Khojasan depot upgrades. No other existing tunnels, depots or stations are considered associated facilities requiring additional assessment as part of the Project. The following table sets out the rational for this decision.

Table 2: Assessment of Associated Facilities

No.	Activity	Associated Facility	Rational
Phase 1			
1	Darnagul Depot	No	Forms part of AIIB activities and subject to the requirements of this ESMPF
2	Khojasan Depot	No	Forms part of AIIB activities and subject to the requirements of this ESMPF
3	Separation of the Red and Green lines at "May 28" station	No	The separation will help facilitate the movement of trains on the red and green lines, but it the project could still operate without the planned works, albeit less efficiently.
4	Strengthening works in the Nizami–28 May tunnel	No	These are maintenance works that are required as part of general O&M activities performed by Baku Metro.
5	Construction of a reversible dead end behind "Icherisheher" station	No	Part of Baku Metro Red line, not related to green line works.
Phase 2			
1	Green Line Extension	No	Forms part of AIIB activities and subject to the requirements of this ESMPF
2	Reversible dead end behind station "Khatai".	No	Construction works of inter-station tunnels of the Green Line from Khatai to Y15 can be accelerated with financing from the national budget to provide reversible dead end behind station

No.	Activity	Associated Facility	Rational
			"Khatai". However, the project is not reliant on this activity to operate.
3	Purple Line Extension	No	Upgrading works on the Purple Line is proceeding under a separate program (with their own safeguards - ADB) and can operate independently of the depots (albeit at reduced capacity); therefore, they do **not** meet all criteria and are **not** considered associated facilities of the depot Project.

3. Policy, Legal, and Institutional Framework

3.1 Applicable Azerbaijani Laws and Regulations

3.1.1. Constitution

The main legislative document that defines the rights, obligations, and provisions for the use of natural resources and environmental protection is the Constitution of the Republic of Azerbaijan, adopted on November 12, 1995 (as amended and supplemented as of July 25, 2016). The following Articles help determine the applicability of national and international requirements:

- Article 148.II International treaties to which the Republic of Azerbaijan is a party shall be an integral part of the legislative system of the Republic of Azerbaijan
- Article 151 - If any conflicts arise between the normative-legal acts which constitute the legislative system of Azerbaijan (except for the Constitution and the acts adopted via referendum) and the international agreements acceded to by the Azerbaijan Republic, the provisions of the international agreements shall apply.

3.1.2. National Environmental Legislation

GoA has committed itself to aligning the national environmental legislation with the principles of internationally accepted regulations, particularly with environmental regulations of EU. As this process is on-going, the Project must comply with the intent of current national legal requirements. Framework for the Azerbaijan national environmental legislation is formed by the Law on Protection of the Environment (1999), which addresses the following issues:

- Rights and responsibilities of the State, citizens, public associations and local authorities;
- Use of natural resources;
- Monitoring, standardization and certification;
- Economic regulation of environmental protection;
- State Environmental Expertise (SEE);
- Ecological requirements for economic activities;
- Education, scientific research, statistics and information;
- Environmental emergencies and zones of disasters;
- Control over the environmental protection;
- Environmental audit;
- Responsibility for the violation of environmental legislation; and
- International cooperation.

The following provides a summary of the key national E&S regulations of Azerbaijan relevant to the Project.

Table 3: Key national environmental and social regulations

Subject	Title	Date	Description
General	Law of Azerbaijan Republic on Protection of the Environment No. 678-IQ.	08/06/1999 (last amendment 30/09/2014)	This Law governs the legal, economic and social framework for environmental protection. The purpose of this Law is to guarantee environmental safety and the ecological balance of the environment, prevent the impact of socioeconomic and other activities, preserve biological diversity, and effectively manage the use of nature. This Law governs mutual relations between society and nature for the purpose of improving the quality of the environment, using and renewing natural resources efficiently, and enforcing environmental protection laws and legal procedures.
	Law of Azerbaijan Republic on Environmental Impact Assessment No. 1175-VQ	12/06/2018	Establishes main principles and procedures for the environmental and social impact assessment, its' development and approval at the level of the state.
	Law of Azerbaijan Republic on Ecological Safety No. 677-IQ.	08/06/1999 (last amendment 01/02/2013)	One of two keystone laws of the country's environmental legislation (along with the Law on the Protection of the Environment). Its purpose is to establish a legal basis for the protection of life and health, society, the environment, including atmospheric air, space, water bodies, mineral resources, natural landscapes, plants and animals from natural and anthropogenic dangers. The Law assigns the rights and responsibilities of the State, citizens and public associations in ecological safety, including information and liability. The Law also deals with the regulation of economic activity, territorial zoning and the alleviation of the consequences of environmental disasters.
Biodiversity / ecosystems	Law of the Azerbaijan Republic on Specially Protected Natural Territories and Objects No. 840-IQ	24/03/2000 (last amendment 06/03/2015)	Determines the legal basis for protected natural areas and objects in Azerbaijan. Defines the animal world, property rights over fauna and legal relationships between parties. It also describes issues of State inventory and monitoring, and economic and punitive regulations.
	Law on Protected Areas, No. 540-IQ	2000 (last amendment in 2006)	This Law establishes legal basis for the organization, protection and management of protected areas, based on the following main objects: 1) conservation of biological diversity and ecosystem; 2) purposeful use of protected areas for scientific research, culture and education; 3) recreational use; 4) international cooperation (art. 3).

Subject	Title	Date	Description
	Law of Azerbaijan Republic on Fauna No. 675-IQ.	04/06/1999 (last amendment 06/03/2015)	This Law establishes the legal basis for protection of fauna in the Azerbaijan Republic, with the aim of ensuring preservation and rational use of all types of wild animals. It also describes issues of State inventory and monitoring, and economic and punitive regulations
	Law of Azerbaijan Republic on Green Belts, No. 957-IVQ	2014	This Law aims at conservation of greens (trees, shrubs, flowers, grasses and planting materials) and green areas, also by defining the rights and obligations of state agencies, municipalities, legal entities and individuals.
Water	Water Code of Azerbaijan Republic (approved by Law No. 418-IQ).	26/12/1997 (last Amendment 06/03/2015)	Regulates the use of water bodies, sets property rights and covers issues of inventory and monitoring. The Code regulates the use of water bodies for drinking and service water and for medical treatment, spas, recreation and sports, agricultural needs, industrial needs and hydro energy, transport, fishing and hunting, discharge of waste water, fire protection and specially protected water bodies. It provides for zoning, maximum allowable concentrations of harmful substances and basic rules of industry conduct.
	Rules of Referral of Specially Protected Water Objects to Individual Categories, Cabinet of Ministers Decree No. 77.	01/05/2000 (last amendment 10/05/2012)	This resolution requires special permits for disposal if there are no other options for wastewater discharge. The resolution allows for restrictions to be placed on the use of specially protected water bodies, and for further development of regulations related to these water bodies. It requires consent from MENR for activities that modify the natural conditions of specially protected water bodies and includes provisions for permitting of any discharges to water that cannot be avoided. There are also special requirements for the protection of water bodies designated for recreational or sports use.
	Rules for Protection of Surface Waters from Waste Water Pollution, State Committee of Ecology Decree No. 1.	04/01/1994	Under this legislation the Permitted Norms of Harmful Impact Upon Water Bodies of Importance to Fisheries require discharges to meet several specified standards for designated water bodies in terms of suspended solids; floating matter; colour, smell and taste; temperature; dissolved oxygen; pH; Biological Oxygen Demand (BOD) and poisonous substances. Limits are based on Soviet era standards and are to be achieved at the boundary of the facility (specific “sanitary protection zone limits”) rather than “end-of-pipe”

Subject	Title	Date	Description
			limits. End of pipe limits are defined in facility-specific "eco-passports" and are established with the intent to ensure compliance with applicable ambient standards.
	ISR (Interstate Construction Regulations) 3.04-101-2005. Determination of basic calculated hydrological characteristics	15./12.2005	Instead of SNiP 2.01.14-83. AR State Building and Architecture Committee 15.12. Entered into force on 01.01.2006 in the territory of AR with the decision of 13 of 2005
	GOST 2874-82 Drinking water.	1985	Drinking water. Hygienic requirements and quality control
	ISR (Interstate Construction Regulations) 2.1.5.1315-03. Maximum allowable concentrations (MACs) of chemical substances in water of water objects of domestic and drinking water and cultural and domestic water use.	2003	Maximum allowable concentrations (MACs) of chemicals in the water of water objects used for drinking and domestic-recreation purposes. 2003
Air	Law of Azerbaijan Republic on Air Protection No. 109-IIQ.	27/03/2001	Establishes the legal basis for the protection of air, thus implementing the constitutional right of the population to live in a healthy environment. It stipulates the rights and obligations of the authorities, legal and physical persons and non-governmental organisations (NGOs) in this respect, sets general requirements for air protection during economic activities, establishes norms for mitigating physical and chemical impacts to the atmosphere, establishes rules for the State inventory of harmful emissions and their sources and introduces general categories of breaches of the Law that will trigger punitive measures.
	Methodology to Define Hazard Categories and need to develop Projects' maximum permissible emissions.	04/09/1990	Under this methodology the maximum permissible concentrations of harmful substances and their hazard classes are provided. Limits are based on Soviet era standards.

Subject	Title	Date	Description
	ISR (Interstate Constriction Regulations) 2.04-03-2005. Protection from noise	06/08/2008	Norms of vibration and noise pollution that adversely affect the environment and human health. Approved by the Decree of the President of the Republic of Azerbaijan No 796 of 08.06.2008
Waste	Law of Azerbaijan Republic on Industrial and Domestic Waste No. 514- IQ.	30/06/1998 (last amendment 12/06/2012)	Describes State policy in environmental protection from industrial and household waste including harmful gases, waste water and radioactive waste. It defines the rights and responsibilities of the State and other entities, sets requirements for the design and construction of waste-treatment installations, licensing of waste generating activities, and for the storage and transport of waste (including transboundary transportation). The Law also encourages the introduction of technologies for the minimisation of waste generation by industrial enterprises. There is a general description of responses to infringements. This law is specified by Resolutions of the Cabinet of Ministers on the rules of certification of hazardous wastes, state strategy on management of hazardous wastes in Azerbaijan and by Instructions on the Inventory. Rules and Classification System of the Wastes generated by Industrial Processes and in the Field of Services approved by the MENR.
	SanPiN 2.01.28-85.	28.01.1985	Landfills for neutralization and disposal of toxic industrial waste. Basic provisions for design.
	Toxic industrial waste disposal and landfills for disposal. Design norms	01.01.2013	Approved by State Committee for Urban Planning and Architecture of the Republic of Azerbaijan 2013
	SanPiN № 4631-88.		Sanitary rules and norms for protection of coastal waters of the seas against pollution in places of water use of the population. Moscow – 1988
	GOST 2761-84. Interstate standard.		Sources of centralized economic-drinking water supply. Sanitary and technical requirements and rules of selection. МКС 13.060
Baku Metro	Approval by the Cabinet of Ministers of the Republic of	19.10. 2010	Regulates passenger conduct and ensure safe operation of the metro. The rules define operating hours, passenger obligations, and prohibitions such as smoking, littering, and

Subject	Title	Date	Description
	Azerbaijan of the "Rules for Using the Baku Metro". (# 179)		damaging facilities. They establish standards for cleanliness, order, safety, and restrictions on dangerous or oversized items. Amendments, such as Resolution No. 159 (2018), strengthened tobacco bans within metro premises. Enforcement lies with metro authorities, ensuring compliance to protect passengers and infrastructure. These regulations form a legal framework supporting efficient and safe public transport in Azerbaijan.
	Order of the President of the Republic of Azerbaijan on the establishment of the 'Baku Metro' Closed Joint-Stock Company (order # 289)	27.02.2014	The decree designates the new CJSC as legal successor to these prior bodies - the existing Baku Metro operator and Azertunelmetrotikinti Joint Stock Company, and transfers all rights, obligations and assets, including infrastructure, personnel, liabilities. The Decree also mandates the Cabinet of Ministers to approve the company's charter, determine its authorized capital, and oversee its structure and governance. The restructuring aims to streamline management and unify operational and construction responsibilities under one corporate entity, thus improving efficiency, accountability, and investment clarity.
	Order (# 456) of the President of Azerbaijan approving the State Programme for Improving Transport Infrastructure in the City of Baku and Surrounding Areas (2025–2030)	30.01.2025	The program includes expansion of highways, construction of metro stations, upgrading rail and suburban lines, electric buses, and pedestrian infrastructure. It focuses on modernising urban mobility in Baku through integrated planning of roads, metro, and public transport networks. It aims to reduce congestion, improve road safety, and support sustainable transport by expanding electric bus fleets, introducing smart traffic management systems, and developing cycling and pedestrian-friendly infrastructure, enhancing quality of life and economic efficiency.
Health & Safety	Labour Code	1999 (as amended)	Azerbaijan's Labour Code puts the onus on employers to ensure safe, healthy working conditions—meeting technical and hygiene standards for buildings, processes and equipment, providing OSH training and information, and organizing workplace certification—while funding all OSH measures and PPE so employees bear no cost. Enterprises with more than 50 staff must establish an occupational safety service (with an OSH engineer), add a deputy chief for OSH above 500 staff, and—above 1,000—run an industrial hygiene lab and have an occupational health doctor. Employers must also report any industrial accidents immediately to the state labour authority for investigation.

Subject	Title	Date	Description
	Law on Labour Protection	1992	Azerbaijan's Law on Labour Protection (1992) sets the state's OSH policy (priority of life/health, unified standards, financing and statistics) and applies it to all workers; it requires employers to keep buildings, processes and equipment safe, comply with safety norms in design and operations, provide free PPE and sanitary-medical services, and train/inform workers. The law mandates recording and investigation of every accident, establishes government oversight and licensing for hazardous equipment, empowers trade unions/public OSH reps to monitor compliance and suspend unsafe operations, guarantees workers' right to information and social protection/compensation for work injuries, and imposes liability for non-compliance.
	Law of the Azerbaijan Republic on Sanitary-Epidemiological Services (authorised by Presidential Decree No. 371).	10/11/1992 (last amendment 30/09/2014)	Establishes sanitary and epidemiological requirements for industrial entities to be met at design, construction and operational stages, and for other economic activities. Aims to protect the health of the population. It addresses the rights of citizens to live in a safe environment and to receive full and free information on sanitary-epidemic conditions, the environment and public health.
	Law of the Azerbaijan Republic on Protection of Public Health No. 360-IQ.	26/06/1997 (last amendment 02/02/2015)	Sets out the basic principles of public health protection and the health care system. The Law assigns liability for harmful impact on public health, stipulating that damage to health that results from a polluted environment shall be compensated by the entity or person that caused the damage.
	Law of the Azerbaijan Republic on Public Radiation Safety No. 423-IQ.	30/12/1997 (last amendment 03/03/2006)	Includes requirements for ensuring radiation safety in industrial entities. The Law establishes the main principles of government policy on radiation safety, as well as environmental norms protecting the safety of employees and populations in areas potentially affected by the use of radioactive sources. The Law provides for compensation for damage to health, property and life due to accidents.
	Law of the Azerbaijan Republic on Technical Safety - 733-IQ	02/11/1999 (last amendment 30/09/2014)	The current law sets legislative, economic and social basis of PDF (Potential Dangerous Facilities) exploitation.

Subject	Title	Date	Description
Employment	Labor Code of the Azerbaijan Republic No. 618-IQ	February 1, 1999,	The Labor Code, through the relevant legal norms, defines the Labor, social, economic rights of employees and employers, as well as the principles and rules for ensuring the right to work, rest, work in safe and healthy conditions, as well as other fundamental rights and freedoms of citizens of the republic.
	Law on employment, No.1196-VQ	2018 (last amendment in 2019)	This Law establishes the legal, economic and organizational foundations of state policy in the field of employment assistance, as well as social protection of unemployed citizens.
	Law on unemployment insurance, No. 765- VQ	2017 (last amendment in 2018)	This Law establishes the basic principles of relations in the Labor market of Azerbaijan, the creation of new mechanisms for financing the lost wages of insured citizens, payment of compensations to them and strengthening social protection of the population.
	Law on State Guarantees of Equal Rights for Women and Men.	10 October 2006	The law aims to eliminate all forms of gender-based discrimination and ensure gender equality in the political, economic, social and cultural spheres. All human rights are guaranteed to women and men.
Land management and acquisition	The Civil Code	Adopted in 1999	Articles 246, 247, 248 and 249 include provisions for acquisition of lands for state needs. The Code requires the Decree on acquisition of lands for state needs should be registered in state real estate registration. It also states that Executive Agency should; a) send official notifications to all affected persons about land acquisition; b) pay full compensation to the affected persons within 90 days after the transaction agreement made; c) assist relocated people; and d) pay compensation for affected assets on the market rates (in case it is not possible to identify market rates, replacement prices are used). The Civil Code states as well that affected person can select one or more type of compensations. It also states that any rights to real estate must be registered with the State, and that land may be acquired from owners for state needs as approved by the relevant courts. It also states that the legality of ownership is established through the registration certificate issued by the Real Estate Land Registry Service based on the cadastral information (survey numbers) obtained from the State Land and Cartography Committee (SLCC) where the land is located.

Subject	Title	Date	Description
	The Land Code dated June 25, No. 695-IQ	1999 (last amendment in 2019)	The Land Code is aimed at regulating land relations, fulfilling the obligations of landowners, users and tenant farmers and protecting their rights to land, creating conditions for the rational use of lands and their protection, restoration and improvement of land fertility. Article 101 states that, all damage caused by acquisition of land (compulsory purchase) or temporary detention, as well as limiting the rights of owners, users and lessees or deterioration of the quality of soil should be fully paid to landowners or users. In addition, costs derived from early termination of its obligations against third parties should also be paid to the affected person. Disputes relating to compensation is being considered in a court in accordance with the procedure established by the legislation.
	The Land Acquisition Law	April 2010	Specifically address matters related to involuntary resettlement (IR), including the process and institutional arrangement for land acquisition, compensation and valuation, consultation requirements, entitlements of various categories of displaced persons and grievance mechanism. The law considers various categories of displaced persons, including those without state registration, renters, non-formal long-term users of land, and persons who have no legal rights on the land that they live in. The law entitles persons who have no legal rights on the land to resettlement assistance and compensation for their non-land assets. It includes provision of compensation for loss of business/income, transition allowance and transportation support, and compensation for loss assets based on replacement cost. As per the LAL, in case of physical displacement, the acquiring authority needs to send notification to DPs at least 60 days before resettlement.
	Law on Acquisition of Lands for State Needs	2011	The Decree stipulates additional provisions for the implementation of the Land Acquisition Law. It also assigns government agencies for each case of relevant executive body.
	Law on the state land cadastre, land monitoring and land management No.593	22.12.1998. Last amended on 31.05.2018	This Law defines the legal framework for ordering the state land cadastre, land monitoring and land management works in the Azerbaijan Republic.
	Law on land lease dated December 11, No.587-IQ	Last amended on 31.05.2018	This law defines the legal framework for the lease of lands in state, municipal and private ownership, and lease relations in the Azerbaijan Republic. The law states that (Article 16) when the leased land is acquired for state needs, another land plot having a same size and

Subject	Title	Date	Description
			a same quality can be provided to lessee. Losses incurred in this land shall be paid in accordance with the legislation.
	Law on the management of municipal lands No.160-IIQ	29.06.2001. Last amended on 19.06.2020	This Law regulates the general rules for the transfer of municipal lands to ownership, use and lease, taking into account the peculiarities of their management, legal relations in the field of their use and protection.
	Law on land market, No.665-IQ	1999 (last amendment in 2018, No.1287-VQD)	This Law establishes general rules for land market relations in the Azerbaijan Republic and ensures the protection of property rights to land.
	Cabinet of Minsters' Resolution No.45 24	2012	Approving of guidelines for preparation of Resettlement Plan and Resettlement Guideline.
	Rules for assigning lands to categories and transferring them from one category to another", approved by Decision No. 10 of the Cabinet of Ministers	2017	Agricultural lands (arable lands) are specially protected and their transfer to other categories for non-agricultural purposes is permitted in exceptional cases in accordance with the Land Code of the Republic of Azerbaijan and on the basis of the requirements of the "Rules for assigning lands to categories and transferring them from one category to another".
Liability	Law on Mandatory Insurances.	24/06/2011	Identifies requirements for the mandatory insurance of civil liability for damage caused to life, health, property and the environment resulting from accidental environmental pollution.
Permitting	A System of Standards for the Environment Protection and Improvement of Natural Resources Utilisation. Industrial Enterprise	01/07/1990	The MENR issues ecological documents on the impact on the environment of potentially polluting enterprises. The documents include maximum allowable emissions, maximum allowable discharges, and an “ecological passport.” The last item is specific to countries of the Former Soviet Union and contains a broad profile of an enterprise’s environmental impacts, including resource consumption, waste management, recycling, and the

Subject	Title	Date	Description
	Ecological Certificate Fundamental Regulations, GOST 17.0.0.04-90.		effectiveness of pollution treatment. Enterprises develop the draft passport themselves and submit it to MENR for approval.
Cultural heritage (also discussed separately below under section 3.1.4)	Law of the Azerbaijan Republic on the Protection of Historical and Cultural Monuments.	10/04/1998	The principal cultural heritage protection law in Azerbaijan is the "Law on Protection of the Historical and Cultural Monuments of the Republic of Azerbaijan (1998)" and its subsequent amendments. The regulatory review and preliminary cultural heritage baseline review demonstrated that, while Articles 1, 2, and 5 of the law are broadly applicable to the project, Articles 4, 13, and 14 are the most relevant and applicable to the proposed depot projects. The Baku Metro was unable to provide documentation demonstrating compliance with these articles.

3.1.3. National EIA Legislation

Regulatory requirements on the EIA process in Azerbaijan are set by the Law on Environmental Impact assessment. The purpose of the Law on EIA is to enact Article 54.2 of the Law "On Environmental Protection" by defining the legal, economic and organizational bases of the process of assessing the environmental and health impacts of economic activities implemented by private and public sector entities. Fundamental principles established by the law say that the EIA process shall:

- be based on the analysis of environmental, social and economic impacts of the planned activity;
- ensure the accuracy, transparency and reliability of the activity's environmental security related information;
- take into account the need to maintain the ecological balance and protect the biodiversity;
- accurately identify all possible environmental impacts and assess the levels of risks;
- ascertain that effects of the impacts will stay within the restrictions set by the respective standards.
- Ensure that, in addition to consultations with government and municipal authorities, the EIA process and findings are disclosed to, consulted with and reviewed by a wider list of stakeholders, including individuals, firms and NGOs;
- Ensure that the EIA is open for the state control transparent for the general public.

Requirements as to the EIA procedures are described in Article 4 of the Law. According to this Law, to coordinate the planned activity with the State Ecological Expertise of the MENR, it is necessary to develop and submit the EIA report to the representatives of MENR. The purpose of the Law "On EIA" is to create the legal basis for the functioning of the mechanism for the environmental impact assessment of public and private projects or the types of planned activities to ensure the prevention or reduction of negative impacts on the environment and public health at the earliest stages. The development of the EIA report is mandatory. Specifically, the EIA report should include:

- Assessment of the initial and expected state of the environmental and socio- economic environment.
- Determination of the environmental impacts of construction, reconstruction and operation of facilities.
- Environmental Management Plan, combining a system of measures to reduce and mitigate environmental impacts.
- Environmental Monitoring Plan providing for the effectiveness of environmental measures.

Summary of the EIA process, including mandatory requirements, is presented in Table 4 below.

Table 4: Summary of National EIA Regulations

EIA coverage and requirements	
Activities that require EIA	Activity types for which EIA is required are listed in the Annex to the EIA Law. Among others, the list includes exploration and development of mineral resources.

EIA Scoping	A party responsible for the assessment is required to carry out the EIA on the proposed activity after initial consultation with the relevant competent authority (MENR). Preliminary consultations are required to pre-determine the contents, scope and methods of the assessment, and to ensure the completeness and accuracy of the information to be reflected in the EIA document.
EIA Report	
General	In accordance with the Law "On Environmental Protection", the EIA report must be prepared at the project development stage and submitted to the relevant competent authority. The report should be prepared in an easy-to-understand style, characterize environmental baseline of the area where the proposed activity will take place, identify possible potential environmental and health related impacts of the activity, determine ways to eliminate these impacts, and suggest recommendations for minimizing adverse effects.
Project description	Description, purpose, stages, types of environmental impacts and environmental risk assessment methods of the proposed activity should be provided.
Project alternatives	At least two alternatives to the proposed activity (including the zero activity option), as well as an environmental justification for the most effective technological solutions, must be provided.
Regulatory requirements	Regulatory framework referred to during the preparation of the EIA document and a summary of the legal acts should be included.
Environmental and socioeconomic baseline	Environmental and socioeconomic baseline of the area must be studied and described.
Impacts and mitigation measures	All impacts (direct and indirect, localized and broader scale, acute and chronic, one-time and cumulative, emergency and irregular, temporary and permanent) should be identified and assessed according to their magnitude and severity, and measures should be proposed to prevent, reduce and mitigate these impacts.
Transboundary and emergency impacts	In case cross-border impacts are identified, they should be assessed in accordance with procedures and conditions established (not yet adopted) by the relevant authority (Cabinet of Ministers). Emergency impacts should also be addressed in the ESIA report.
Environmental management and monitoring	General information on the environmental management plan adopted for all phases of the project, including relevant management and monitoring plans, should be included.
Residual impacts	A summary of the residual effects and their significance should be included.
EIA Disclosure	
Public participation	The law requires that the public affected by the planned activities be informed on the EIA process. The Client is expected to engage the affected community in discussions regarding the proposed activities.

State environmental expertise	The Law on Environmental Protection requires that the EIA report is reviewed by MENR (within 3 months) and the MENR prepares an expert opinion. The opinion must be published and submitted to the relevant executive authorities in the area where the proposed activities will be carried out.

State approval of the EIA by the MENR creates a compliance mechanism, including environmental and social standards that the organization must comply with. The law requires that an EIA document be prepared by at least three EIA assessors – qualified and certified specialists included in the expert list of MENR.

To date, EIAs have been completed for both Darnagul and Khojasan Depots.

3.1.4. Cultural Heritage

The principal cultural heritage protection law in Azerbaijan is the "Law on Protection of the Historical and Cultural Monuments of the Republic of Azerbaijan (1998)" and its subsequent amendments. While the entire law is broadly applicable to the Project, Table 5 provides a summary of articles which require the Project to take specific management actions.

Table 5: Project Relevant Articles in the Law on Protection of the Historical and Cultural Monuments of the Republic of Azerbaijan

Article	Project Implications
Article 1: Protection of historical and cultural monument	The project is responsible for protecting historical and cultural monuments during its works
Article 2: Definition and classification of historical and cultural monuments	Defines the types of cultural heritage resources protected under the law. Based on the definitions provided and scope of the project, the proposed Project could impact archaeological, built heritage, and/or memorial places protected under the law.
Article 4: Property over the monuments	This article prohibits impacts to viewsheds from monuments such as historic structures and memorial monuments.
Article 5: Protection, rehabilitation of monuments, determination of their level of significance, the participation of Azerbaijan National Science Academy in their utilization	Establishes the Azerbaijan National Science Academy as the regulatory body that will conduct archaeological investigations within new construction zones.
Article 10: Integrity of Monuments	Prohibits the repair, construction, maintenance, or any other work which may change or impact the artistic or aesthetic view or pose a threat to a registered monument.
Article 12: Protection of monuments during construction and engineering utility work within Reserve territory and in its protection zone	Requires the Project to obtain the permission of the MoCT before any construction activity within the protection zone around a registered monument and any protective measures required by the MoCT will be paid for by the project. Traffic movement on roads close to monuments or passing through their protection zone will also require MoCT approval.
Article 13: Protection of monuments discovered during construction and other housekeeping work	Article requires the Project proponent to stop work, notify, and consult with the National Science Academy and Ministry of Culture

	and Tourism if undiscovered cultural heritage resources are encountered during Project activities.
Article 14: Archeological research on new construction areas	Requires the Project to provide time and funds for the National Sciences Academy to conduct preliminary research works within construction areas prior to the start of construction activities.

3.1.5. Conventions and International Agreements

Azerbaijan has ratified key conventions that they must adhere to, including the Aarhus Convention (access to environmental information), UN Conventions on Human Rights, Child Rights, Women's Rights, and the Convention on Intangible Cultural Heritage.

Azerbaijan is party to all core conventions including freedom of association, equal pay, minimum age, and forced Labor prohibition (ILO convention). The following table sets out those that may be relevant to the Project.

Table 6: Conventions and International Agreements

Convention / International Agreement	Relevance to Project	Year Ratified by Azerbaijan
Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (1998)	Requires public disclosure of environmental studies and stakeholder consultation during EIA and ESIA processes. Aligns with SEP and ESMPF disclosure.	2000
UN Framework Convention on Climate Change (UNFCCC) (1992)	Obligates measures to reduce emissions and enhance energy efficiency. Relevant for depot energy use, low-carbon metro development.	1995
Paris Agreement (2015)	National commitment to reduce greenhouse gases supports public transport expansion and energy-efficient metro infrastructure.	2016
Vienna Convention for the Protection of the Ozone Layer (1985) and Montreal Protocol (1987)	Governs use of refrigerants and ozone-depleting substances in depot cooling systems, maintenance workshops, and HVAC systems.	1996
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes (1989)	Sets rules for managing hazardous wastes (e.g., batteries, oils, solvents, asbestos from demolition). Supports MENR permit requirements.	2001
ILO Convention C029 – Forced Labor (1930)	Prohibits forced labor; applies to construction labor recruitment and OHS monitoring.	1992
ILO Convention C087 – Freedom of Association and Protection of the Right to Organise (1948)	Supports workers' rights in labor management and grievance mechanisms.	1992
ILO Convention C098 – Right to Organise and Collective Bargaining (1949)	Reinforces LMP requirements for workers' voice and representation.	1992

Convention / International Agreement	Relevance to Project	Year Ratified by Azerbaijan
ILO Convention C100 – Equal Remuneration (1951)	Supports ESMPF gender equality guidance and contractor HR requirements.	1992
ILO Convention C105 – Abolition of Forced Labor (1957)	Required for ethical labor recruitment, especially subcontracted labor.	2000
UNESCO Convention on the Protection of the Intangible Cultural Heritage (2003)	Reinforces protection of archaeological finds, intangible heritage around station sites and depots. Supports Chance Find Procedure.	2009

3.2. Project Standards

Project standards are the air, noise, water, and vibration limits the project must meet during both construction and operation. They reflect the most stringent requirements drawn from national regulations, international best practice, or a combination of both.

3.2.1. Air Quality

Table 7: National and IFC Ambient Air Quality Standards

Pollutant	Azerbaijan ambient standard	IFC General EHS (WHO AQG 2005)	Notes
PM10 / PM2.5	"Dust (TSP)" 24-hr 0.030 mg/m³ (30 µg/m³) momentary max 0.150 mg/m³ (150 µg/m³).	PM10: Annual 0.020 (20 µg/m³) 24-hr 0.050 (50 µg/m³). PM2.5: Annual 0.010 (10 µg/m³) 24-hr 0.025 (25 µg/m³).	Azerbaijan uses the Maximum allowable concentration (MAC) format and TSP ("dust"); IFC applies WHO AQGs by fraction (PM10/PM2.5).
SO_2	24-hr 0.200 (200 µg/m³) momentary max 0.300 (300 µg/m³).	24-hr 0.020 (20 µg/m³) (guideline) and interim targets 0.125/0.050 10-min 0.500 (500 µg/m³).	Azerbaijan's 24-hr limit (200) is far less stringent than WHO/IFC.
NO_2	24-hr 0.070 (70 µg/m³) momentary max 0.080 (80 µg/m³).	Annual 0.040 (40 µg/m³) 1-hr 0.200 (200 µg/m³).	Different averaging periods (AZ 24-hr vs IFC annual/1-hr).
O_3	Not listed in the national table cited.	8-hr max daily 0.100 (100 µg/m³) (guideline 160 interim target).	
CO	24-hr 2.000 (2,000 µg/m³) momentary max 3.000 (3,000 µg/m³).	Not listed in IFC's Table 1.1.1; WHO 2005 AQG commonly applied: 8-hr 10 mg/m³.	

IFC/WHO standards are more stringent than Azerbaijan standards and will be applied to the project.

3.2.2. Noise

Noise standards in Azerbaijan follow the Presidential Decree No. 796 (08 Jul 2008) approving "Regulations of the vibration and noise pollution…," which set admissible levels (in octave bands) and define both equivalent (LAeq) and maximum (Lmax) parameters. International best practice for ambient noise standards are the IFC General EHS Guidelines – Noise (Table 1.7.1), community noise criteria in LAeq, 1-hour.

Table 8: National and IFC Noise Standards/Guidelines

Item	Azerbaijan standard	IFC General EHS Guideline
Typical residential limit (outdoor)	50 dBA day (07:00–23:00) 40 dBA night (23:00–07:00).	55 dBA day (07:00–22:00) 45 dBA night (22:00–07:00) for residential/institutional/educational receptors (LAeq, 1-hr).
Industrial/commercial receptors	Not stated as simple broadband numbers in public extracts; limits are provided via octave-band tables with LAeq and Lmax criteria in the Decree.	70 dBA day/night (LAeq, 1-hr).

Project noise standards are blend of national (residential) and IFC (industrial/commercial).

3.2.3. Vibration

Azerbaijan doesn't have a native "DIN-4150-style" building/ground-vibration code. Instead, it regulates vibration through national sanitary/environmental rules and legacy GOST standards. In practice, projects in Azerbaijan often adopt DIN 4150-3 (or UK BS 7385) as best-practice criteria for construction-induced building vibration. Accordingly German Standard DIN 4150-3 will be followed during the construction phase relating to vibration from work sites.

Table 9: Guideline Values for Vibration Velocity to be Used When Evaluating the Effects of Short-term and Long-term Vibration on Structures

Group	Structure	Guideline Value for Velocity (mm/s)				
		Short-term				Long-term
		At Foundation			Uppermost Floor	Uppermost Floor
		Less than 10 Hz	10 Hz to 50 Hz	50 to 100 Hz	All frequencies	All frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40	10
2	Residential dwellings and buildings of similar design and/or use	5 (105 dB)	5 to 15	15 to 20	15	5 (105 dB)

Group	Structure	Guideline Value for Velocity (mm/s)				
		Short-term				Long-term
		At Foundation			Uppermost Floor	Uppermost Floor
		Less than 10 Hz	10 Hz to 50 Hz	50 to 100 Hz	All frequencies	All frequencies
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Lines 1 or 2 and have intrinsic value (e.g., buildings that are under a preservation order)	3 (100.5 dB)	2 to 8	8 to 10	8	2.5 (99.0 dB)

Source: DIN 4150-3, Structural Vibration, Part 3: Effect of vibration on structures

3.2.4. Wastewater

Azerbaijan regulates via permits that set maximum permissible discharges - MPDs (substance-by-substance) issued by the MENR. The Water Code and environmental law provide the basis; MENR "develops and approves standards for maximum permissible wastewater discharges," and the permit states the allowed quantities. The project will be obliged to follow the MPDs but shall also ensure compliance with the IFC General EHS indicative values for treated sanitary sewage discharges (to surface water).

Table 10: IFC General EHS indicative values for treated sanitary sewage discharges

Pollutant	Units	Guideline value
pH	pH	6–9
BOD_5	mg/L	30
COD	mg/L	125
Total nitrogen	mg/L	10
Total phosphorus	mg/L	2
Oil and grease	mg/L	10
Total suspended solids (TSS)	mg/L	50
Total coliform bacteria	MPN/100 mL	400+

3.3. Permitting

The following table summarizes the permitting requirements under Phase I and II.

Table 11: Permitting Requirements

Permit / Approval	Applicable Project Activities	Authority	Timing / When Required	Procedural Steps	Validity / Inspection	Responsibility
EIA Approval (Expert Conclusion)	Green Line Extension: tunneling and new underground stations; any major change to existing stations; depot upgrades affecting capacity	Ministry of Ecology and Natural Resources (MENR) – State Environmental Expertise Agency (SEEA)	Prior to tendering major works; construction cannot commence without approval	1) Submit written request to SEEA to initiate scoping; 2) SEEA issues scope/terms; 3) EIA prepared by certified assessors; includes public consultation; 4) Submit to SEEA for review and decision	Valid for 5 years; SEEA may inspect at any time	Baku Metro PIU
Update of Environmental Documents (no full EIA)	Refurbishment of existing Green Line stations without major design changes	MENR/SEEA	Prior to refurbishment	Submit updated facility documentation (emissions, discharges, ecological passport) instead of full EIA	Updated periodically per MENR instructions	Baku Metro PIU
Hazardous Waste Registration & Handling License	Construction spoil (hazardous fraction); oily waste; solvents; batteries; chemical storage at depots	MENR	Before mobilization of contractor	Contractor submits waste inventory & management plan; apply for license; only licensed transporters/disposal sites may be used	MENR inspections during construction; waste manifests must be kept	Construction Contractor; Approved by PIU
Wastewater Discharge Permit (MPD Limits)	Tunnel dewatering, depot washing facilities, stormwater pumps	MENR	Prior to discharge	Apply for discharge permit specifying quality/quantity; laboratory sampling required monthly	Non-compliance may lead to penalties or shutdown	Contractor (construction); Baku Metro (operation)
Stormwater / Sewage Network Connection Approval	Darnagul and Khojasan depots; pumping stations	Municipal Water Authority + MENR (if discharge to	Prior to commissioning	Submit design + hydraulic capacity assessment; install metering; inspection	Issued after commissioning test	Design Consultant + PIU

Permit / Approval	Applicable Project Activities	Authority	Timing / When Required	Procedural Steps	Validity / Inspection	Responsibility
		natural water body)		required before connection		
Archaeological Investigation Permit + Chance Find Approval	All deep excavation, tunnel shafts, areas near cemeteries or heritage	Ministry of Culture + Institute of Archaeology (ANAS)	Before excavation begins	Submit request for investigation; allow funding/time; enforcement of Chance Find Procedure	ANAS must document clearance; MoC can stop work if non-compliant	PIU (permit); Contractor (implementation)
Fire Safety and Emergency Systems Certification	Depot workshops, traction substations, fuel/lubricant storage, maintenance pits, and electrical rooms	Ministry of Emergency Situations (MES)	At design approval and prior to operation	Submit design for review; install systems; MES inspects before operation	Certification required before opening facilities	Design Consultant + PIU
Worker OHS Compliance (no permit, but mandatory)	All construction and O&M sites	MES + Labor Inspectorate	Prior to mobilization and throughout construction	Contractor develops OHS plan + PTW systems; inspections undertaken by PIU + MES	MES can order shutdown of unsafe works	Contractor; Supervised by PIU
Fencing, Traffic Safety, and Access Control	Depots, station construction, tunnel access points	Municipality + Traffic Police	Before mobilization	Traffic Management Plan submitted; enforcement of speed controls, gate control, and signage	Regular site inspections	Contractor; approved by PIU

3.4. AIIB Environmental and Social Standards

AIIB's Environmental and Social Framework (ESF) sets binding rules for how projects manage environmental and social (E&S) risks. It consists of an Environmental and Social Policy (ESP), three Environmental and Social Standards (ESS1: Assessment & Management; ESS2: Land Acquisition & Involuntary Resettlement; ESS3: Indigenous Peoples), and an Environmental and Social Exclusion List. Together they define how risks are screened and categorized (e.g., Category A or B) and what assessments and plans are required (ESIA/ESMP, LARPs, etc).

The ESF also lays out transparency and accountability: clients must disclose draft and final E&S documents in accessible formats and languages, with minimum pre-approval disclosure periods (typically 60 days for Category A and 30 for Category B). It requires meaningful stakeholder

engagement, project-level grievance redress mechanisms, and provides access to AIIB's Project-affected People's Mechanism (PPM). AIIB itself discloses key documents early in due diligence and throughout implementation, including monitoring reports.

3.5. Gap Analysis

The following table provides a gap analysis between the AIIB ESF requirements and Azerbaijani law. The table shows that there are clear gaps between the two and that AIIB ESF requirements have stricter requirements. Development of the

Table 12: Gap Analysis

Topic	AIIB ESF	Azerbaijan Law	Corrective Measures to Bridge Gaps (Project-Specific under ESMPF)
Screening & categorization	Bank assigns A/B/C/FI based on risk/impact; determines instruments (ESIA, E&S Management Plan, frameworks).	EIA Law + 2022 Rules list activities, set screening and process; MENR is competent authority; specific lists include EIA for "new metro stations, bridges and tunnels" and linked facilities.	ESMPF applies AIIB categorization (A/B) and specifies instruments accordingly (ESIA/ESMP/ESAA). ToR for all assessments will combine national EIA + AIIB ESFrequirements, ensuring dual compliance without duplication.
Assessment scope	Holistic E&S assessment (incl. social, labor/worker OHS within ESS1), cumulative/induced impacts, alternatives, management plans; apply GIIP and EHS Guidelines.	EIA focuses on environmental & health impacts; social aspects referenced but less systematized; content set by 2022 Rules; "state ecological expertise" review.	ESIA/ESMP will mandate OHS, labor, CHS, social baseline, GBVH, cumulative/induced impacts, alternatives analysis, GIIP + IFC EHS Guidelines, integrated into national EIA submissions and CESMP requirements.
Disclosure & timing	Bank discloses draft E&S docs: 60 days (Cat A) / 30 days (Cat B) before Board; continued disclosure incl. monitoring.	Public notice/hearings required; deadlines evolving; hearings linked to Public Participation Law (2014).	Project will comply with 60-day disclosure for Category A instruments; maintain public disclosure website, disclose monitoring summaries, and re-disclose updated ES documents where materially changed.
Stakeholder engagement	"Meaningful consultation" throughout; project-level GRM required;	Public hearings during EIA; participation anchored in EIA law & Public	SEP implementation throughout project lifecycle, including: early engagement, two-stage

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Topic	AIIB ESF	Azerbaijan Law	Corrective Measures to Bridge Gaps (Project-Specific under ESMPF)
	extended requirements for Indigenous Peoples (FPICon in certain cases).	Participation Law; GRM not always required.	consultations for ESIA, documentation of feedback, accessible GRM, periodic updates, and disclosure of engagement outcomes.
Grievance & accountability	Project-level GRM + access to AIIB's accountability mechanism; Bank monitors and can apply remedies for non-compliance.	Administrative/judicial avenues exist; EIA regime doesn't prescribe project GRM; compliance via MENR inspection.	Establish and publicize project-level GRM for communities and workers, with SEA/SH-sensitive channels, tracking, deadlines, and required disclosure. Contractors must operate GRM aligned with SEP + LMP.
Pollution prevention / GIIP	Explicitly requires GIIP; references EHS Guidelines as technical baseline.	Pollution control through permits and MPDs; GIIP/EHS not explicitly required.	All design and mitigation must apply IFC EHS Guidelines where stricter than national standards. CESMPs will incorporate EHS values for emissions, noise, wastewater and monitoring protocols tied to permits.
Biodiversity & protected areas	ESS1 covers critical habitats; requires mitigation hierarchy and no-net-loss where applicable.	Statutes protect natural and protected areas; strict regulation inside registered zones.	ESIA will assess critical habitats and ecosystem services near spoil disposal & Lake Boyukshor/Khojasan areas; apply mitigation hierarchy, and where relevant, no-net-loss or habitat avoidance.
Land acquisition / resettlement	Avoid where feasible; restore/improve livelihoods; covers physical & economic displacement; requires LARP, supports	Law compensates at market value; limited livelihood restoration; informal users not always covered.	A LARPF will require: livelihood restoration, replacement cost, informal-user compensation, vulnerability assistance, monitoring, corrective actions, and RAPs if

Topic	AIIB ESF	Azerbaijan Law	Corrective Measures to Bridge Gaps (Project-Specific under ESMPF)
	vulnerable groups and informal users.		impacts are triggered (including legacy cases around depots).
Indigenous Peoples	ESS3 requires screening, culturally appropriate engagement, FPICon where applicable.	No IP legal category.	ESMPF applies screening procedure, documenting "not applicable" but maintaining verification and disclosure requirements to meet ESS3 policy.
International access to information norms	Early disclosure & access to accountability mechanism required.	Azerbaijan is Party to Aarhus Convention.	Project commits to AIIB disclosure rules, SEP disclosure strategy, GRM transparency, and publication of monitoring outcomes beyond minimum Aarhus compliance.

The ministries, agencies and institutions having key functions with responsibility for the environmental and social aspects of the Project are listed in Table 13 below.

Table 13: Overview of Relevant Government Institutions

Entity	Functions
Ministry of Ecology and Natural Resources (MENR)	Representing the central state authority overseeing the environmental protection. The Decree No.485/2001 sets forth provisions on duties and authorities, activities and organization of the MENR, which is seen as the executive central body in carrying out activities in the field of environment such as ensuring environmental protection, developing efficient use of natural resources, groundwater and mineral resources, observing hydrometeorology processes, improving soil fertility, to this end monitoring, surveying and mapping.
Baku Metro CJSC	The company which runs the Baku Metro is responsible for operation and expansion of the metro system, ensuring its development to modern world standards, and managing its infrastructure and passenger cars. Beyond public transit, it undertakes projects for public-social development, runs mass cultural events, and collaborates with state agencies to promote industrial growth.
Ministry of Digital Development and Transport	The Ministry is a central executive body implementing the state policy and regulation in the fields of digital development, e-government, telecommunications, postal communications, space activities, high technologies (digital technologies, information technologies, microelectronics, artificial intelligence, nano-, bio- and other innovative

Entity	Functions
	knowledge-intensive technologies), personal data and transport (road, rail, sea and air transport, as well as navigation).
Ministry of Emergency Situations (MES)	It is a central executive body responsible for the civil defense and the protection of the population from natural and man-made disasters.
Ministry of Labor and Social Protection of Population	Government structure contributing to high-levelled execution of social policy strengthening and improvement of welfare state of country population.
State Tourism Agency of the Republic of Azerbaijan	The agency is the central executive body implementing the state policy and regulation in the field of protection of historical and cultural monuments located in the territories of the state reserves under its subordination. The State service is the executive body exercising state control on usage of immovable historical and cultural monuments (except State Historical-Architecture of "Icheri Sheher" and “Qala” State Historical Ethnographic Reserve) that are under state protection, restoration, reconstruction and protection.
Ministry of Culture (State Service for Protection, Development and Restoration of Cultural Heritage under the Ministry of the Culture of the Republic of Azerbaijan)	Governmental agency within the Cabinet of Azerbaijan in charge of regulation of the activities and promotion of Azerbaijani culture.
The State Land and Cartography Committee of Azerbaijan Republic (SLCC)	In charge of implementing land cadastral, monitoring and reforms; restoration and increasing of land productivity, setting territorial units in Azerbaijan Republic. The Department on Land structure, land reform and Work with regions under SLCC is responsible for coordination of Land acquisition and resettlement works with executive agencies.
Azerbaijan National Academy of Sciences, Institute of Archaeology and Ethnography	The Institute of Archaeology and Ethnography of the Azerbaijan National Academy of Sciences (ANAS) has a multifaceted mission that centers around research and preservation of historical and archaeological heritage.
District / city level Executive Authorities	They are representative offices of the President of Azerbaijan in places. Within the limits of their authority, they manage a city (region), adopt acts of regulatory and normative nature, dispose of state-owned lands, develop and implement programs for socio-economic development in the territories entrusted. The Executive Authorities are responsible for the local management of state lands within the Districts territories, and for the supervision of municipal land management.
Municipalities	They are a form of local self-government and non-state system for organizing the activities of citizens within the territories established by the laws of Azerbaijan. Municipalities, within their powers, design and implement programs for social protection and social development, economic development and local environmental programs.

Vista Environment

4. Environmental and Social baseline

4.1. General

The following section of the ESMPF provides an overview of the baseline environmental and social conditions at the Baku area. Where relevant, conditions specific to the depots, green line stations and associated areas, such as the spoil material site. The aim of this section is to provide context for the risks and impacts identified in Section 5. The section is organized into three sub-sections: 1) physical resources, 2) biological resources and 3) Socio-economic Resources. These sections are further sub-divided into specific topics, e.g. air quality, gender, etc. This section also includes information about Baku Metro and how they operate as an organization, e.g. regarding Labor and working conditions.

4.2. Existing Site Conditions

4.2.1. Darnagul Depot

Site observations highlighted large, uncovered spoil piles generating dust, exacerbated during windy conditions. Construction waste and wastewater management systems require further strengthening, including segregation, covered storage, and disposal through licensed contractors. Traffic management arrangements for the movement of materials and spoil are not yet formalized.

Labor and OHS practices are generally in place. The depot operates three shifts of eight hours each, including at night. Workers receive safety inductions and semi-annual emergency and first aid training. No fatalities have been reported, though minor injuries are frequent. The labor department investigates incidents and requires additional training as remedial action. Worker compensation is paid during leave and reinstated upon return. Despite these arrangements, additional attention is required for noise and dust control during night shifts. The grievance mechanism is accessible through the Health, Safety, and Environment (HSE) Division, but the hotline is not visibly posted at the depot site.

In 2013, 346 graves were relocated from the depot site with the involvement of local authorities and families. Documentation confirming this process remains to be disclosed. In addition, refugees previously residing on the depot site were resettled under national programs.

4.2.2. Khojasan Depot

The depot's infrastructure is connected to municipal sewage and water systems and includes a functioning substation. Current works comprise a washing station and overnight wagon parking facilities, while future plans envision a wagon factory. Train operations here are above ground, and a wagon workshop lies within the high-voltage boundary. The depot is being developed in three phases, requiring gradual expansion of staff capacity. Employees are gradually recruited and trained, with introductory and emergency training, semi-annual refresher courses, and additional sessions after inspections or incidents. No fatalities have been reported, though minor injuries have occurred and are investigated. Wages continue to be paid during recovery, and workers confirmed that grievance procedures are available through the HSE Division, with a Metro hotline posted online and onsite. Potential environmental risks include legacy soil contamination from historical oil rigs, requiring soil monitoring to identify hotspots and ensure safe disposal.

4.2.3. Green Line Stations

Station Y14 : the brownfield site is located in the real estate development area 'White City' in Khatai district and was allocated to Baku Metro by decree signed on 27 June 2013. The site is fenced and not actively used. The land plot currently hosts a number of unfinished structures owned by the real estate

developer White City that are not affected by the Project. Baku Metro has not undertaken any construction activities at the site yet but White City plans to finish its structures upon completion of construction of the Y14 metro station by BM. The site was previously occupied by private structures, including residences. The process to demolish these structures started around mid 2014 and finished in late 2019.

Figure 2. Station Y14, early 2025

Source: Google Earth.

Figure 3. Station Y14

Source: Consultant, 2025

Station Y15 : The brownfield construction site is located on the territory of the former oil company, in an industrial area. Construction of the Y15 station started in 2014. The building that belonged to the oil company is currently used by Baku Metro as a canteen and changing room. Historical aerial images indicate that this site potentially comprised bulk oil storage in its north western portion of the site.

Figure 4. Station Y15

Source: Google Earth.

Figure 5. Photo of Station Y15

Source: Consultant, 2025

Station Y16 : the brownfield site is located in an area previously occupied by a state factory. Construction of the Y16 station will require that five factory structures be demolished. These structures are currently occupied by several businesses including a wood workshop where seven people were observed to be working in September 2025 and an Isuzu vehicle service shop. Baku Metro has not undertaken any construction activities at the site yet.

Figure 6. Station Y16, April 2025

Source: Google Earth.

Figure 7. Station Y16

Source: Consultant, 2025

Station Y17 (Hazi Aslanov station): The brownfield construction site occupies an area of 1.3408 in the 2944-2945 block of M. Hadi Street that was transferred by decree to Baku Metro on 11 October 2018. The construction site occupies a portion of Xudu Mammadov Street that was closed and fenced off around 2012. Upon completion of construction of the metro station by BAKU METRO the road will be fully opened again for use by the public. Structures hosting active businesses and market stalls as well as residential units are located on either side of the street, accessible to the public by a corridor for pedestrians of 2 to 4 meters wide. Some of these business units also have an opening to the streets running parallel to Xudu Mammadov street.

Figure 8. Station Y17, July 2014

Source: Google Earth.

Figure 9. Station Y17, July 2014

Source: Consultant, 2025

In addition, it is anticipated that the construction and operation of several ventilation shafts along the Green Line will require acquisition of land rights. The location of these ventilation shafts will be determined during the detailed design phase of the project. Baku Metro will endeavor to avoid or minimize impacts of land acquisition of the shafts to the extent possible by adjusting the design.

The refurbishment of the 10 existing stations along the Green Line may have an impact on existing livelihoods. Such impacts will be identified and defined in the LARP and LRP.

4.3. Physical Resources

4.3.1. Climate

The Project is located in Baku on the Absheron Peninsula, which has a temperate-hot, semi-desert climate characterized by hot, dry summers, cool winters, and persistent winds throughout the year. Climatic conditions are shaped by the Caspian Sea and regional continental influences, resulting in limited precipitation, high evaporation, and strong seasonal variability.

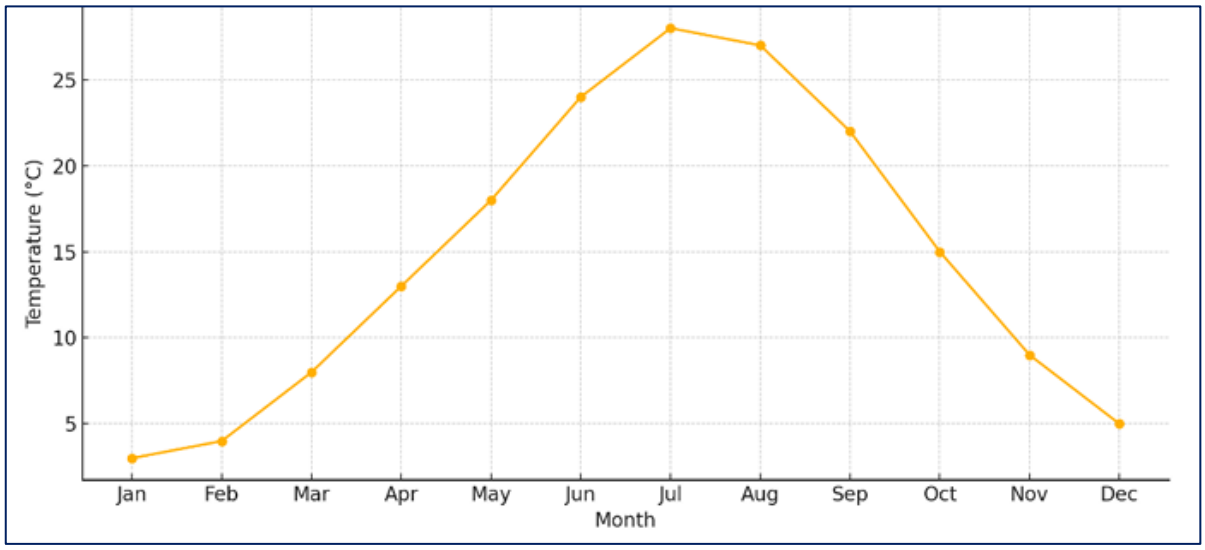
Temperature

Long-term meteorological data indicate an average annual air temperature of 13.5°C. Absolute temperatures range from a maximum of 42°C in July to a minimum of –13°C in January in Baku. Soil freezing depths in winter do not exceed 0.4 m. Average monthly temperatures range from –1.9°C in winter to 32°C in summer, with July being the hottest month. The warm season extends from early June to mid-September, with daily highs averaging above 27°C.

Over the past decades, Baku has experienced a measurable rise in annual mean temperatures. Summers have become hotter, with more frequent days above 35°C, while winters have become

milder with fewer frost days. These changes are consistent with observed warming across the Caspian Basin and indicate an ongoing shift in seasonal patterns.

Figure 10: Average Monthly Temperatures in Absheron Peninsula



Source: Garagurbanli, V. (2023). *Climate, Radiation Balance, Atmospheric Periodicity, and Hydrothermal Regime of the Absheron Peninsula*. Natural Sciences

Cloud Cover

Sky cover varies seasonally. The clear period lasts from late May to early October, with August being the clearest month (95% clear or mostly clear). The cloudy period runs from October to May, peaking in January when skies are cloudy about half the time.

Precipitation and Hydrology

Average annual precipitation is about 227 mm, while evaporation rates are very high (947–1344 mm). Rainfall is erratic and often concentrated in autumn and spring, with October the wettest month and July the driest. Intense short-duration storms have been recorded, periodically overwhelming surface drainage systems and causing localized flooding, particularly in low-lying areas such as the Darnagul catchment. Variability in the Caspian Basin also contributes to rising groundwater levels, which place stress on depot foundations and service pits.

Humidity

Humidity fluctuates significantly through the year. Between mid-June and early October, muggy or oppressive conditions occur about 15% of the time, with August averaging 16 days of high humidity.

Wind

Winds are strong for most of the year. The windy season lasts from late June to early April, with November the windiest month (average 5.5 m/s) and May the calmest (4.2 m/s). Prevailing winds come from the north between April and October and from the south between November and February.

4.3.2. Natural Hazards

Baku is located in an 8-point seismic zone (AZ DTN 2.3-1), requiring earthquake-resistant designs for all project infrastructure. Local soils are classed II–III (MGE-7) under AZDTN 2.3-1 (amend. 1).

In terms of floods, consultations with residents around both depots indicated that localized flooding is not an issue. Think Hazard categorizes the risk of urban flooding in Baku as very low, meaning less than 1% chance of potentially damaging and life-threatening river floods occurring in the coming 10 years (return period of c. 1 in 1000 years). However, there have been instances of flood events in the city in the last 5 years. [2]

In terms of the four proposed stations flood risks are present throughout Baku. The low lying areas close to the coastline are at risk, including the locations of the four proposed green line stations.

No other natural hazards, such as landslides, mudslides have been identified around the that could affect project sites.

4.3.3. Topography

The terrain of Baku is characterized by flat lowlands near the coast, which quickly transition to higher elevations outside the city area. This landscape contrasts with surrounding mountainous regions, including the Greater Caucasus Mountains to the north and various uplands to the west.

Darnagul and Khojasan depots —are located within this broader topographical context. The Darnagul area, in the western part of the Absheron Peninsula, has a young and gently dissected relief formed by recent Quaternary tectonic activity, marine terraces, channel less depressions, and small ravines. The Khojasan area, in the eastern part of the peninsula, features relatively flat terrain transitioning to low undulating plains. Both areas are influenced by anthropogenic modifications, with the most widespread landscapes consisting of residential and industrial developments.

Khojasan depot itself is sited on low, flat terrain north of Khojasan Lake. Its elevation rises from around 18m at its southern boundary to 32 meters in the north. Darnagul depot is also located on flat ground with an almost even elevation of 33-35m across the site.

Figure 11: Flat Topography of Khojasan Depot

[2] https://eurasianet.org/baku-hit-by-widespread-flooding

Source: Consultants own photo, 2025

Figure 12: Flat Topography of Darnagul Depot

Source: Consultants own photo, 2025

All of the four station sites are flat and there are no hills or slopes surrounding the sites. Three of the stations are actually located below sea level (maximum -20m), but it should be noted that the Caspian sea is also on average, 28m below sea level.

4.3.4. Air Quality

The atmospheric air of the Absheron Peninsula is primarily polluted by emissions from oil and gas production, oil refining, petrochemical industries, energy, mechanical engineering, and other industrial sectors, as well as from vehicles. Despite favorable conditions for pollutant dispersion across the peninsula, the dense industrial activity and high vehicle traffic maintain consistently elevated levels of air pollution. Higher concentrations of pollutants are observed during periods of unfavorable meteorological conditions, typically from June to September. During this time, atmospheric inversion and calm (windless) conditions frequently occur in the surface layers, leading to the accumulation of chemical compounds in near-surface air masses. Pollutant concentrations are generally higher in the western parts of the peninsula, particularly around Baku and Sumgayit, where they may exceed established norms by 10% to four times. In the eastern direction, concentrations decrease by 2–3 times and typically remain within sanitary norms.

Baseline monitoring was done on-site three locations during October 21, 2021 and January 2022. within Khojasan depot as part of the Khojasan EIA (2023). The EIA states none of the national limits were exceeded (for PM10, NO_2, SO_2, CO).

Table 14: Air Quality Measurements

Sample location	PM2.5 With particles	PM 2.5 ppm/m³ Mass	PM 10 µg/m³	NO2 mg/m³	SO2 mg/m³	CO pq/m³
SP 1	345	30	72	35.2	3.2	1.2

SP 2	323	27	20	32.8		
SP 3	346	29	21	25.7		

Source: Khojansan EIA (2023)

Baseline air quality monitoring was not completed for the Darnagul EIA (2022). However, site visits by the Team in August 2025 noted large, uncovered mounds of soils were generating high levels of dust during windy periods. One of the community members interviewed as part of this screening report noted that dust from Darnagul depot was a problem in the summer and dry periods.

Figure 13: Stockpiles at Darnagul Depot

Source: Consultants own photo, 2025

Additional instrumental monitoring of both depots is in progress and the results will be provided in the Project ESMP for the depots.

Around the four proposed green line stations air quality is typical of urban Baku, meaning that pollution from vehicle combustion emissions on adjacent roads is likely and that particulate matter (dust) during dry periods is also likely. These issues are likely to be more apparent at stations Y14 and Y15 which are located adjacent to main roads (four lanes).

4.3.5. Water Resources

Darnagul depot is located in the Absheron-Gobustan hydrogeological region. Groundwater occurs locally in Quaternary sandy sediments at depths of 0.4–2.5 m, but most is highly mineralized (in some places aggressive to reinforced concrete (sulfate/chloride attack), contaminated with oil, and unsuitable for use. Across the depot area, groundwater was encountered as part of geotechnical investigation wells with the water table typically between about 1.0 and 15.0 m below ground level (bgl), depending on local relief and soils. Near Lake Boyukshor it's much shallower—~0.4 to 2.55 m bgl—and largely technogenic/septic in origin.

Figure 14: Proximity of Lake Boyushor

Source: Google Earth

Figure 15: Proximity of Lake Khojasan

Source: Google Earth

No direct surface water flows reach the Khojasan Depot; the nearest significant water body is Lake Khojasan. Groundwater was encountered in all wells drilled at the site, at depths ranging from 0.1 to

5.8 meters (Khojasan EIA, 2022). Eight groundwater samples were collected and analyzed in the laboratory. Results of the chemical analysis indicated that the groundwater is not aggressive toward reinforced concrete; however, based on chloride ion concentrations, it is strongly aggressive toward metal structures.

There are no major surface water courses within the vicinity of any of the four proposed green line stations. Y14 station is within 500m of the coast of the Caspian, other stations are more distant, from the coastline, but still within 1km. Groundwater levels in this part of Baku are relatively shallow (can be as shallow as 1m) and there is a high likelihood of seawater ingress, especially when works extend below –28 m elevation or close to the shoreline.

4.3.6. Soils and Geology

The Darnagul Depot sits on mixed Quaternary sediments with technogenic soils on top, underlain by clay, sand, and sandstone layers of varying strength. Areas of soil contamination are present. The weak soils are prone to loosen and collapse when excavated. Further, windblown dust can be an issue on site.

Soil sampling is in progress at Darnagul depot and the results will be provided in the Project ESMP for the Depots.

The Khojasan Depot lies with the Absheron Peninsula's productive Neogene (middle Pliocene) strata, mainly composed of dusty clays, silts, and fine-grained sands interbedded with thin sandstone layers. Structurally, the site belongs to the Shabandag–Shubani anticline zone with steeply dipping strata. Land in the area has been heavily modified by urbanization.

Within the proposed station boxes there exists the possibility of soil contamination from previous site uses. Looking at historical images of the site, the following conclusions can be drawn:

- Y14 – Residential use until land clearance for establishment of the station. No significant risks identified.
- Y15 – Located in an area of intense industrial activity before land clearance for station development. Notably the site appears to have been used for some form of oil storage in one corner of the site. Bulk fuel storage tanks also appear to be located around the site. Risk of soil contamination is therefore high.
- Y16 – Currently the site of light industrial workshops which appear to have been present on site for at least 20 years. The possibility of contamination on the site cannot be ruled out and therefore the risk is considered to be moderate.
- Y17 – Located in a residential area. Risk of soil contamination is low.

4.3.7. Noise and Vibration

Noise monitoring was undertaken at three locations within the Khojasan Depot as part of the national EIA (2022). Short-term daytime measurements (30 minutes per location, consistent with national requirements) recorded levels between 53.4 and 54.4 dBA. Although these averaging periods are not directly comparable to IFC guideline methodologies, the results suggest that daytime noise levels are likely within the IFC daytime limit of 55 dBA. Vibration monitoring was also carried out, with no vibration detected. Residents interviewed for this assessment similarly reported no concerns related to vibration. It should also be noted that Khojasan depot is located adjacent to a busy road which generates high noise levels on the western boundary of the site. As such any receptors located west of the road will be mainly disturbed by road noise and not by any on-site works, or movements of wagons.

Noise monitoring has not yet been conducted at the Darnagul Depot. The Darnagul EIA (2023) does report that "the current noise level is below the accepted norm for areas directly adjacent to residential areas." In the absence of quantitative measurements, this statement should be considered anecdotal only.

Community consultations around both depots did not identify noise as a major issue, with the exception of one resident near Darnagul who reported being disturbed by nighttime noise.

Additional instrumental monitoring of both depots is in progress and the results will be provided in the Project ESMP.

For the proposed stations, the situation is like that of air quality above. Noise at stations Y14 and Y15 is higher due to the presence of the adjacent main road. However, the setting of Station Y17 in the middle of a residential area means that construction noise impacts are likely to be more significant here.

4.4. Biological Resources

4.4.1. Flora

There is no significant vegetation within the boundaries of the Khojasan Depot. At the Darnagul Depot, areas of greenery are present, including tree stands located in the western part of the central project area and smaller groups of trees in the northern and northeastern sections. A total of 464 trees were recorded, the majority being fir and pine species. An inventory of these trees was completed as part of the Darnagul EIA (2023). No rare or endangered species were identified during the field surveys.

Due to the absence of proper agrotechnical care and irrigation over many years, a portion of the trees have withered or are in the process of drying out. Under the project, these trees will need to be removed or relocated in accordance with national procedures.

No important areas of vegetation have been identified at the four station sites which have already been cleared for works. Some tree cutting may be required at station Y16. However, given the industrial setting of this station no trees are likely to be special status.

4.4.2. Fauna

All site boundaries have been established for several years, and some site clearance and preparatory works have already taken place. As a result, no notable fauna is present within these urbanized areas of Baku. A review of IBAT and IUCN Red List data confirms that no critically endangered or endangered species occur near either depot site.

A field survey conducted at Darnagul as part of the Darnagul EIA (2023) identified four reptile species (lizards and snakes). Several common bird species were also recorded, including black starling, house sparrow, barn swallow, common crow, and field pigeon. No dedicated fauna survey has been undertaken at Khojasan; however, site visits did not reveal evidence of notable fauna. The absence of vegetation at the site further reduces the likelihood of fauna presence.

4.4.3. Protected Areas

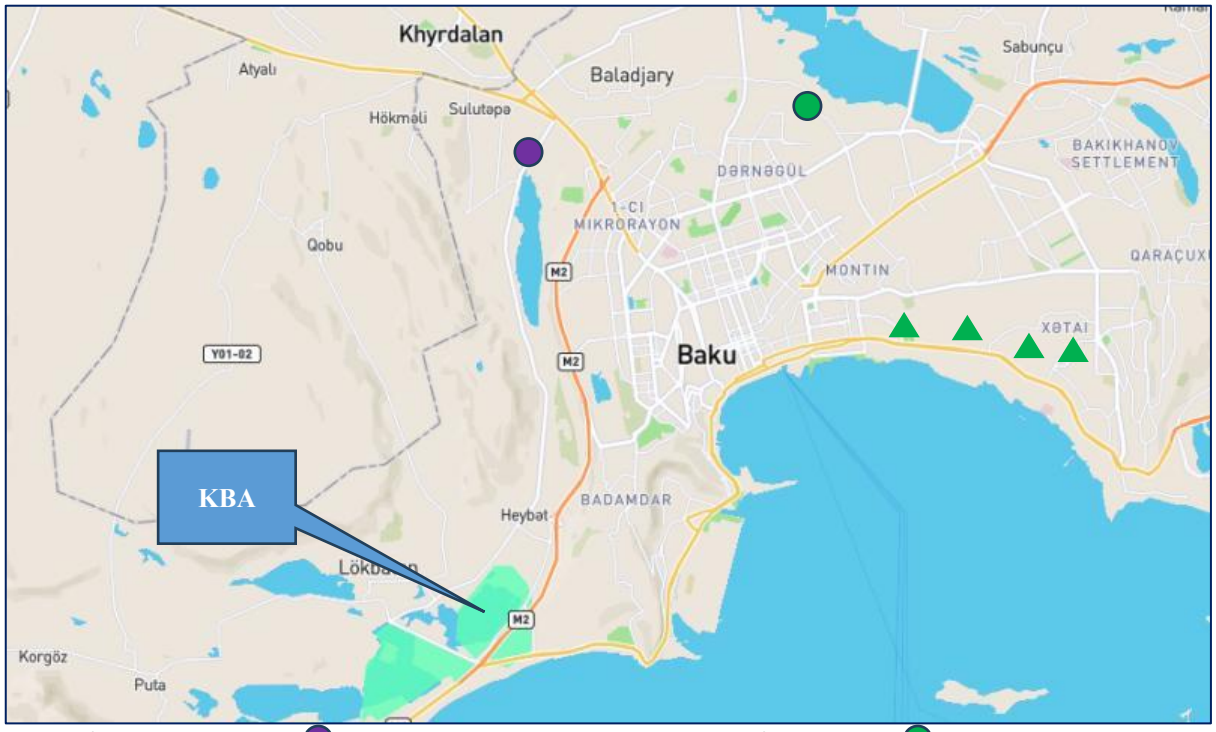
All main work sites are located within the urban area of Baku. There are no nationally or internationally recognized protected areas within 5 km of any project site.

The nearest area of ecological interest is the Krasnoye Lake and Absheron Waterbodies Key Biodiversity Area (KBA), which is also designated as an Important Bird Area (IBA). This site supports two waterbird species of conservation concern: the White-headed Duck (Oxyura leucocephala, IUCN

Endangered) and the Lesser White-fronted Goose (Anser erythropus, IUCN Vulnerable). The proposed spoil disposal site is located within / adjacent to this KBA.

Figure 16: Location of Proposed Spoil Disposal Area (red circle)

Figure 17: Krasnoye Lake and Absheron Waterbodies Key Biodiversity Area (KBA)



4.5. Socio-economic Resources

4.5.1. Community Health and Safety

Both depots are located within urban areas of Baku. At Khojasan, the depot is bounded primarily by commercial and light industrial properties and open land, with residential areas set back approximately 100 meters or more from the site boundary. Land use around Darnagul is more mixed, with some residential properties located directly adjacent to parts of the depot boundary.

The Darnagul depot is a secure, gated, and walled facility, with site access strictly controlled by unarmed security personnel. Consultations carried out in August 2025 confirmed that no conflicts or issues have arisen between the community and depot security staff. At Khojasan, the metro station is located within the depot boundary which can only be accessed by an underground passage. While the depot can be accessed from the station platform, access is restricted by a locked gate, and passengers cannot enter the depot itself.

No hazardous materials were observed during site visits to the depots that would present risks of major fire, explosion, or chemical leakage to the surrounding population.

Community consultations indicated no concerns directly related to construction traffic at either depot. However, no evidence was observed of dedicated traffic management systems, signage or related community awareness measures. At Khojasan, residents highlighted the high-speed movement of vehicles, including heavy trucks, on the main road in front of the depot as a significant safety hazard.

Y14 is located adjacent to a main road to the south and by residential apartment blocks to the north, east and west. The site is partially secured with fencing. Y15 is fenced and secure from public encroachment and located in an industrial area where community related health and safety issues are not anticipated. Y16 is not fenced and access to the site is available to the public. The surrounding area is also residential meaning that the public move around the site, but access is only possible from the northern boundary. Y17 is fenced which is important given its located in the center of a quite dense residential setting.

4.5.2. Occupational Health and Safety

The Baku Metro expansion project presents a complex occupational health and safety (OHS) risk profile due to underground construction activities, high-voltage systems, and confined operational environments. While the company has some safety systems in place, data gaps remain regarding accident records, emergency preparedness, and workforce oversight.

Baku Metro's OHS department comprises Health & Safety and Fire Safety Divisions. Contractors have their own OHS structures with coordination meetings taking place but not yet documented.

Baku Metro does not currently hold ISO certification for its OHS management system, but is working towards achieving this. An HSE manual is under preparation, but no draft version was available for review. Worker health and safety is governed by an Environment, Health and Safety (EHS) Policy, HSE Regulations, and Fire Safety Regulations. A number of individual procedures (covering accident reporting and investigation, working at height, underground works, use of electrical equipment, crane operations, and road works) exist, but only a list was provided. Procedures on risk assessment and emergency preparedness and response do not feature on the list. OHS statistics and presentations are compiled for senior management, though coverage is partial (e.g., six-month period, limited drill data). The most recent six-monthly report (Jan-Jun 2025) records an increase in incidents and NCRs, together with a reduction in inspections and scheduled emergency drills. The OHS department stated that these trends are linked to the recent change of Baku Metro's Chairman, who must approve the inspection programme, a request from the Ministry of Emergency Situations to reduce the number of drills due to other commitments, and the fact that the report reflects only the first half of the year. The

explanation implies that the OHS inspection and drill programmes lack independence and are vulnerable to leadership changes and external pressures.

Daily and monthly inspections are undertaken; findings are logged in a database. Incident reporting to government is mandatory, with joint investigations carried out. Weekly and monthly OHS reports are produced. Two incidents were reported in 2025 (slips/trips in operational areas). Near-misses are not systematically tracked.

Operational emergency preparedness drills are coordinated with the Ministry of Emergency Situations. Non-operational drills are also conducted (e.g., in office buildings following upgrades to fire alarms and turnstiles). Fire alarms are linked to automatic door systems, and responsible staff/doctors are designated on each floor.

Regarding maintenance and equipment, procurement of spare parts is constrained by sanctions, creating delays in replacement of critical assets. Some parts are sourced independently, raising concerns about quality and compliance, increasing the risk of equipment failure, accidents, and non-conformance with OHS requirements.

At Darnagul depot, Baku Metro has contracted UFC, whose scope of work is twofold: (1) Excavation / preparation for pedestrian subway; (2) Rail line works at depot entrance. UFC has four subcontractors active at Darnagul (Onstone, Azertrans, Erinsaat, and SVF Construction). More subcontractors are expected to be added. No Project Management Consultant (PMC) has been engaged yet; works are proceeding under direct Metro oversight due to urgency. A Contractor Management Plan (covering OHS responsibilities) is still under preparation. UFC was permitted to begin work without approved risk assessments due to schedule pressures. Metro's OHS Department remains formally responsible for oversight. UFC's HSE Manager has recently been replaced at Metro's request. Contracts include OHS clauses referencing national legislation and are subject to state inspection.

During a site visit to Darnagul depot on 23 September, there was a lack of reliable information on workforce numbers and subcontractor presence, the risk assessment process for specific activities, and inadequate PPE compliance was observed. Excavation works presented multiple uncontrolled risks, with poor access/egress, insufficient barricading, and unsafe positioning of spoil and machinery. Piling activity produced high noise levels; operator and guide were not using hearing protection. No activity-specific risk assessment was available for piling works. Numerous heavy vehicles and machinery were present on site, but when inspection records were requested, the response was that they were "not currently in use," and documentation was not provided. This indicates poor assurance of machinery safety.

The absence of task-specific risk assessments, inspection records, and a worker grievance mechanism indicates weak OHS oversight at contractor and subcontractor levels.

4.5.3. Labour and Working Conditions

Baku Metro employs around 4,800 staff, with a majority 78% male workforce (22% female) and an internal HR department managing recruitment, training, payroll, and employee relations. It is currently unclear how many contracted workers will be engaged to support the construction of the Project and whether accommodation will be provided to project workers. A newly established Construction Management Department will oversee project implementation, alongside the Procurement Department and the Project Management Consultant.

Baku Metro prioritizes local employment and contractors will also be encouraged to do the same. It is also anticipated that some workers might be engaged from other countries where specific expertise is not available locally, potentially via recruitment or employment agencies. The company has various HR policies and procedures in place, including codes for discipline, ethics, and recruitment, although some are still under development e.g. the Corporate Code of Conduct and Business Ethics, and

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Employee Handbook. Although Baku Metro complies with Azerbaijan law, there are no dedicated policies on child labor or forced labor. There is currently no Project Worker Grievance Mechanism system, and the current Baku Metro state-aligned system is not aligned with AIIB standards. There is also no dedicated and specialized channel for workers to report incidents relating to violence, harassment and discrimination, or mechanisms provided by the company to support victims.

Baku Metro has an active Labor union, and in accordance with national legislation, workers can freely join trade unions and engage in trade union activities to protect their Labor, social, economic and other rights. OHS is governed by comprehensive policies and procedures, and training is provided at induction and periodically. While external labor inspections are conducted by the State Labor Inspectorate, there is no internal formal process for labor inspections. For the Project, contractors will be responsible for procuring goods and services, however, there are currently no corporate level, international standard-aligned policies and procedures addressing good practice supply chain management, including supplier screening and due diligence during the contractor to prevent and remedy child Labor and forced Labor risks and potential impacts.

4.5.4. Gender

At the corporate level, Baku Metro demonstrates relatively strong gender representation compared to national averages in Azerbaijan's transport sector, with women making up 22% of the total workforce and 8% of management roles. In August 2025, the HR Department conducted a Worker Satisfaction Survey with a 68% participation rate, gathering gender-disaggregated feedback. The main concerns raised by both male and female employees included dissatisfaction with salaries and lacking teamwork. In response, the HR Department is analyzing the results through focus groups and plans to take action, including efforts to improve female representation in specific departments.

Interviews with a cross-section of Baku Metro employees for a baseline gender assessment supporting an AIIB-aligned Gender Action Plan revealed that staff generally feel safe and believe they are treated equally, with no reported experiences of harassment or discrimination, including Gender-Based Violence and Harassment (GBVH). However, most workers were unaware of specific policies or reporting procedures related to these issues. While Baku Metro's 'Corporate Code of Conduct and Business Ethics' and 'Recruitment Rules' include provisions on equality, non-discrimination, and harassment, GBVH is not explicitly addressed. Additionally, the gender composition of the project workforce remains unknown as contractors are yet to be hired, however, Baku Metro plans to promote inclusive hiring and equal opportunity standards among third-party contractors.

4.5.5. Hazardous Materials and Waste Management

No major issues have been identified at the depot sites. Khojasan is an operational depot and hazardous materials on site in maintenance areas are well managed. Darnagul is under construction, the site has been cleared. Apart from storage of small volumes of oils and solvents for construction no other hazardous materials have been observed to date.

Stations sites have been cleared and no significant volumes of hazardous materials were noted at any of the sites, with the exception of station Y16. Asbestos containing materials (ACM) is likely to be present in the older buildings across the site, notably roofing panels. Demolition of any buildings on site is therefore likely to generate a significant volume of hazardous waste and well as general construction waste.

4.5.6. Land Use

The project within the scope of the ESMPF will involve the design and construction of four new stations of the Green Line as part of the extension of the line from Khatai to Hazi Aslanov. The Green Line will have a total length of 41.8 km and form a circle line covering Khatai, Nasimi, Yasamal, Binagadi, Nariman Narimanov, Nizami, Sabunchu and Surakhani districts when completed. The line, which will

have 23 stations, currently has 10 stations in operation. One power depot for the line is under construction, and another one is at the design stage.

Station Y14: the brownfield site is located in the real estate development area 'White City' in Khatai district and was allocated to Baku Metro by decree signed on 27 June 2013. The site is fenced and not actively used. The land plot currently hosts a number of unfinished structures owned by the real estate developer White City that are not affected by the Project. Baku Metro has not undertaken any construction activities at the site yet, but White City plans to finish its structures upon completion of construction of the Y14 metro station by Baku Metro. The site was previously occupied by private structures, including residences. The process to demolish these structures started around mid 2014 and finished in late 2019.

Station Y15: the brownfield construction site is located on the territory of the former oil company, in an industrial area. Construction of the Y15 station started in 2014. The building that belonged to the oil company is currently used by Baku Metro as a canteen and changing room.

Station Y16: the brownfield site is located in an area previously occupied by a state factory. Construction of the Y16 station will require that five factory structures be demolished. These structures are currently occupied by several businesses including a wood workshop where seven people were observed to be working in September 2025 and an Isuzu vehicle service shop. Baku Metro has not undertaken any construction activities at the site yet.

Station Y17 (Hazi Aslanov Station): the brownfield construction site occupies an area of 1.3408 in the 2944-2945 block of M. Hadi Street that was transferred by decree to Baku Metro on 5 May 2016 2018. The construction site occupies a portion of Xudu Mammadov Street that was closed and fenced off around 2012. Upon completion of construction of the metro station by Baku Metro the road will be fully opened again for use by the public. Structures hosting active businesses and market stalls as well as residential units are located on either side of the street, accessible to the public by a corridor for pedestrians of 2 to 4 meters wide. Some of these business units also have an opening to the streets running parallel to Xudu Mammadov street.

4.5.7. Cultural Heritage

Cultural heritage resources are typically divided into three categories for the purpose of impact assessment and risk management: archaeological, built heritage, and living heritage resources. Previous cultural heritage surveys and investigations in and around Baku have identified archaeological and built heritage resources that demonstrate a continuous human presence on the Absheron Peninsula for at least 40,000 years, including significant archaeological and built heritage resources dating to the Paleolithic, Bronze Age, Classical, Medieval, and Historic periods. In addition to these ancient and historic resources, the mosques, churches, memorials, monuments, art installations, and other living heritage resources reflect the current and ever evolving cultural traditions of Azerbaijan. Table 15 summarizes cultural heritage receptors within the project's area of influence and potential sources project impacts.

Table 15: Types of Cultural Heritage Receptors

Cultural Heritage Receptors	Examples of Receptors Found in and around Baku.
Archaeological	Bronze and Iron Age (3500-600 BCE) kurgans and necropolises; Antique Period (300 BCE-400 CE) burials, residential structures, Greek and Roman imported artifacts, Zoroastrian temple ruins; Medieval and Islamic period (400 CE-1500 CE) stratified urban archaeological deposits including the remains of caravanserais, bathhouses,

	mosques, and residential structures; Early Modern Period (16th–18th centuries) stratified archaeological deposits and structure ruins.
Built Heritage	Medieval and Islamic towers, mosques, city walls, and palaces; Early Modern Period caravanserais and hammams, mosques; Imperial Russian & Oil Boom Era (19th–early 20th century) European influenced mansions and public buildings; 20th century Soviet mosaics, statues, war memorials, and commemorative monuments; 19th and 20th century oil industry structures and transportation infrastructure such as train stations.
Living Heritage	20th century mosques, churches, cemeteries, war memorials, commemorative monuments, art installations, parks, and civic spaces.

While the ESIAs conducted for both depot areas did not identify any previously recorded cultural heritage resources in the depot project areas, given the region's extensive occupation history, there is the potential for undiscovered, buried archaeological materials within the Darnagul and Khojasan depot areas. The satellite imagery analysis for the Darnagul Depot area identified an extensive cemetery to the northwest of the depot project area. A review of historic satellite imagery indicates that part of the cemetery previously extended into the northwest corner of the Darnagul Depot Area and that the gravestones, monuments, and associated infrastructure were removed ca. 2013. During the site visit, the Baku Metro stated that approximately 346 gravestones were removed from the portions of the cemetery in the depot area prior to construction but could not provide documentation or records of this effort.

Figure 18: Darnagul Depot area and adjacent cemetery ca. 2010

Figure 19: Darnagul Depot area and adjacent cemetery ca. 2025

During the site visit, the project team observed that past construction activities in the depot area involved significant excavation and grading. These actions lowered the ground level in the depot area compared to the cemetery located west of the depot (Figure 20). Due to this change in elevation, it is likely that these previous excavations and grading removed any human remains that may have been present in the former extension of the cemetery within the depot area.

Figure 20: Boundary wall separating the Darnegul Depot area (right) and current cemetery (left). The ground level within the cemetery is just below the concrete block wall at the top of the retaining wall on the left side of the image.

Source: Consultants own Photos, September 2025.

A detailed study of cultural heritage sites that could be impacted by tunneling has not been completed and as such the status of potential cultural heritage site that could be affected, e.g. through vibration, settlement, etc, is not known. A cultural heritage impact assessment (CHIA) should be conducted as part of the EISA for the proposed Green Line Extension to identify archaeological, built heritage, and living heritage resources that could be impacted by the Green Line Extension and develop management measures to avoid, minimize, and/or mitigate any identified impacts on cultural heritage.

4.5.8. Landscape

The depot areas are located within the suburbs of Baku and they have been present for a number of years. As noted above no significant cultural landscapes, monuments, or objects are located close to the depots that are significantly affected. Further, these areas of Baku are not considered to be areas of interest in terms of tourism. The general architecture around the site comprises low- and high-rise residential properties, commercial properties and some light industrial workshops. None of these areas have specific aesthetic value that would be significantly affected by the depot construction and operation. It is however, noted that there are plans to landscape the depot itself with trees and shrubs.

Figure 21: Western boundary of Darnagul Depot

Figure 22: Commercial property around Darnagul Depot

Figure 23: Western boundary of Khojasan Depot

Source: Consultants own Photos, August 2025.

None of the proposed station sites have any significant aesthetic value. They are located either in areas surrounded by high rise residential properties (Y14 and Y17) or in areas dominated by industrial activity.

4.6. Future Baseline Collection

To ensure that future subproject assessments under the Baku Metro Expansion Project meet both AIIB ESS requirements and national regulatory standards, the ESMPF defines the minimum thematic coverage, data sources, spatial boundaries, and methodological expectations for environmental and social baseline data. These requirements apply to all future Screening, ESIA and ESMP processes.

4.6.1. Minimum Coverage

Baseline studies must include, at minimum, the following topics tailored to project influence zones:

- Physical Environment: air quality and emissions, noise and vibration, soil quality and contamination, hydrogeology and groundwater, surface water quality and hydrology, climate and extreme weather vulnerability.
- Biological Environment: vegetation, urban biodiversity, ecosystem services, protected or sensitive habitats (if any), and species occurrence.
- Socioeconomic and Community Conditions: community health and safety, land use, housing and sensitive receptor mapping (schools, hospitals, markets), traffic and mobility patterns, informal

economic activities, cultural heritage (tangible and intangible), labor dynamics and vulnerable groups.

4.6.2. Data Sources

Future baseline studies shall rely on a combination of reliable secondary data and field investigations:

- Secondary sources: MENR monitoring data, Azerbaijan hydrometeorological service data, Baku municipal and statistical agencies, cadastral records, UNESCO/Ministry of Culture registries, public health records, ADB/AIIB or prior sector studies.
- Primary/field sources: instrument-based measurements of noise, vibration, dust/air pollutants, groundwater and soil sampling, ecological observations, traffic counts, pedestrian safety mapping, socioeconomic household/ business interviews as applicable.

4.6.3. Timing

Baseline collection must consider temporal variability relevant to Baku's environmental and urban conditions, including:

- Traffic counts during peak and off-peak hours, including weekend and school/daytime variation.
- Noise and air sampling during dry and windy periods (dust peaks) and cold/wet months (emission variability).
- Groundwater and stormwater assessments during high-precipitation and dry periods. Where seasonal sampling is not feasible, studies must use correction factors referenced to MENR norms or recognized international standards.

4.6.4. Coverage

Baseline data must cover the Project Area of Influence (AoI) as defined in the Screening stage, including:

- Direct footprint (construction boundary)
- Adjacent areas affected by noise, vibration, traffic, dewatering, waste routes, and access restrictions
- Any associated facilities linked by function (e.g., spoil disposal routes, depot service connections) The AoI must be mapped and used consistently throughout impact analysis and mitigation planning.

4.6.5. Methods and Standards

Field surveys, monitoring, sampling, and laboratory analysis must apply Azerbaijan standards and IFC/WBG EHS Guidelines, using whichever is more stringent. All methodologies must be documented to enable repeat measurement during monitoring.

Some baseline monitoring results already available from previous EIAs and field investigations (e.g., air quality at Khojasan depot) are incorporated into this ESMPF and form part of the environmental baseline for the Project. These include ambient air quality parameters (PM10, PM2.5, NO_2, SO_2, CO), which were within national limits at the time of measurement. Several additional parameters critical to tunnelling and underground station construction are currently pending and will be finalized during site-specific ESIA/ESMP preparation when sub-project designs are confirmed. The ongoing and planned baseline measurements include:

Table 16: Monitoring Requirements

Parameter	Purpose	Method / Standard	Expected Timing / Completion
Groundwater level and quality	Define hydrogeology for station boxes, TBM ingress, and dewatering needs	Piezometers, groundwater sampling, lab analysis	Prior to ESIA submission for each station/tunnel package
Noise & vibration baseline	Establish settlement risk, building safety, and community disturbance baseline	IFC Noise Guidelines; DIN 4150-3 (vibration)	Minimum 2-week monitoring at sensitive receptors before construction
Soil contamination testing	Identify legacy oil/industrial contamination and inform safe spoil management	Soil sampling; TPH, heavy metals, PAH analysis	Before contractor mobilization and finalization of spoil strategy
Wastewater quality	Set benchmark for effluent standards and MPD permit applications	Sampling and lab analysis; IFC & national MPD limits	During ESIA and prior to applying for discharge permits
Biodiversity assessment at spoil site / key areas	Verify sensitivities near KBA and other receptors	Rapid ecological survey; KBA / IBAT screening	Prior to final selection/approval of spoil disposal site

4.6.6. Use of Baseline Data

Baseline data will be used to inform the following processes:

- Screening & Categorization: Baseline conditions will determine whether subprojects present high risks (Category A) or moderate risks (Category B), using criteria such as proximity to sensitive receptors, presence of contaminated soils, groundwater risks, community safety conditions, and resettlement/legacy issues.
- Mitigation & ESMP Development: Quantified baseline conditions (e.g., decibel levels, pollutant concentrations, traffic risks) will serve as the benchmark for selecting mitigation strategies, setting performance standards in ESMP/CESMP, designing monitoring programs, and validating contractor compliance.
- Monitoring & Adaptive Management: Baseline values will be used as measurable thresholds for post-construction monitoring, triggering corrective actions if trends exceed acceptable levels.

5. Existing Green Line Stations

This chapter assesses the existing environmental and social conditions at Green Line stations and depots to identify specific risks that will influence future construction, modernization, or operational interventions. The findings provide inputs for:

- Screening and categorization (Chapter 6);
- Selection of ESIA/ESMP and thematic plans (Chapter 7);
- Design of station-specific mitigation, emergency preparedness, and accessibility actions.

The baseline presented here therefore does not replace project-wide risk assessments, but translates generic E&S risks into the specific context of the Green Line, informing the operational instruments required for its safe refurbishment and expansion.

A site visit to ten operational Green Line stations in September 2025 provided insights into the existing baseline for stations. The stations vary in age, condition, and passenger volumes (ranging from 4,000 daily at Darnagul to 67,000 at 20 Yanvar), but a number of consistent safety and accessibility issues were identified:

Evacuation Readiness: many emergency exits between platforms and tunnels were padlocked, requiring master keys, which could delay evacuation. Turnstiles only fail-open if alarms trigger; otherwise, manual unlocking is required. Escalators are used in evacuation procedures, despite international codes advising against their use. Drill data (timings, lessons learned) are not systematically recorded.

Emergency Lighting and Signage: Systems are inconsistent across stations. Some signage is non-illuminated or poorly placed, compromising visibility in smoke or power outages. The functionality of emergency lighting could not be verified.

Fire and Life Safety Equipment: fire hydrants, extinguishers, and hoses are present and tagged, though some hydrants are located under platforms, creating access delays.

Maintenance and Inspection: records for lifts, escalators, ventilation, and emergency systems are held centrally, not locally at stations, limiting real-time assurance of readiness.

Crowd Control: currently relies on staff and basic signage. A pilot camera-based system is being tested at Nasimi to warn when passengers approach the station edge.

Flooding Preparedness: no flood-control systems (sump pumps, barriers, back-up power) were observed, despite Baku's history of heavy rainfall events.

Accessibility for Persons with Disabilities (PWDs): lifts exist at some stations but are locked and unavailable. Ramps are mostly non-functional. While trains include wheelchair spaces, passengers cannot reach them independently. SOS phones on platforms were non-operational in all stations visited.

Other Worker and Passenger Concerns: control rooms lack soundproofing, impairing alarm audibility and exposing staff to noise. No back-up ventilation systems exist, leaving staff reliant on respirators in emergencies. CCTV coverage is in place and monitored in real time with feeds linked to police and Metro headquarters.

In addition to passenger and community risks, baseline observations also identified worker OHS issues at stations, including prolonged 12-hour shifts, noise exposure in control, rooms, lack of local maintenance records for safety systems, and reliance on respirators in the absence of backup ventilation.

Overall, the baseline for the Green Line stations indicates that while firefighting equipment and CCTV systems are broadly functional, emergency preparedness, evacuation systems, flood resilience, accessibility, and documentation practices are inconsistent and below international good practice.

Together, the depot and station baselines show systemic OHS/CHS weaknesses that need to be addressed in the ESIA for the entire Metro expansion, including new stations, upgrades to existing stations, and tunnelling.

Proposed works will focus on improving environmental performance, accessibility, ventilation, fire and life-safety systems, and platform facilities. The most relevant E&S concerns relate to:

- Noise, vibration, and dust inside confined public areas
- Work in operational stations while passengers are present
- Temporary closure of access routes affecting commuters and businesses
- Removal of waste from aging electrical and mechanical systems

These activities require strict community safety and traffic/pedestrian flow management and strong OHS controls in enclosed spaces.

These baseline vulnerabilities inform and justify the risk ratings assigned in Table 18 (Section 6), which categorizes activities under Phases I and II based on their potential environmental and social impacts. The existing operational conditions demonstrate that even works perceived as moderate in scale may carry heightened risk due to existing system weaknesses, especially for:

- Construction in operating stations
- Deep underground works and tunneling
- Hazardous material removal and waste handling
- Community and traffic safety around access points

Accordingly, the screening and categorization presented in Table 17 reflects not only the nature of the works, but also the elevated context-specific risks identified in this chapter.

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6. Summary Environmental and Social Risk and Impacts

Based on the current conditions and the proposed works the potential environmental and social risks have been identified that are applicable to the project. Table 18 sets out the risks and impacts and provides guidance for further assessment at the due diligence stage for the depot, station and tunneling works. Note that Table 18 is not exhaustive and project specific assessments may identify further risks and impacts.

The risks and impacts were specifically identified within the project 'area of influence'. The area of influence for each topic assessed in this ESMPF and to be considered in future assessments. The project area of influence refers to the zone likely to be affected by project activities, including ancillary facilities and potential unplanned or induced development.

Table 17: Project Area of Influence

#	Topic	AOI (m)	Rationale
1	Air Quality	350m from the site boundary: • Stations • Depots • Tunnels • Spoil Disposal Sites	The Institute of Air Quality Management (IAQM) uses a 350-meter radius as a standard study area for construction dust assessments in its "Guidance on the assessment of dust from demolition and construction" document from February 2014. This 350m area represents a zone within which potential impacts from construction activities are considered for air quality management purposes. Air quality in tunnels also needs to be continually monitored during construction.
2	Hydrology	250m from the site boundary: • Stations • Depots • Tunnels • Spoil Disposal Sites	It is possible that pollution events on site could impact upon the shallow groundwater and migrate off site. Tunnel water, potentially contaminated, will need to be disposed of. Construction of tunnels may also have direct impact on groundwater aquifers.
3	Noise	500m from the site boundary: • Stations • Depots • Spoil Disposal Sites	Beyond this distance impacts from noisy activities are unlikely to be significant, i.e. above IFC limits for daytime and nightime noise.
4	Vibration	50m from the site boundary: • Stations	40 meters is a common distance for assessing vibration impact on over-track buildings, and vibrations generally decrease with distance from the track. However, this distance is extended to

#	Topic	AOI (m)	Rationale
		• Depots • Tunnels • Spoil Disposal Sites	50m to account for potential piling activities on site.
5	Soils	Within the site boundary: • Stations • Depots • Tunnels • Spoil Disposal Sites	It is considered unlikely that a pollution event on site would lead to significant migration of pollutants off site. Spoil material, including rock, will need to be disposed of at a dedicated spoil disposal area.
6	Settlement	Within a 50m buffer of all land above proposed tunnels and stations	Possibility of settlement in the soils above the tunnel and station boxes.
6	Flora	Within the site boundary: • Stations • Depots • Spoil Disposal Sites	No impacts will occur outside of the site boundary
7	Fauna	Within the site boundary: • Stations • Depots • Spoil Disposal Sites	No impacts will occur outside of the site boundary
8	Community Health and Safety & Infrastructure	250m from the site boundary: • Stations • Depots • Spoil Disposal Sites	To account for the movement of construction vehicles moving to the site. This distance could in theory be extended all the way to suppliers premises, but this is not considered to represent the best way to assess this issue.
9	Occupational Health and Safety	Within the site boundary: • Stations • Depots	Impacts will occur within the site boundary.

#	Topic	AOI (m)	Rationale
		• Tunnels • Spoil Disposal Sites	
10	Land Use	Within the site boundary: • Stations • Depots • Spoil Disposal Sites	No impacts beyond the site boundary in terms of resettlement are anticipated. No significant negative impacts to livelihoods outside of the site are anticipated. Issues related to impacts of property caused by vibration or settlement beneath tunnels should be considered under these separate topics.
11	Gender	Within the site boundary: • Stations • Depots	To account for workers in the operational phase.
12	Aesthetics & Lighting	Within 500m of the site boundary: • Stations • Depots • Spoil Disposal Sites	Given the urban setting of the project areas beyond this distance are unlikely to be visually impacted, including any lighting. However, landscaping of spoil disposal area will be needed.

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Table 18: Summary Risks and Impacts

Topic	Potential Impact	Depots		Stations		Tunnels	
		Con	O&M	Con	O&M	Con	O&M
Air Quality	**Construction:** Dust from earthworks, stockpiles and haul roads; diesel exhaust from machinery/traffic; short-term exceedances possible near receptors if controls lapse. Air quality issues during tunneling affecting workers. Air quality impacts around spoil disposal sites. **Operation:** Minor emissions from gas boilers/vehicles; paint/solvent vapors in workshops; generally indoor/contained. Air quality in tunnels affecting workers and metro users.	✓	✓	✓		✓	✓
Noise	**Construction:** Elevated noise from piling, earthworks, plant and truck movements—risk of daytime/night-time standard exceedance at nearby residences. **Operation:** Train movements, loading/unloading and fixed plant; expected within limits with maintenance.	✓		✓		✓	
Vibration & Settlement	**Construction:** Piling/compaction can cause perceptible vibration and risk to sensitive structures within ~50 m. **Operation:** Localized vibration from rolling stock/yard activity, typically minor at receptors. Risk to existing buildings: Excavation, dewatering and tunnelling	✓	✓	✓		✓	✓

Topic	Potential Impact	Depots		Stations		Tunnels	
		Con	O&M	Con	O&M	Con	O&M
	can induce settlement and cosmetic/cracking damage to older or sensitive structures within the influence zone.						
Water Resources	**Construction:** Silt-laden runoff, accidental spills, concrete washout and improper spoil/wastewater handling could affect drainage/sewer networks. **Operation:** Oily wastewater from washing/maintenance requires separators and permitted discharge; high non-potable demand. Utilities & drainage: Utility shifting/accidental strikes can disrupt services (water, sewer, power, telecom). Temporary drainage diversions may cause short-term waterlogging if not staged; ensure compliant STP/ETP for station and depot sewage/effluent. Groundwater context: Darnagul groundwater locally shallow and often mineralized/technogenic; Khojasan groundwater strongly aggressive to metal structures (chloride) even if not to RC—materials/corrosion protection needed. Discharges must meet MENR permit MPDs and IFC sanitary sewage benchmarks. Flat, low-lying sites with shallow water table near Boyukshor/Khojasan lakes—elevated risk of water ingress and corrosion; three planned stations below sea level—design for hydrostatic pressure and seepage. Tunnel water discharge potentially contaminated or silt laden, requires suitable disposal methods.			✓	✓	✓	✓
Soils	**Construction:** Disturbance, erosion, potential contamination from fuels/oils and improper waste storage. Improper disposal of spoil material at spoil disposal site. **Operation:** Localized risks from leaks and used oil handling; need for secure storage and manifests. Legacy/contamination: Potential oil-related hotspots at Khojasan	✓	✓	✓			

Topic	Potential Impact	Depots		Stations		Tunnels	
		Con	O&M	Con	O&M	Con	O&M
	from historical rigs—requires targeted sampling and certified disposal; weak/loess-like and technogenic soils at Darnagul prone to collapse and windblown dust.						
Geology	**Construction:** Settlement/subsidence potential—especially shrink-swell soils at Khojasan—can affect foundations, pavements and buried services; corrosion risks to buried metal where groundwater is aggressive. Settlement risk: Ground movements from dewatering/excavation may affect foundations and buried services—design and monitor for allowable movements; protect adjacent assets.			✓		✓	
Natural Hazards	**Operation:** Seismic shaking risk across both depots (design to code); Darnagul particularly exposed to pluvial flooding/water ingress; Khojasan to shrink-swell/erosion; heatwaves and windstorms stress envelopes, HVAC and operations. Flooding/waterlogging: Intense rainfall can flood excavations, tunnels, stations and adjacent streets if temporary drainage is undersized—provide contingency pumping and silt control. Below-grade works and flat terrain raise water-logging risk during intense rain—size temporary drainage/pumping accordingly.			✓	✓	✓	✓
Flora	**Construction:** Tree removal at Darnagul for works footprint; limited biodiversity significance with planned replanting/landscaping.	✓					
Fauna	No significant impacts anticipated; only common urban species recorded; habitat value low at depots and stations.						

Topic	Potential Impact	Depots		Stations		Tunnels	
		Con	O&M	Con	O&M	Con	O&M
Protected Areas	No nationally/internationally protected areas within 5 km of depots and tunnels; negligible impact expected. Tunnel spoil disposal site located in/adjacent to a Key Biodiversity Area			✓		✓	
Waste management	**Construction:** Muck/Spoil: Large spoil volumes from tunnelling and excavation require covered transport, licensed disposal or beneficial reuse at approved sites to avoid dust, runoff and nuisance. Permitted wastewater and sludge: Ensure station/depots' STP/ETP meet MENR MPDs and IFC indicative values; manage spoil and any contaminated soils via licensed routes with manifests.	✓	✓	✓	✓	✓	
Community Health and Safety	**Construction:** Traffic interface, dust/noise/vibration nuisance, open excavations and plant movements in urban setting. **Operation:** Passenger safety (fire, smoke, flooding, power failure) in stations/tunnels; crowd management in confined spaces; road safety at depot access. Traffic / Access: Temporary lane reductions, traffic diversions and site hoardings will cause congestion, delay access (incl. emergency vehicles) and elevate crash risk near stations/shaft works; implement traffic management plans and clear wayfinding. Labour camps/community interaction risks require codes of conduct and grievance channels. Darnagul site controls: Traffic management for spoil/material movements not yet formalized—elevated near-site risk until TMP approved; GRM hotline visibility at Darnagul requires improvement.	✓	✓	✓	✓		
Occupational Health and Safety	**Construction:**	✓	✓	✓	✓	✓	✓

Topic	Potential Impact	Depots		Stations		Tunnels	
		Con	O&M	Con	O&M	Con	O&M
	High-risk works (excavations, piling, lifting), machinery assurance gaps, incomplete task risk assessments and weak worker GM at contractors observed. **Operation:** Electrical HV risk, confined spaces, fatigue on shifts; requires drills/LOTO and life-safety systems. Worker accommodation: Camp siting, sanitation, solid waste and vector control must meet standards to prevent health risks; enforce welfare provisions and regular inspections.						
Gender	**All Phases:** Very low female participation overall; policies lack explicit GBVH provisions and dedicated reporting channels—risk of under-reporting and barriers to inclusion. Capacity gaps: Strengthen GBVH prevention, safe reporting and contractor oversight per GAP; include targeted training and worker code of conduct.	✓	✓	✓	✓	✓	✓
Landscape	Limited visual/aesthetic sensitivity in suburban/industrial context; depot lighting/structures unlikely to cause significant wider impacts; landscaping planned.						
Land Acquisition, Resettlement and Livelihoods	Construction: disruption of livelihood activities, physical resettlement			✓			
Cultural Heritage	**Construction:** Chance-find risk across Baku basin. Potential impacts to cultural heritage sites along the route of the green line extension.			✓		✓	

7. E&S Assessment, Management Procedures, and Management Instruments

7.1. General

This chapter describes the safeguard management procedures of the project which will use a structured approach to environmental and social management to allow the project development process following the AIIB's 3 ESSs, follow the mitigation hierarchy of avoidance, minimization, mitigation and compensation/offset for negative impacts and enhancement of positive impacts where practically feasible. Following sections describe what needs to be done at each stage of the overall project life – design, construction and operation and maintenance phases.

7.2. Screening & Categorization

The components of the Project are already known, as well as their locations. Key impacts of project activity to be funded by AIIB have been identified (Section 6). None of the activities proposed are included on AIIBs environmental and social exclusion list (ESF, 2024). The following table provides the recommended categorization for each phased activity as well as the refurbishment of 10 existing green line stations. The categorization shall be confirmed by AIIB. Once confirmed Baku Metro, through their consultants, will be responsible for the preparation of the required E&S instruments. Per Table 19 and sections 7.3 to 7.7.

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Table 19: Project Categorisation

No.	Activity	Screening			Category
		ESS1 (Environmental Assessment and Management)	ESS2 (Involuntary Resettlement)	ESS3 (Indigeous People)	
1	Depot Construction	Triggered – activities are to be completed within existing depot sites. Potential risks and impacts are not anticipated to "have significant adverse environmental and social impacts that are irreversible, cumulative, diverse, or unprecedented". All risks and impacts can be adequately managed through a project level ESMP for the Depots.	Not triggered – No legacy resettlement identified.	Not triggered – no indigenous peoples identified that will be impacted.	B
2	Green Line Extension	The extension of the green line which forms part of Phase II, will require more extensive works, including construction of four below ground stations and boring of around 4km of tunnel. These extensive works involve a range of diverse highly significant risks. Although the impacts may be irreversible and are not considered unprecedented, they are considered to be diverse in nature and require detailed study in the form of an ESIA, rather than through an ESMP. These impacts include: • Occupational health and safety risks, specifically during tunneling and deep excavation works of tunnels. • Disposal of tunnel water and tunnel spoil material. This will require the removal of a large volume of material and water from excavated sites and disposal at dedicated sites, one of which has been identified in/adjacent to a key biodiversity area (KBA). • Risk of significant vibration and settlement impacts during the tunneling works.	Triggered – Resettlement and livelihood restoration activities to be completed at some stations. Potential legacy issues to be further examined.	Not triggered – no indigenous peoples identified that will be impacted.	A

No.	Activity	Screening			Category
		ESS1 (Environmental Assessment and Management)	ESS2 (Involuntary Resettlement)	ESS3 (Indigeous People)	
3	Green Line Station Refurbishment	Triggered – activities are to be completed within existing station sites. Potential risks and impacts are not anticipated to "have significant adverse environmental and social impacts that are irreversible, cumulative, diverse, or unprecedented". An environmental and social audit and assessment shall be completed for all ten stations.	Potentially triggered – all activities to occur within existing underground metro stations where a number of people may have livelihood activities (to be confirmed)	Not triggered – no indigenous peoples identified that will be impacted.	B

Based on the screening presented in Table 18, the Project has been assigned different environmental and social risk categories for Phase I and Phase II, in accordance with the AIIB Environmental and Social Policy (ESP).

Phase I comprises the completion of the Darnagul and Khojasan depots and the refurbishment and modernization of 10 existing Green Line stations, focusing on safety, accessibility, operational performance, and environmental upgrades. These activities take place within existing system footprints and do not involve deep excavation, tunneling, or construction of new metro alignments.

While the works present notable impacts, they are site-specific, predictable, temporary, and manageable through standard mitigation measures, and therefore meet the criteria for a Category B Project under AIIB ESP.

Primary Risk Drivers for Category B Designation:

- Construction activities inside operating public stations, requiring crowd management, access control, and night works.
- Handling of hazardous materials and aging equipment, including oils, batteries, firefighting systems, electrical components, and possible asbestos.
- Worker and passenger safety risks due to existing deficiencies in evacuation systems, flood resilience, and rescue readiness.
- Wastewater discharges and chemical storage associated with depot maintenance and washing areas.

These risks are substantial but not irreversible or unprecedented, and are manageable through a focused ESMP, E&S audit findings, and targeted plans (OHS, CHS, Hazardous Waste, Accessibility, and Emergency Preparedness).

Phase II involves the construction of four new deep underground stations and 7–9 km of tunnel excavation, requiring advanced tunneling works in dense urban environments. These activities trigger significant and diverse E&S risks that satisfy AIIB criteria for a Category A Project.

Primary Risk Drivers for Category A Designation:

- TBM tunneling generating large spoil volumes requiring licensed disposal and potential hazardous slurry handling.
- Deep excavation and groundwater control, posing risks of flooding, building settlement, land subsidence, and water quality impacts.
- Confined underground construction, requiring stringent ventilation, fire and rescue systems, and advanced OHS monitoring.
- High-noise and vibration works (piling, diaphragm walls, drilling, possible blasting) near sensitive receptors and dense communities.
- Major construction traffic and haulage routes, creating community health and safety risks around construction portals and access shafts.
- Potential cultural heritage disturbance associated with underground works in historic urban areas.

These impacts are not fully predictable, may be irreversible or difficult to remediate, and require comprehensive ESIA with specialist studies.

Table 18 identifies Category A and B activities for the Project. The selection of instruments and procedural requirements derived from categorization are further defined in Table 20, which sets out the preparation, approval, disclosure and monitoring rules associated with each category, in alignment with AIIB ESS 1.

Table 20: Categorization Procedural Process

Risk Category (Table 17)	Subproject Type	Required E&S Instrument	Preparation Responsibilities	Approval & Disclosure	Monitoring & Implementation
Category A	New tunnels & deep stations	Full ESIA and ESMP	Independent ESIA team; PIU oversight	AIIB approval; 60-day disclosure; 2 consultations; MENR EIA approval	Contractor CESMP; PIU and Engineer supervision; AIIB reporting
Category B	Depots & major refurbishment	ESMP or Environmental and Social Audit and Assessment (ESAA)	PIU + Consultant	30-day disclosure; AIIB review	Contractor CESMP; PIU monitoring

7.3. ESIA Process

To ensure compliance with AIIB ESF, an ESIA will be required for the Phase II green line extension works. Baku Metro will be responsible for the preparation of the document. A draft term of Reference (ToR) for the ESIA is included in Annex A. A draft ESMP for the green line extension works is also included in Annex J. As noted above, the ESIA will be structured to comply with the requirements of both GoA and AIIB ESF. The ToR includes the format of the report to be adopted to ensure this compliance. The ToR for the ESIA must be approved by AIIB.

Baku Metro do not have the in-house capacity to prepare the ESIA and will hire external consultants to complete the work. Once completed, and reviewed by Baku Metro PIU, the ESIA will be submitted in daft to AIIB for review. Upon receipt of comments, Baku Metro will update the document and resubmit to AIIB as a “substantially complete” draft ready for public disclosure on both Baku Metro and AIIB websites. The draft document will be disclosed for a period of 60 days. Specific details relating to disclosure of documents are provided by the Project SEP.

7.4. ESMP Process

To ensure compliance with AIIB ESF, an ESMP will be required for the Phase I depot construction works. Baku Metro will be responsible for the preparation of the document. A draft term of Reference (ToR) for the ESMP is included in Annex B. A draft ESMP table for the Depot activities is also included in Annex I. The ToR includes the format of the report to be adopted to ensure this compliance. The ToR for the ESMP must be approved by AIIB.

Baku Metro do not have the in-house capacity to prepare the ESMP and will hire external consultants to complete the work. Once completed, and reviewed by Baku Metro PIU, the ESMP will be submitted in daft to AIIB for review. Upon receipt of comments, Baku Metro will update the document and resubmit to AIIB ready for public disclosure on both Baku Metro and AIIB websites. The draft document will be disclosed for a period of 30 days. Specific details relating to disclosure of documents are provided by the Project SEP.

7.5. Environmental and Social Audit and Assessment

For the refurbishment of the ten green line stations, Baku Metro will be required to complete an Environmental and Social Audit and Assessment (ESAA) of the existing stations. The purpose of the assessment is to determine the current conditions at the stations through an audit process and how they comply with national regulatory requirements, AIIB ESF and GIIP in terms of environmental and social performance. This will be followed by an assessment of the proposed refurbishment activities to determine their environmental risks and impacts. The assessment will conclude with an environmental management

plan including measures to manage refurbishment works and any corrective actions based on non-compliances identified in the audit. Baku Metro will hire a consultant to complete the tasks per the ToR included in Annex C. The ESAA will be reviewed and approved by AIIB and disclosed per the requirements of the project SEP.

7.6. Land Acquisition and Livelihoods

As part of the project a Land Acquisition and Resettlement Plan Framework (LARPF) has been prepared alongside this ESMPF by Baku Metro to provide the framework for any requirements relating to land acquisition, resettlement or impacts to livelihoods for all AIIB funded activities. The LARPF has been prepared to align with the requirements of AIIB ESF, national laws and GIIP.

7.7. Stakeholder Engagement

A standalone Stakeholder Engagement Plan (SEP), aligned with AIIB ESF and national law has been prepared for the Project by Baku Metro. The SEP is discussed further in Section 8.1. All activities funded by AIIB will be required to follow the stakeholder processes outline in the SEP.

7.8. Labour Management Plan

A separate Labour Management Plan (LMP) aligned with AIIB ESF, national regulations nd GIIP has been prepared for the Project by Baku Metro. The LMP includes specific requirements for contractor management during the construction periods of the project and also includes the requirements for Baku Metro to follow during the O&M phase of the Project.

7.9. Climate Assessment Framework

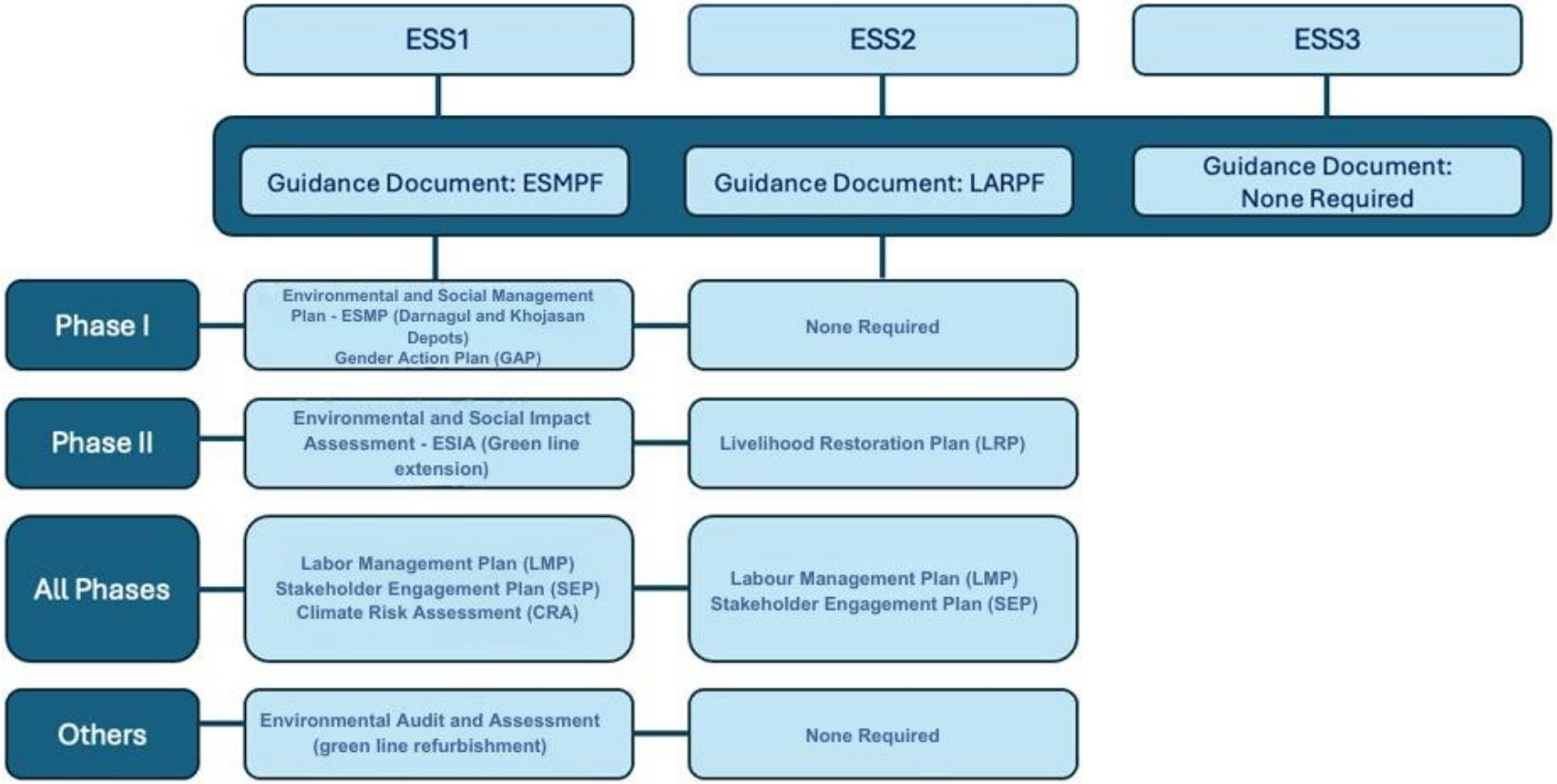
Climate risks are potentially possible for all sites. These include potential flood risks and heat stress. To further assess these risks a suite of climate assessments will be prepared by Baku Metro for the depot and green line extension works. They include:

- Climate Resilience Assessment (CRA)
- Climate Finance (mitigation and adaptation) Assessment
- Green building certification assessment and
- GHG and other non-GHG pollutants assessment.

7.10. Summary of E&S Instruments

The following figure summarizes what E&S instruments form part of the Project.

Figure 24: Summary of Project E&S Instruments



7.11. National Requirements

In addition to the AIIB requirements, the Project shall also comply with national laws as discussed below.

7.11.1. EIA Proceedures

According to the Law on EIA, EIA is required for the construction of depots and the extension of the green line. The law includes an Annex listing projects that must undergo EIA. Two items capture metro works:

- Item 33: "New metro stations, bridges and tunnels – design (layihələndirilməsi)." President of Azerbaijan
- Item 11: "Main highways and railway lines (including washing/cleaning stations) – design." (relevant to rail corridors).

National EIAs have already been completed for both Darnagul depot (2022) and Khojasan depot (2023), which included public consultation and disclosure of the EIA. The permits are valid for 5 years.

Baku Metro will be responsible for the preparation of an EIA for the green line extension works. Construction works cannot commence until the EIA is approved by MENR and its State Environmental Expertise Agency (SEEA) who issue the official conclusion used to grant the environmental permit. It is recommended, to avoid duplication, that the ESIA required to meet AIIB requirements (see Section 7.4 below) be structured to meet both AIIB ESF and GoA EIA Law requirements.

Green line station refurbishment EIA permitting requires clarification with MENR by Baku Metro. Generally, simple refurbishments/repairs of existing stations (e.g., interior fit-outs, replacing like-for-like equipment) do not require a new EIA so long as the existing activity already meets environmental requirements. In those cases, Baku Metro will be responsible to update the facility's environmental documents (e.g., emission/discharge limits, ecological passport) instead of running a full EIA. If the works involve major changes—for example reconstruction, capacity-increasing upgrades, new/relocated ventilation shafts, or introducing new technologies different from the original project—then a new EIA must be carried out. The EIA Law explicitly requires a new assessment for such "major changes."

7.11.2. Other Permits and Approvals

Depending on the results of pre-construction cultural heritage surveys and investigations, the Project may need permits/permissions from the Ministry of Culture and Tourism (MoCT) to comply with the "Law on Protection of the Historical and Cultural Monuments of the Republic of Azerbaijan (1998)". These permits/permissions could include, but are not limited to, the following:

- Permission to alter/impact viewsheds from built heritage resources and registered monuments (Articles 4 10);
- Preconstruction archaeological research/investigations by the Institute of Archaeology and Ethnography (IoAE) at all construction sites (Articles 5 and 14);
- Permission/permit for construction activities within the reserve zone (buffer) around registered monuments (Article 12); and
- Receive MoCT and IoAE approval of the Project Chance Finds Procedure (Article 13).

Consultations with the MoCT and IoAE will be necessary to develop a full list of cultural heritage permits/permissions that the Project must obtain before construction begins.

7.12. Roles and Responsibilities

7.12.1. Baku Metro / Baku Metro PIU

Baku Metro have established a Project Implementation Unit (PIU) for the Baku Metro Expansion Project. The PIU director provides overall management of the activities and will be supported by a full-time E&S

Safeguards Specialist for the duration of the Project. Specifically, in the design and construction phase the PIU will be responsible for:

- Implementation of this ESMPF through their PIU and E&S Safeguards Specialist (ESSS).
- Ensure all relevant national environmental permits are obtained, including:
- National EIA for Green Line Extension
- Required E&S documents for Green Line refurbishment works.
- Preparation of ESIA for Green Line Extension per the ToR (Annex A).
- Preparation of ESMP for Depots.
- Ensuring all relevant requirements included in ESMP and ESIA are adopted in bid documents and contract documents.
- Preparation and implementation of LMP and GAP
- Implementation of the ESMP/ESIA through its Environmental and Social Action Plan (ESAP).
- Implementation of the SEP including the requirements for consultation and disclosure as set out in the SEP.
- Managing the Project grievance mechanism as set out in the Project LMP and SEP.
- Routine monitoring of contractors performance per the requirements of Project ESMPs and ESIA.
- Routine reporting to AIIB on the progress on E&S matters, including any non-compliances and corrective actions.
- Ensuring Project compliance with all national laws and regulations.

During the O&M phase responsibility for the management of the AIIB funded components will be handed to Baku Metro operations department. They will be responsible for implementation the O&M measures set out in the Project LMP, SEP. GAP, ESMP and ESIA and ensuring continued compliance with national laws and regulations.

7.12.2. Contractors

Baku Metro will be responsible for procuring contractors for construction works. Specific E&S requirements for the contractors will be provided in Project level ESMPs and ESIA, including any requirements for E&S staff, training, monitoring, reporting, etc. Further, the Contractors will be responsible for implementation of the LMP during the construction phase. Recommendations for Contractors staffing are included in the ESIA and ESMP terms of references (Annex A and Annex B). The following provides an overview of the general E&S activities to be completed by the Contractor:

- Completing detailed design including all the environmental and social mitigation measures in the ESIA/ESMP.
- Preparing the CESMP for approval by the Engineer prior to the Contractors taking possession of the construction site (see below).
- Ensuring the CESMP is implemented effectively throughout the construction period.
- Ensuring the Contractor prepares and implements a Sub-contractor Management Plan. This plan should outline how E&S induction, monitoring, and enforcement will be applied to all sub-tier parties.
- Coordinating community relations issues through acting as the Contractor's community relations focal point (proactive community consultation, complaints investigation and grievance resolution).
- Establishing and maintaining site records of:
    - Weekly site inspections using checklists based on the CESMP;

- Environmental and health and safety accidents/incidents including resolution activities (including reporting of accidents to the ISWS Consultant);
- Non-compliance notifications issued by the Engineer;
- Corrective action plans issued to the Engineer in response to non-compliance notices;
- Community relations activities including maintaining complaints register;
- Preparing monitoring reports (Monthly);
- Routine reporting of CESMP compliance and community liaison activities;
- Ad hoc reporting to the Engineer of environmental incidents/spillages including actions taken to resolve issues; and
- Provide daily toolbox training at the construction camp and also at construction sites.

- All construction activities involving excavation, tunneling, dewatering, or earthworks must follow the Project's Chance Find Procedures (detailed in Annex G.2). These procedures apply to both planned and accidental discoveries of cultural, historical, archaeological, paleontological, or human remains.

Following the award of the contract and prior to construction commencing the Contractor will review the ESMP / ESIA and develop this into his detailed CESMP. The CESMP will identify persons who will be responsible for supervising the work within the Contractor's team. This information will be presented in a series of site plans covering the whole project site showing all environmental management requirements for all activities in the construction phase. A CESMP template is provided in Annex E.

The CESMP will also include a monitoring plan and a reporting program corresponding to the requirements of the ESMP. The CESMP, and all its plans without exception, will be submitted to the Engineer and PIU for review and will require approval from the Engineer prior to the Contractor taking possession of any work site.

All contractors shall be fully responsible for E&S performance of their subcontractors. Subcontractors shall not commence work until:

- Approved CESMPs are in place,
- Workers receive induction and PPE, and
- E&S contractual clauses are signed.

Obligations:

- All subcontractor activities must conform to AIIB ESP, ESS, national laws, and ESMPF requirements.
- Monthly E&S performance reporting must include subcontractor indicators (incidents, OHS training hours, waste handling, grievances).

Subcontractors in hazardous work (TBM, confined space, lifting operations, hazardous waste) must provide:

- Authorized supervisors
- Certified equipment
- Proven training records

Baku Metro PIU reserves the right to dismiss subcontractors who fail to meet E&S requirements.

7.12.3. Supervision Consultant

Baku Metro will be supported by a Supervision Consultant (or "Engineer"). The Engineer will be tasked with supervising the contractors activities and ensuring compliance with project level ESMPs and ESIAs. Recommendations for Engineers staffing are included in the ESIA and ESMP terms of references (Annex A

and Annex B).The following provides a overview of the general E&S activities to be completed by the Engineer:

- review and approve the Contractor's CESMP, including all updates and revisions (not less than once every 6 monthly);
- review and approve ESHS provisions of method statements plans, proposals, schedules and all relevant Contractor's documents;
- review ESHS risks and impacts of any design change proposals and the implications for compliance with ESMP, consent/permits and other relevant project requirements;
- undertake audits, supervisions and/or inspections of any sites where the Contractor is undertaking activities related to the Works, to verify the Contractor's compliance with ESHS requirements, with and without contractor and/or client relevant representatives, as necessary, but not less than once per month. ESS to monitor the Contractor's implementation of his CESMP via weekly inspections of the work sites;
- undertake audits and inspections of Contractor's accident logs, community liaison records, monitoring findings and other ESHS related documentation, as necessary, to confirm the Contractor's compliance with ESHS requirements;
- agree remedial action/s and their timeframe for implementation in the event of a noncompliance with the Contractor's ESHS obligations;
- attend meetings including site meetings, progress meetings to discuss and agree appropriate actions to ensure compliance with ESHS obligations;
- check that the Contractor's actual reporting (content and timeliness) is in accordance with the Contractor's contractual obligations;
- review and critique, in a timely manner, the Contractor's ESHS documentation (including regular reports and incident reports) submitted to the Engineer and to provide advice to ensure the accuracy and efficacy of the documentation
- undertake liaison, from time to time and as necessary, with project stakeholders to identify and discuss any actual or potential ESHS issues;
- prepare a brief monthly and quarterly report that describes the work that the ESS and OSHS have undertaken, the issues (including any Contractor's ESHS noncompliance, details of the Contractors activities (such as training programs, community meetings, etc.) and compliance with the ESMP and CESMP)) identified and the actions taken to address the issues;
- help the Contractor with the development of the Contractors CESMPs (at least one month prior to the start of construction);
- engage external service from a certified laboratory for environmental instrumental monitoring;
- Report accidents to the PIU.

If the Engineer identifies any ESMP / CESMP non-compliance issues by the Contractor, a Non-Compliance Notice will be issued to the contractor if the Engineer requires action to be taken. The Contractor will be required to prepare a corrective action plan which is to be implemented by a date agreed with the Engineer.

7.13. AIIB Responsibilities

In regard to implementation of environmental and social safeguards requirements for the project include undertaking periodic monitoring of the ESMPs / CESMP implementation and due diligence as part of an overall project review mission, and if required, providing advice to the PIU in carrying out its responsibilities to implement the ESMP for the project.

7.14. Capacity Assessment

The key parties involved during construction phases include Baku Metro and their PIU and construction contractors. Baku Metro PIU will be supported by the Engineer.

Baku Metro PIU - Baku Metro PIU are in the process of recruiting a safeguards specialist for the Project and have prepared a ToR for the position. The ToR includes the requirements for minimum qualifications, including:

- Master's degree in environmental science, environmental management, environmental sustainability, or social science-related field.
- At least 10 years of work experience managing E&S aspects of infrastructure projects during preparation and implementation, including impact assessment, mitigation and compliance monitoring.
- Proven experience in preparing, implementing, and monitoring environmental and social instruments (e.g., ESMPs, RAPs, SEPs), particularly in the rail or transport infrastructure sector.
- Strong knowledge of international E&S good practices and the E&S policies, frameworks, and standards of MDBs.
- Strong knowledge of the environmental and social legislation in Azerbaijan.
- Experience in stakeholder engagement and grievance redress is desirable.
- Management and high-level coordination experience would be a strong advantage.
- Experience in elaborating/conducting training programs would be an added asset.
- Excellent reporting and communication skills.
- Fluency in English is required; fluency in Azerbaijani is a strong advantage. Knowledge of Turkish or Russian is an added asset.

These requirements are considered satisfactory for the project. However, it is also recommended that the specialist be provided with a week-long intensive training course ideally upon recruitment, and at least prior to the start of works. The training course, (recommended to be provided by the Engineers E&S specialists, or independent E&S specialists) are set out in Table 21.

Baku Metro OHS unit also has limited experience with crowd and egress safety, tunnelling hazards, and emergency preparedness for underground works. Furthermore, current monitoring emphasizes lagging indicators such as incidents and NCRs, with insufficient focus on leading indicators such as PTW records, near-miss reports, or TMP implementation evidence. Further Baku Metro do not have, or are planning to have any form of environmental and social staffing for the O&M phase of the project. Accordingly, it is recommended that a program of O&M phase OHS training is provided to the Baku Metro OHS unit by an international OHS specialist. This should include training in confined space entry and rescue, excavation and lifting safety, underground ventilation and TBM operations, and station fire/life safety systems. Metro staff should also receive instruction on crowd/egress modelling interpretation, auditing contractor OHS management systems, and applying stop-work authority. Joint emergency drill participation with contractors and the Ministry of Emergency Situations should be used as a practical learning tool. Finally, the program should build Metro CJSC's capacity to collect, analyze, and act upon leading safety indicators to strengthen proactive risk management.

Further, Baku Metro must develop in-house capacity to manage environmental and social aspects of the Metro during its operational phase. To do this, it is recommended that Baku Metro engage a full-time E&S Manager to work alongside the PIU Safeguards Specialist, but with a focus on O&M activities.

There is no formal ESMS currently in place within Baku Metro that aligns with international standards such as AIIB's ESS. Existing procedures are fragmented, focusing mainly on occupational safety and reactive compliance with national permits. Observed strengths include:

- Worker safety inductions and periodic OHS training.
- Incident investigation and compensation payments.
- Functioning worker grievance routes through HSE and company hotlines.
- Documented coordination with authorities on past land and grave relocation (though disclosure is incomplete).

Observed gaps include:

- No unified ES risk screening, monitoring, or reporting framework.
- Limited environmental management capacity, especially regarding hazardous waste, soil contamination, and wastewater controls.
- No management system for community safety, stakeholder engagement, or cultural heritage.
- No systematic monitoring of noise, air emissions, spoil transport, or community impacts.
- Insufficient documentation of legacy impacts (e.g., grave relocation, refugee resettlement at Darnagul).

To further strengthen E&s management at Baku Metro for both construction and operational phases. It is recommended that they develop a formal ESMS incorporating policy, risk screening, monitoring, incident management, and community engagement to help manage both current and future expansion works in line with international standards.

In, summary, to manage the Project's complex underground works, hazardous materials, and community interface, the ESMPF identifies the need to strengthen capacity in both the short and long term. Recommended measures include:

Short-term (Project preparation and construction)

- Hire/appoint additional environmental and social specialists in the PIU.
- Train PIU and HSE teams on AIIB ESSs, ESMP implementation, GIIP (good international industry practice).
- Establish standardized site inspection checklists, monitoring parameters, and reporting formats.
- Build contractor oversight protocols, including CESMP review and approval procedures.

Long-term (Metro-wide ESMS development)

- Develop a formal ESMS incorporating policy, risk screening, monitoring, incident management, and community engagement.
- Strengthen hazardous waste and wastewater management procedures for depots.
- Establish cultural heritage chance-find procedures across future metro expansions.
- Institutionalize community engagement beyond this Project, including disclosure practices and grievance management.

Contractor – Contractors will be required to have a roster of E&S staff to implement the project ESMPs and ESIA. Current practices at Darnagul depot suggest that OHS is not well managed at Metro construction sites. Specific requirements will be set out in the ESMPs and ESIAs for the staff requirements and their qualifications. While these specialists will be required to meet these requirements, the need for additional project specific training cannot be overstated. Accordingly, all Contractor E&S staff will be required to complete training per Table 21. Where practical training should be times to allow contractors and PIU to be present at the same sessions.

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Table 21: Training Requirements

Training	Relevant Activity	Recipients	Duration	Organizer	Costs
AIIB Safeguard requirements Conditions of the ESMP and preparing a CESMP	Depots Green Line Extension Green Line Station Refurbishment	PIU Contractor	0.5 days	PIU through Engineer or E&S specialist	500 USD
Site Monitoring, including instrumental monitoring with a focus on vibration monitoring	Depots Green Line Extension Green Line Station Refurbishment	PIU Contractor	1.0 days	PIU through Engineer or E&S specialist	1,000 USD
Construction Phase Occupational Health and Safety and Community Health and Safety. -including site visits and practical work.	Depots Green Line Extension Green Line Station Refurbishment	PIU Contractor	3.0 days	PIU through OHS specialist	3,000 USD
O&M Phase OHS	All – O&M Phase	Baku Metro OHS Unit	5.0 days	PIU through OHS specialist	5,000 USD
Cultural heritage management – including site visits to sensitive areas	Depots Green Line Extension	PIU Contractor	2.0 days	PIU through Cultural Heritage specialist	2,000 USD
Spoil disposal management – including visit to spoil disposal site	Depots Green Line Extension Green Line Station Refurbishment	PIU Contractor	1.0 days	PIU through Engineer or E&S specialist	1,000 USD
Waste water discharge management and monitoring	Green Line Extension	PIU Contractor	0.5 days	PIU through Engineer or E&S specialist	500 USD
Managing Grievances	Depots Green Line Extension Green Line Station Refurbishment	PIU Contractor	0.5 days	PIU through Engineer or E&S specialist	500 USD

Training	Relevant Activity	Recipients	Duration	Organizer	Costs
Stakeholder engagement	Depots Green Line Extension Green Line Station Refurbishment	PIU Contractor	0.5 days	PIU through Engineer or E&S specialist	500 USD
Reporting methods and requirements	Depots Green Line Extension Green Line Station Refurbishment	PIU Contractor	0.5 days	PIU through Engineer or E&S specialist	500 USD

7.15. Emergency Response and Preparedness Framework

Emergency preparedness and response (EPR) is a core element of the Project's risk management system due to the complexity of underground works, high-voltage systems, hazardous materials, and public interface within active transport infrastructure. The Project will implement a project-wide Emergency Preparedness and Response Framework (EPRF) applicable to the PIU, contractors, and supervision consultants throughout construction and early operation of depots and tunnel systems. The EPRF establishes common requirements, roles, communication protocols, and minimum resources to ensure a coordinated response to emergencies. Detailed procedures and checklists are provided in Annex F: Emergency Preparedness and Response Plans.

The EPRF requires all contractors to prepare and implement site-specific EPR Plans (EPRPs) that reflect identified risks, approved construction methods, and the specific hazards of underground and depot works. These plans must be aligned with AIIB ESS1, national legislation, and good international industry practice (e.g. NFPA standards for fire protection in underground facilities). All EPRPs will be reviewed and approved by the PIU, with support from the Supervision Consultant, prior to commissioning any high-risk activities.

Applicable Emergency Scenarios - The framework applies, at minimum, to the following hazard categories:

- Structural and tunneling emergencies (ground collapse, water ingress, toxic gases, loss of ventilation, confined-space rescue)
- Fire and explosion (in tunnels, depots, welding workshops, fuel storage, traction substations, and rolling stock)
- Hazardous material spills and releases (lubricants, fuels, solvents, batteries, fire suppressants, wastewater chemicals)
- Mechanical and electrical incidents (high-voltage shock, arc flash, derailment during test operations, crane/lifting accidents)
- Natural or external events (flooding, earthquakes, severe weather affecting ventilation or access roads)
- Community-related emergencies (traffic accidents, off-site contamination, fires spreading to adjoining properties)

Minimum Protocol and System Requirements - All contractors and facility operators must:

- Conduct risk assessments and job safety analyses (JSAs) for high-risk tasks (e.g., TBM operation, confined-space welding, fuel transfer).

- Ensure 24-hour on-site emergency response capacity proportional to risks (e.g., trained rescue teams during tunneling).
- Provide emergency equipment suited to underground environments (breathing apparatus, rescue stretchers, gas detectors, foam suppression).
- Conduct regular drills (minimum quarterly) jointly with the PIU, supervision consultant, and local fire/rescue authorities.
- Establish clear incident notification and escalation pathways between contractors, the PIU, municipal services, and affected communities.
- Maintain resource maps and access routes, including underground refuge spaces, ventilation zones, and emergency exits.
- Ensure public safety and communication measures, including traffic diversion protocols and emergency notifications to communities.

Implementation of the above will be monitored through routine inspections, drill evaluations, and periodic third-party audit where warranted by risk. The PIU will maintain oversight through standardized reporting and corrective action tracking, ensuring that the EPR system remains effective and evolves with construction phases and commissioning activities.

7.16. Accident and Incident Reporting

Baku Metro PIU and all contractors shall establish and maintain a unified Incident and Accident Management System covering construction and operational works.
The system shall record, investigate, and report incidents consistent with AIIB Environmental and Social Standard (ESS) requirements, including:

- Fatalities
- Lost-time injuries
- Major environmental spills
- Fire, flooding, or tunnel safety events
- Community safety incidents
- Cultural heritage breaches (“chance finds”)

Mandatory requirements:

- Contractors must report all incidents within 24 hours to the PIU using a standard form.
- Serious incidents (fatality, serious injury, structural failure, major spill, collapse, flooding, CH breach) must be reported by the PIU to AIIB within 48 hours.
- A Root Cause Analysis and Corrective Action Plan must be completed within 10 working days.
- All sites must maintain an Incident Register for inspections by PIU, AIIB, and authorities.

This system shall apply to all Metro works under Phases I–III, including refurbishment at operating stations, depot works, tunneling, and construction of new underground stations.

7.17. Gender Assessment and GAP for Phase II

Baku Metro will, for Phase II, prepare a Gender Assessment that shall:

1. Assess accessibility, safety, and security of women in commuting and public spaces.
2. Identify gender-specific needs in station design (lighting, lifts, CCTV, platform safety, signage).

3. Evaluate workforce and contractor policies for female employment, equality, and OHS protections.
4. Determine risks of sexual harassment, gender-based violence (GBV), and labor influx impacts.

The Gender Action Plan (GAP) shall include:

- Infrastructure Measures: safe access, lighting, CCTV visibility, functional lifts, women-priority platform markings.
- Operational Measures: training of staff on GBV prevention; female hiring targets for customer-facing roles.
- Community Engagement: consultations with women, PWDs, students, and parents.
- Monitoring Indicators: % women users reporting safety, # women staff trained, # GBV complaints resolved.

7.18. Estimated ESMPF Costs

Estimated costs for the implementation of the ESMPF can only be roughly estimated at this stage. Detailed activity costs will be derived from activity specific ESMPs and ESIAs. The estimated costs are shown in the table below.

Table 22: Estimated ESMPF Costs

No.	Item	Approximate Cost / Percentage of Budget (USD)
Documentation		
1	Depot ESMP	200,000
	Project SEP, LMP. CRA, GAP	
2	Green Line Extension ESIA	250,000
3	Green Line Station Refurbishment ESAA	75,000
Staffing (to be updated based on ESMP and ESIA)		
4	PIU Safeguards Specialist	2,500 Per month
5	Depot Engineers E&S Staff (Environmental & Social Specialist, Occupational Health and Safety Specialist)	90,000 (construction duration 24 months)
6	Depot Contractors E&S Staff (Environmental Manager, Health and Safety Manager, Community Liaison Manager, Archeological Monitor)	145,000 (construction duration 24 months)
7	Green Line Extension Engineers E&S Staff	600,000 (construction duration – assumed 5 years)
8	Green Line Extension Contractors E&S Staff	600,000 (construction duration – assumed 5 years)

9	Green Line Station Refurbishment Engineers E&S Staff (Environmental & Social Specialist, Occupational Health and Safety Specialist)	90,000 (construction duration 24 months)
10	Green Line Station Refurbishment Contractors E&S Staff (Environmental Manager, Health and Safety Manager, Community Liaison Manager)	100,000 (construction duration 24 months)
ESMP/ESIA/CESMP Implementation Costs		
11	Depot ESMP	0.5% of activity budget
12	Green Line Extension ESIA	1% of activity budget
13	Green Line Station Refurbishment ESAA	0.5% of activity budget
O&M Costs		
14	All activities	TBD – part of Maku Metro O&M costs
15	Baku Metro E&S Manager	30,000 Per annum

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8. Stakeholder Engagement and Grievance Redress Mechanism

8.1. Stakeholder Engagement

A Stakeholder Engagement Plan (SEP) has been prepared for Baku Metro for the Project. The SEP is a standalone document and comprises all of the required stakeholder engagement, plus records of all stakeholder engagement undertaken to date. The SEP has been disclosed by AIIB and Baku Metro on their websites and can be found via the following web-link:

To be inserted.

As required under Section VII of the AIIB ESF (Disclosure, Consultation, Grievances and Project-affected People's Mechanism), the Bank mandates that the Client disclose "draft Environmental and Social Documentation", which can be taken to include the draft ESMPF. This is stipulated under Section A Disclosure of Environmental and Social Information paragraph 65 (Environmental and Social Information Disclosure by the Client). The draft ESMPF must be disclosed sixty (60) calendar days before the Bank's financing consideration for approval.

8.2. Grievance Mechanism

8.2.1. General Grievance Mechanism (GM)

The Baku Metro Expansion Project's Stakeholder Engagement Plan (SEP) provides a detailed breakdown on the Project's Grievance Mechanism, which is aligned with AIIB ESS 1 and best international practices. A Grievance Log template is also provided in the SEP (Appendix B Grievance Log) to support the tracking and continuous monitoring of worker grievances. The Grievance Redress Mechanism described in the Baku Metro Expansion Project Stakeholder Engagement Plan (SEP), will also be the mechanism through which external stakeholders can submit any grievances relating to current or historical land acquisition or resettlement, which is referenced in the Baku Metro Expansion Project Land Acquisition and Resettlement Planning Framework (LARPF) (Chapter 10 Grievance Redress Mechanism).

8.2.2. Worker GM (WGM)

The Baku Metro Expansion Project's LMP (Chapter 8 Grievance Management provides a detailed breakdown on the Project's Worker Grievance Mechanism, which is aligned with the Labor Code of Azerbaijan, AIIB ESS 1 and best international practices (ILO, IFC and EBRD grievance handling models). A Grievance Log template is also provided in the LMP (ANNEX II Grievance Log) to support the tracking and continuous monitoring of worker grievances.

8.2.3. AIIB's Project-Affected Peoples Mechanism (PPM)

In addition to the Project's GM and WGM, all Project-affected persons retain the right to raise concerns directly with the Asian Infrastructure Investment Bank (AIIB) through its Project-Affected People's Mechanism (PPM). The PPM provides an independent avenue for communities or individuals who believe they have been, or are likely to be, adversely affected by failure to implement the Project in accordance with the AIIB Environmental and Social Policy (ESP).

The ESMPF commits Baku Metro to: (i) inform affected communities of their right to access the AIIB PPM; (ii) ensure that the GM/WGM does not restrict or delay access to the PPM; and (iii) provide information on the mechanism in all GM/WGM disclosure materials, including site information boards, leaflets, and the Baku Metro website. Complaints may be submitted to AIIB either after using the GM/WGM or without first

using the GM/WGM when justified (e.g., risk of retaliation). The PPM disclosure will include information on confidentiality options and protection against retaliation, including for women, vulnerable groups, and workers.

Annex A: ESIA Terms of Reference

1. INTRODUCTION

1.1 Background

Baku Metro CJSC, a state-owned enterprise, is implementing the Baku Metro Expansion Project (BMEP) to enhance urban mobility in Baku. The company manages one of the key public transportation systems in Azerbaijan, connecting central Baku with major residential districts. Baku Metro operates under the supervision of the Government of Azerbaijan and is responsible for implementing modernization and expansion projects supported by international financial institutions (IFIs). This Terms of Reference (ToR) outlines the requirements for a comprehensive ESIA to be conducted in accordance with the Asian Infrastructure Investment Bank (AIIB) Environmental and Social Framework (ESF) and national legislation.

1.2 About the Project

The Green Line Extension (Khatai–Hazi Aslanov) is a major component of this expansion, aimed at improving urban connectivity and reducing traffic congestion in Baku. The extension will connect existing lines with newly developed residential and commercial areas. The project includes underground tunneling and station box construction, access shafts, and associated temporary works such as spoil disposal and access roads. It excludes depot and station refurbishment works, which are subject to separate environmental documentation. The Green Line Extension (Khatai to Hazi Aslanov) is classified as a Category A project due to its potential for significant, diverse, and irreversible environmental and social impacts. It involves the construction of approximately 8.6 km of twin-tunnel using Tunnel Boring Machines (TBMs) and four new underground stations (Y14, Y15, Y16, Y17). Key components include:

- Launch and reception shafts for TBMs.
- Deep station boxes constructed using cut-and-cover or top-down methods.
- Ventilation shafts and emergency escape passages.
- Ancillary facilities: temporary concrete batching plants, precast segment yards, laydown areas, and worker accommodation camps.
- Spoil disposal at a designated site, which is preliminarily identified in or adjacent to a Key Biodiversity Area (KBA).
- Permanent above-ground structures (station entrances, canopies, utility buildings).

2. TERMS OF REFERENCE

2.1 Objective

The objective is to prepare a comprehensive Environmental and Social Impact Assessment (ESIA) for the Green Line Extension Project in accordance with the AIIB Environmental and Social Framework (ESF), national EIA regulations, and Good International Industry Practice (GIIP). The ESIA shall identify, and assess the potential environmental and social risks and impacts of the tunneling and station construction activities, propose mitigation and monitoring measures, and establish a management framework consistent with AIIB's Environmental and Social Standards (ESS1–ESS3), national laws of Azerbaijan, and Good International Industry Practice (GIIP). The ESIA will serve as the main decision-support tool for project planning, design refinement, and the development of robust management plans.

2.2 General

This Terms of Reference (ToR) defines the tasks and deliverables expected from the Consultant to produce a comprehensive ESIA for the Green Line Extension. The Consultant is expected to review existing environmental and social documents, conduct baseline studies, and prepare the ESIA in accordance with AIIB's requirements and Azerbaijani legislation. The Consultant will coordinate with Baku Metro, the Project Implementation Unit (PIU), and local authorities.

2.3 Applicable Reference Framework

- AIIB Environmental and Social Framework (ESF, 2019; updated 2024);
- AIIB Environmental and Social Exclusion List (ESEL);
- IFC Performance Standards (2012);
- World Bank Group (WBG) Environmental, Health and Safety (EHS) Guidelines (2007);
- EHS Guidelines for Railways and Construction Materials Extraction (2007);
- EBRD and ADB good practice notes as relevant;
- Applicable Azerbaijani environmental, social, labor, and occupational safety legislation;
- Relevant international conventions ratified by Azerbaijan (e.g., biodiversity, heritage, labor).

2.4 Scope of Work

Task 1: Kick-off Meeting and Inception Report

The Consultant will hold a kick-off meeting with Baku Metro and AIIB to align expectations, confirm data requirements, and finalize methodologies. An Inception Report will be prepared within two weeks summarizing the work plan, baseline monitoring design, and stakeholder engagement approach.

Task 2: Project Review and Scoping

Review project design, feasibility, and technical documentation to define the Project's direct, indirect, and cumulative Area of Influence (AoI) for all environmental and social parameters, including a specific Visual Envelope (e.g., key viewpoints, sightlines) and Urban Study Area. Identify key environmental and social receptors, risks, and data gaps. Develop a Scoping, outlining key issues and methodologies for baseline and impact assessment, and Prioritization Matrix to classify impacts (e.g., Significance, Geographic Extent, Duration, Reversibility). This will define the focus and depth of the assessment, ensuring resources are directed to high-risk areas like tunneling, deep excavation, and spoil management.

Task 3: Policy, Legal and Administrative Framework

- Review and summarize all applicable national laws, AIIB ESF requirements, and international conventions.
- Include specific reference to national and municipal laws on urban planning, architectural standards, public space management, and the protection of scenic vistas or cultural landscapes.
- Identify all required permits, licenses, and approvals and outline the process for their acquisition.

Task 4: Detailed Project Description and realistic alternatives

- Provide a detailed project description, including designs, construction methodologies, sequencing, workforce estimates, and material sourcing, including information on:
    - Station layouts (both above ground and below ground)
    - Tunnel alignments
    - Spoil disposal areas
    - Storage, laydown and camp areas
    - Sources of materials, including segment production

- Description of construction techniques, focusing on station excavations, tunneling (with TBM), launching of tunnels, spoil excavation and haulage, management of tunnel water.
- Description of camp site facilities, workforce requirements
- Details of spoil haul routes.

- Include detailed architectural renderings, massing models, and plans for the permanent above-ground structures and the final arrangement of public spaces around all station entrances.
- Assess a realistic range of alternatives, including:
  - The Zero Alternative (No Project).
  - Technology Alternatives: e.g., comparative assessment of TBM vs. cut-and-cover methods for specific sections based on E&S impacts.
  - Alignment and Siting Alternatives: For stations, ventilation shafts, and ancillary facilities.
  - Spoil Disposal Site Alternatives: A critical assessment of multiple sites, including the proposed site in/near the KBA, with a clear justification for the preferred option.
  - Urban Design and Architectural Alternatives: Assessment of different design options for station entrances, headhouses, and canopies to minimize visual intrusion and maximize positive urban integration.

Task 4: Baseline Data Collection and Instrumental Monitoring

Conduct integrated environmental and social baseline studies for physical, biological, and socio-economic environments. The monitoring plan should capture at least one full seasonal cycle (e.g., 3 months) for key parameters. Specific focus on:

- Mapping of sensitive receptors along the alignment (residential areas, schools, cultural heritage sites and medical facilities)
- Identification of hazardous materials on site.
- Identification of areas of soil contamination.
- Flood risk areas.
- Groundwater conditions with focus on tunnel and station ingress.
- Biodiversity aspects at the spoil disposal site (including critical habitat screening)
- Identification of known cultural heritage sites along metro alignment that maybe impacted by vibration and settlement

The Consultant will perform instrumental monitoring of air, noise, vibration, soil, groundwater, and surface water parameters. Primary socio-economic data collection will include household and business surveys, stakeholder mapping, and vulnerable group identification.

Table 1: Physical Environment Baseline Monitoring Plan

Parameter	Method / Standard	Locations & Frequency	Purpose
Air Quality (PM2.5, PM10, NO_2, SO_2, CO)	Continuous monitoring; IFC/WBG EHS Guidelines	4 sites (Y14–Y17) for 4 weeks	Ambient air quality baseline, capturing seasonal variations.
Noise & Vibration	Sound/vibration meters; DIN 4150-3 & IFC standards	Sensitive receptors near shafts/stations, 2 weeks continuous monitoring	Baseline for construction noise/vibration and operational vibration
Groundwater	Sampling & laboratory testing, Installation of piezometers.	Boreholes and TBM shafts. Network of monitoring wells around stations, along tunnel alignment, and near	Hydrogeological baseline, aquifer characteristics, and water quality.

		the spoil site. Quarterly for 9 months.	
Soil Quality	Heavy metal/hydrocarbon analysis, TPH, and PAH analysis.	Station, in particular, Stations Y15, Y16 (high contamination risk), and the proposed spoil disposal site.	Contamination baseline for soil management.
Ecology	IUCN Red List, KBA criteria, field surveys.	Spoil disposal site and any other vegetated areas within the project footprint. Wet and dry season surveys.	Biodiversity baseline, critical habitat assessment, and faunal presence.
Social & Economic	Household surveys, focus group discussions, key informant interviews.	250m buffer around all project sites and along haul routes. Gender and vulnerability-disaggregated data.	Socio-economic baseline, livelihood mapping, and identification of vulnerable groups.
Land Use & Visual Baseline	GIS mapping, photographic survey, viewpoint analysis, expert assessment. (UK Landscape Institute, Guidelines for Landscape and Visual Impact Assessment 3rd edition (GLVIA3))	**Visual Envelope** defined by key public viewpoints and sightlines to cultural heritage assets. Inventory of current land use, public space functions, pedestrian flows, and visual receptors.	To establish the existing character and quality of the landscape, townscape, and public spaces to be affected.

Task 5: Assessment of Alternatives

Assess realistic alternatives including the no option alternative. Alternative station locations, layouts, technologies, etc. to be assessed. Include an assessment of alternative spoil disposal sites.

Task 6: Impact Assessment and Modelling

Assess environmental and social impacts using a structured matrix (magnitude × sensitivity). Conduct a rigorous, evidence-based assessment of direct, indirect, and cumulative impacts for tunneling, construction, and operation phases. Predictive modelling is mandatory for the following high-risk areas:

- Geotechnical and Hydrogeological Modelling: Predict ground settlement, impacts on adjacent structures, and groundwater drawdown effects.
- Noise and Vibration Modelling: Predict construction and operational impacts on sensitive receptors.
- Air Quality Dispersion Modelling: For construction dust.
- Traffic Impact Assessment (TIA): Model the impact of construction vehicles and spoil haulage on city traffic.
- Land and Visual Impact Assessment (LVIA): Systematically assess the visual impact of permanent above-ground structures (vent shafts, station entrances) using tools like Zone of Theoretical Visibility (ZTV) maps, photomontages, and verification against recognized landscape and visual impact assessment guidelines. Assess impacts on the character of the townscape and key views.

Specific focus and detailed assessment of:

- Construction and operational noise and vibration
- Construction air quality
- Impacts on haul routes to spoil sites
- Impacts of management and disposal of waste and hazardous materials
- Groundwater drawdown and management of tunnel water

- Settlement above tunnels and stations
- Spoil disposal management, including spoil disposal site impacts
- Occupational Health and Safety
- Community Health and Safety
- Cultural heritage impacts, including chance finds
- Potential impacts of floods on stations and tunnels
- Develop predictive models for air quality, noise, and vibration where applicable.

Note this list is not exhaustive and other typical issues, such as traffic safety, impacts to local businesses, etc, should also be assessed.

Task 7: Cumulative, Induced, and Climate Change Impact Assessment

- Cumulative Impacts: Assess the project's impacts in conjunction with other past, present, and reasonably foreseeable future projects in Baku (e.g., other construction, urban development).
- Induced Impacts: Evaluate potential for gentrification, commercial development around new stations, and long-term changes to urban form and demographics.
- Climate Change Integration: Integrate findings from the Project's Climate Risk Assessment (CRA). Assess project vulnerability and resilience to climate hazards (flooding, heat stress) and the project's contribution to greenhouse gas emissions.

Task 8: Environmental and Social Management Plans (ESMPs)

Prepare a detailed ESMP with mitigation and monitoring measures, institutional responsibilities, and budgets.

Prepare standalone, costed, and implementable management plans, including:

- Waste Management Plan,
- Spoil Disposal Management and Logisitcs Plan, including site restoration (see Annex H for full requirements).
- Vibration and Settlement Monitoring Plan and Management Plan,
- Traffic Management Plan (TMP).
- Cultural Heritage Plan (see Annex G for full requirements)
- Community Health & Safety Plan,
- Labor Influx Management Plan.
- Hazardous Materials Management Plan (specific to asbestos)
- Emergency Preparedness **and Response Plan (EPRP)**, and
- Occupational Health and Safety Plan (see Annex F for full requirements)
- Landscape and Public Realm Management Plan: This new, critical plan shall detail:
    - Mitigation Hierarchy for Visual Impacts: Avoidance (e.g., re-siting/redesigning intrusive elements), Minimization (e.g., screening, use of recessive materials), and Remediation (landscaping).
    - Public Space Rearrangement Strategy: Plans for the permanent reinstatement and enhancement of all public spaces affected by construction. This must go beyond simple

reinstatement to include place-making principles: high-quality materials, street furniture, lighting, planting, and improved pedestrian and cyclist connectivity.

- Urban Integration Design Guidelines: To ensure all above-ground structures are contextually appropriate and contribute positively to the urban fabric.

Task 8: Stakeholder Engagement

- Implement a comprehensive stakeholder engagement process in line with the Project SEP and AIIB ESF requirements.
- Conduct meaningful consultations during scoping and on the draft ESIA report.
- Disclose ESIA in Azerbaijani and English at least 60 days before AIIB Board consideration.
- Maintain consultation records and integrate feedback into final documentation.

Task 9: Compliance Review and Institutional Capacity Assessment

Assess Baku Metro PIU and contractors' E&S capacity and training needs.

- Recommend a capacity-building program, including specific training on high-risk activities (tunneling safety, grievance redress, environmental monitoring) and measures for monitoring, OHS, and stakeholder engagement.

Task 10: Reporting and Disclosure

Prepare and submit the Inception Report, Scoping Report, Draft ESIA, Final ESIA, Non-Technical Summary (NTS), and Consultation Report. Ensure compliance with AIIB disclosure requirements (60-day period for Category A projects).

2.5 Key Deliverables and Schedule

Deliverable	Content	Timeline
Kick-off Meeting	Initial coordination with stakeholders	Week 0
Inception Report	Methodology, monitoring plan, engagement approach	1 months after NTP
Scoping Report	Issues register and baseline plan	2 months
Draft ESIA & NTS	Full assessment and draft management plans	6 months
Consultation Report	Records and feedback matrix	7 months
Final ESIA & NTS	Incorporating feedback from AIIB and stakeholders	8 months

2.6 Staffing and Key Personnel

The ESIA shall be prepared by an independent, multidisciplinary team with no conflict of interest. The team should comprise:

- Team Leader / Senior E&S Specialist
- Environmental Engineer
- Hydrogeologist / Geotechnical Engineer
- Social and Resettlement Specialist

- Occupational Health and Safety Expert
- Cultural Heritage Specialist
- Stakeholder Engagement & Gender Specialist
- Landscape Architect / Urban Designer (with specific experience in LVIA and public realm design)
- Transport Planner / Traffic Engineer (with experience in pedestrian and non-motorized transport integration).

2.7 Integration of Climate Riska and Resilience Assessment

All ESIAs prepared under this Project shall explicitly incorporate the findings of the Project's Climate Risk Assessment (CRA). The ESIA shall demonstrate how climate risks (extreme rainfall, groundwater flooding, heatwaves, sea-level interactions, power system stress, and ventilation constraints) have been assessed and how they affect the geographic, structural, operational, and safety characteristics of metro infrastructure.

Specifically, the ESIA must:

- Identify hotspot sections where climate hazards interact with underground works (e.g., flood-prone station entrances, tunnel portal drainage, groundwater ingress).
- Recommend design measures for flood resilience of tunnels and stations, including waterproofing standards, drainage sizing based on climate projections, emergency egress integrity under flooding, and flood-proofing of ventilation shafts and access portals.
- Recommend heat- and power-resilience measures for depots and rolling stock maintenance systems, including HVAC cooling capacity upgrades, heat-tolerant electrical substation components, overheating protection in switchgear, and ventilation design for workshops during heat waves.
- Translate climate risk mitigation into ESMP actions, budget allocations, and monitoring requirements (e.g., groundwater observation wells, seasonal rainfall triggers).

The ESIA shall provide a table linking each recommended climate-resilience measure to the relevant design element, showing accountability (designer/contractor/operator), timing (design/construction/operation), and associated costs.

Annex A – AIIB-Aligned ESIA Report Template

(i) Executive Summary / Non-Technical Summary (NTS)
- A standalone, clearly written summary in Azerbaijani, Russian, and English.
- Brief project description and objectives.
- Project need and benefits.
- Construction program and major civil construction works
- Summary of key positive and negative environmental and social impacts.
- Highlights of the main avoidance, minimization, and mitigation measures.
- Summary of public consultation process and how concerns were addressed.
- Key recommendations and conclusions.

(ii) Introduction and Objectives
- Project background and proponent (Baku Metro CJSC).
- Need for and objectives of the project.
- Objectives, scope, and methodology of the ESIA.
- Description of the ESIA process and report structure.

(iii) Policy, Legal, Planning and Institutional Framework (Azerbaijan + AIIB ESF; include ESEL screening)

- Applicable Azerbaijani national and local laws and regulations.
- AIIB Environmental and Social Framework (ESF) and Standards (ESS 1-3).
- AIIB Environmental and Social Exclusion List (ESEL) Screening Statement.
- Other relevant international standards (e.g., IFC Performance Standards, World Bank EHS Guidelines).
- Gap analysis between national and AIIB requirements.
- Institutional framework and roles (Baku Metro, MENR, MoCT, etc.).
- Planning, preparation, implementation and operations approvals processes.

(iv) Strategic need, justification and consistency with planning framework.

- Consistency with National planning framework and programs.
- Strategic needs and justification.

(v) Project Description and Alternatives (including No-Project and construction methodology)

- Detailed project description: alignment, station locations, design of above-ground structures (entrances, vents), construction methods (TBM, deep excavation), ancillary facilities, construction camp, and spoil disposal site.
- Construction schedule, workforce estimates, and material/utility requirements.
- Project phases (construction, operation, decommissioning).
- Assessment of Realistic and Strategic Alternatives:
    - Zero / No-Project Alternative.
    - Technology Alternatives (e.g., tunneling methods).
    - Station Location Options.
    - Alignment and Siting Alternatives.
    - Urban Design and Architectural Alternatives for station integration.
    - Spoil Disposal Site Alternatives.
- Justification for the selected alternative.

(vi) Stakeholder Engagement & Disclosure

- Stakeholder engagement and disclosure requirements.
- Communication objectives.
- Summary of the Stakeholder Engagement Plan (SEP) implementation.
- Description of the consultation process undertaken during the ESIA (scoping and draft ESIA stages).
- Records of participatory design workshops for urban and public space design.
- Summary of key stakeholder concerns and feedback.
- Description of how feedback has been incorporated into the project design and ESMP.
- Future consultation and engagement.
- Disclosure arrangements for the ESIA and other project documents.

(vii) Project Description – Construction

- Environmental considerations in construction.
- Indicative construction program.
- Enabling works (typically carried out before the start of construction in order to make ready the key construction sites and provide protection to the public).
- Dive structures and tunnel portals.
- Tunnels.
    - Tunneling methods.
    - Tunneling launch and support sites.
    - Tunnel fit-out.
- Stations

- Station excavation and structural work, supported by user-friendly diagrams.
- Aboveground buildings.
- Station fit-out.

- Track works
- Ancillary infrastructure.
- Construction sites.
- Other construction elements, including:
  - Spoil generation.
  - Construction traffic.
  - Construction hours.
  - Demolition, as applicable.
  - Utility and power supply.
  - Utility adjustment and protection.
  - Transport network modifications.
  - Construction water management.
  - Materials and water usage.
  - Construction workforce.
  - Demobilisation, rehabilitation and landscaping.
  - Heritage investigations, protection and archival recordings.
- Testing and commissioning.
- Construction environmental management framework.

(viii) Environmental and Social Baseline (physical, biological, socio-economic, cultural heritage)

- Physical Environment: Air quality, noise, vibration, climate, geology, hydrogeology, hydrology, soils, and topography.
- Biological Environment: Flora, fauna, and ecosystems; focus on the spoil disposal site's proximity to the Key Biodiversity Area (KBA).
- Socio-Economic and Cultural Environment: Demographics, livelihoods, land use, economic activities, community infrastructure, public health, and vulnerable groups.
- Cultural Heritage: Archaeological, built, and living heritage resources; including a specific baseline for sites potentially affected by vibration/settlement.
- Landscape, Visual and Urban Baseline: Characterization of the existing townscape, public spaces, pedestrian flows, and visual receptors. Definition of the Visual Envelope and key viewpoints.

(ix) Impact Assessment (methods, significance matrix, uncertainty) including cumulative impacts

- Methodology and significance criteria (e.g., magnitude, sensitivity, significance matrix).
- Detailed assessment of direct, indirect, and cumulative impacts for all phases, with a focus on:
  - Tunneling and excavation impacts (settlement, groundwater).
  - Spoil management chain (from excavation to disposal).
  - Traffic and transport (Construction and Operational), including:
    - Assessment methodology and assumptions, including traffic assessment, spoil transport options, hours of truck operation, haul routes and spoil generation,
    - Existing environment,

- Potential impacts, including on pedestrians, cyclists and motorist safety, emergency services access, construction worker parking, power supply routes, and mitigation measures,
- Operational traffic and transport, including assessment methodology, transport integration strategy, impacts and mitigations measures.

- Construction noise and vibration
  - Assessment Methodology, including construction noise metrics, sensitive receivers, construction noise management levels, Construction ground-borne vibration, construction traffic noise and sleep disturbance.
  - Existing Environment, including ambient noise surveys and monitoring locations.
  - Potential Impacts, covering surface work, substation construction sites, tunnel excavation and power supply routes.
  - Mitigation Measures, including noise and vibration strategy, and site specific mitigation measures.
- Operational noise and vibration
  - Assessment Methodology, including ground-borne noise and vibration, airborne noise, operational noise from stations and ancillary facilities.
  - Existing Environment.
  - Potential Impacts, including ground-borne noise and vibration, airborne noise, operational noise from stations and ancillary facilities.
  - Mitigation Measures.
- Land use and Property
  - Assessment requirements and methodology.
  - Strategic land use and planning context.
  - Existing land use.
  - Potential impacts, covering property and land use.
  - Mitigation measures.
- Business Impacts
  - Assessment requirements and methodology.
  - Existing environment.
  - Potential impacts.
  - Mitigation measures.
- Land and Visual Impacts (LVIA):
  - Assessment methodology.
  - Landscape impacts assessment, including assessment of impacts on urban fabric and public space, temporary and permanent impacts on public space function, accessibility, and quality of life
  - Visual impact assessment, including assessment of the visual intrusion of above-ground structures and permanent changes to the townscape.
  - Existing environment.
  - Potential impacts.
  - Mitigation measures
- Groundwater and geology.
  - Assessment requirements and methodology.
  - Existing environment.

- Potential impacts, including changes to groundwater levels, ground movement, groundwater inflows, and quality management.
- Mitigation measures.

- Soils, Contamination, and Water Quality.
  - Assessment requirements and methodology.
  - Existing environment, including Sensitive receiving environments, Soils, Contamination, and Surface water.
  - Potential impacts during Construction and Operations.
  - Mitigation measures
- Flooding and hydrology.
  - Assessment requirements and methodology for surface hydrology and drainage infrastructure and flooding.
  - Existing environment, covering surface hydrology and drainage infrastructure and flooding.
  - Potential impacts during construction, covering surface hydrology and drainage infrastructure and flooding.
  - Protentional impacts during operation, covering surface hydrology and drainage infrastructure and flooding.
  - Mitigation measures.
- Air Quality
  - Assessment requirements and methodology.
  - Existing environments, including local emission sources, background air quality, and sensitive receivers.
  - Potential impacts during construction, including dust (including asbestos fibres and other hazardous materials), and exhaust emissions.
  - Potential impacts during operation, including local impacts.
  - Mitigation measures.
- Hazard and risk
  - Assessment methodology and regulatory requirements.
  - Potential impacts during construction, including on-site storage, use and transport of dangerous goods and hazardous substances, rupture of, or interference with, underground utilities, and risk of damage to existing building basements and ground support structures due to ground movement and geological uncertainty.
  - Potential impacts during construction, including on-site storage, use and transport of dangerous goods and hazardous substances
  - Mitigation measures.
- Waste management
  - Assessment and regulatory requirements.
  - Sustainability strategy and assessment methodology.
  - Waste generation, during construction and during operation.
  - Potential impacts during construction, including spoil management and management of other wastes.
  - Mitigation measures.
- Biodiversity
  - Assessment requirements and methodology, including biodiversity area, desktop research, field survey, likelihood of occurrence, and framework for biodiversity assessment.

        - Existing environment.
        - Potential impacts.
        - Mitigations.
    - Sustainability
        - Sustainable overview, objectives, policy, strategy and governance.
        - Climate Change Adaptation, including climate change risk assessment, climate change risks.
        - Construction resources use,
        - Greenhouse gas and energy, including GHG assessment methodology, estimated GHG during construction and operation.
        - Environmental and sustainability management.
        - Mitigation measures.
    - Cumulative impacts
        - Assessment Methodology.
        - Potential Impacts.
        - Mitigation measures.
    - Community and Worker Health and Safety.
    - Cultural Heritage (including chance-finds).
- Assessment of uncertainty and data gaps.
- Consolidated environmental mitigation measures.
    - Approach to environmental management framework, including:
        - Construction environmental management framework.
        - Construction noise and vibration.
        - Design Guidelines.
    - Consolidated environmental mitigation measures.
    - Environmental performance outcomes.
- Justifications and conclusions.

(x) Project Description – Operation

- Project overview, key features, design guidelines and environmental and social consideration in design.
- Metro tunnels and stations
- Dive structures and tunnels portals
- Ancillary infrastructure and other key project features, including Noise barriers and maintenance access.
- Metro system and operations, including description of the signaling and train control, communication and traction power supply.
- Metro operations, service frequency capacity and customers transfers, stabling and maintenance and operational staff.

(xi) Climate Risk & GHG (screening/estimation) in line with AIIB requirements.

- Integration of the Project's Climate Risk Assessment (CRA) findings.
- Assessment of project vulnerability to climate hazards (e.g., flooding, heat stress).
- Estimation of projected Greenhouse Gas (GHG) emissions (construction and operational).
- Analysis of the project's contribution to climate resilience (adaptation benefits).
- Proposed climate resilience and GHG reduction measures.

(xii)Environmental and Social Management Plan (ESMP) with costed measures and monitoring

- A comprehensive, stand-alone ESMP with a summary mitigation and monitoring plan matrix.
- Detailed, costed sub-plans, including:
  - Construction Environmental Management Plan (e.g., air, noise, water, waste).
  - Spoil Management and Logistics Plan.
  - Vibration and Settlement Monitoring Plan.
  - Traffic Management Plan (TMP).
  - Community Health and Safety Plan.
  - Cultural Heritage Management Plan (including Chance Finds Procedure).
  - Labor Influx Management Plan.
  - Emergency Preparedness and Response Plan (EPRP).
  - Occupational Health and Safety (OHS) Plan.
  - Landscape and Public Realm Management Plan (including LVIA mitigation, public space rearrangement strategy, and urban integration design guidelines).
- Clear institutional responsibilities for implementation.
- Estimated budget and source of funds for all mitigation and monitoring measures

(xiii) Grievance Redress Mechanisms (community & worker)

- Description of the project-level Grievance Redress Mechanism (GRM) for communities, aligned with the SEP.
- Description of the Worker Grievance Mechanism (WGM), aligned with the LMP.
- Procedures for receiving, tracking, addressing, and responding to grievances.
- Communication channels for raising grievances.

(xiv) Institutional Arrangements, Capacity Building and Budget

- Organizational structure for ESMP implementation (Baku Metro PIU, Contractors, Supervision Consultant).
- Assessment of the institutional capacity of implementing agencies.
- Detailed capacity building and training plan (including for LVIA, public space management, and OHS).
- Detailed, itemized budget for ESMP implementation, capacity building, and monitoring across all project phases

(xv)Monitoring, Indicators, Reporting and Auditing

- Environmental and Social Monitoring Plan: parameters, methods, frequency, locations, and responsible parties.
- Clear performance indicators (e.g., for settlement, noise, public space quality).
- Reporting requirements and frequency (to Baku Metro management and AIIB).
- Plan for internal and external auditing of ESMP implementation and compliance.

(xvi) References and Annexes (raw data, calibration certificates, consultation records, maps)

- Scoping Report.
- Raw baseline data and instrumental monitoring results (with calibration certificates).
- Detailed modeling reports (settlement, noise, air quality, visual).
- Full consultation records and minutes from meetings/workshops.
- Detailed maps (alignment, sensitive receptors, visual envelope, etc.).
- Curriculum Vitae of the ESIA team members.
- Copies of relevant permits and approvals.

Annex B – Instrumental Monitoring Specifications (Template)

Discipline	Equipment / Method	Calibration / QA	Deliverables
Air Quality	FRM/portable analyzers; gravimetric for PM	Pre/post calibration certs; field blanks	Time series, exceedances, method notes
Noise & Vibration	Class-1 SLM; tri-axial geophones	Calibration certs; traceable to IEC/ISO	LAeq/Lmax, PPV, spectra, event logs
Groundwater	Bailers/low-flow pumps; lab ISO 17025	Chain of custody; duplicates	Logs, wells map, lab sheets, interpretation
Soil/Spoil	Composite samples; metals, TPH/PAHs	Duplicates; certified labs	Waste class, reuse/disposal recommendations

Annex C – Methodology for Cumulative Impact Assessment

Cumulative Impact Assessment shall evaluate incremental effects arising from the Project combined with:

- Existing metro operations;
- Construction of other Baku Metro lines (e.g., ADB Purple Line as an associated facility where relevant);
- Municipal infrastructure and traffic projects within a 2–5 km urban radius; and
- Past disturbances such as historic land contamination and grave relocations (Darnagul).

CIA Steps

1. **Define Valued Environmental and Social Components (VECs)**
    - Groundwater and settlement; noise/vibration; hazardous material flows; traffic safety; cultural heritage; cumulative labor influx in dense urban areas.
2. **Identify Stressors and Spatial Boundaries**
    - For noise/vibration: radius of influence around stations and TBM alignment.
    - For groundwater: hydrogeological unit boundaries, not administrative limits.
    - For social safety: traffic network and pedestrian connectivity around depots/stations.
3. **Characterize Baseline Trends**
    - Current metro operations; municipal transport plans; known contamination zones; heritage constraints.
4. **Evaluate Incremental Effects**
    - Compare “With-Project Change” vs. baseline and other projects using:
        - Source–pathway–receptor analysis;
        - Quantitative models (noise propagation, vibration, settlement when data exists);
        - Expert judgment where impacts are qualitative.
5. **Mitigation and Monitoring**

- Assign cumulative mitigation at system level (e.g., spoil routing coordination, combined traffic planning, heritage screening procedures, shared wastewater discharge limits).

6. **Residual Impact Significance**
   - Apply AIIB significance matrix with **combined risk rating**, not project-only residuals.

Vista Environment

Annex B: ESMP Terms of Reference

1. Background

The Government of Azerbaijan, through Baku Metropolitan CJSC, is implementing the Baku Metro Expansion Project (BMEP) to improve the urban transport network in Baku. The Project is financed by the Asian Infrastructure Investment Bank (AIIB), with possible parallelfinancing from the Asian Development Bank (ADB) and other multilateral development partners. The Project forms part of the State Program on the Improvement of Transport Infrastructure in Baku City and Surrounding Areas (2025–2030) and aligns with the General Plan of Baku City (2020–2040). Phase I includes completion and equipment of Darnagul Depot (Green Line), construction and equipment of Khojasan Depot (Purple Line), and related preparatory and supervision services. AIIB's environmental screening classified Phase I as Category B, requiring an Environmental and Social Management Plan (ESMP) to ensure that construction and operation comply with AIIB's Environmental and Social Framework (ESF), Environmental and Social Policy (ESP), national environmental legislation, and Good International Industry Practice (GIIP).

2. Objectives

The primary objective of this assignment is to prepare, implement, and monitor the Environmental and Social Management Plan (ESMP) for Phase I of the BMEP. Specific objectives are to ensure compliance with AIIB's ESF, ADB's Safeguard Requirements, and Azerbaijani laws; identify, assess, and mitigate potential environmental and social (E&S) risks; define roles and monitoring mechanisms; and strengthen capacity of Baku Metro and contractors in E&S management.

3. Scope of Work

Task 1: Review of Existing Information

Review the E&S Screening Report, feasibility studies, engineering designs, and prior assessments. Assess compliance gaps against AIIB ESF, ADB requirements, and Azerbaijani regulations.

Task 2: Baseline Data Update

Conduct site visits to Darnagul and Khojasan Depots. Update environmental, social, and OHS baseline conditions including air, water, noise, biodiversity, labor, cultural heritage, and community health and safety.

Task 3: Risk and Impact Assessment

Identify construction- and operation-phase impacts on physical, biological, and socio-economic environments. Assess cumulative and legacy impacts (e.g., prior grave relocations at Darnagul, pending land acquisition at Khojasan).

Task 4: ESMP Preparation

Develop a detailed ESMP including mitigation measures, monitoring requirements, roles and responsibilities, contractor obligations, site-specific management subplans (waste, noise, OHS, traffic, chance finds, emergency response), and cost estimates.

Task 5: Stakeholder Engagement

Conduct consultations with affected communities, local authorities, and relevant agencies. Update and integrate findings into the Stakeholder Engagement Plan (SEP) and Grievance Redress Mechanism (GRM).

Task 6: Institutional Capacity Building

Assess Baku Metro's E&S capacity and propose training programs for PIU, contractors, and supervision consultants.

Task 7: Monitoring and Reporting

Develop an E&S Monitoring Plan with performance indicators, frequency, and reporting format. Support Baku Metro in quarterly reporting to AIIB and national authorities.

4. Deliverables

Deliverable	Content Summary	Timeline
Inception Report	Work plan, methodology, and data needs	2 weeks after contract signing
Draft ESMP	Findings, mitigation plan, monitoring program, cost, and institutional arrangements	6 weeks after inception approval
Stakeholder Consultation Report	Summary of engagement activities and feedback integration	Within 1 week after consultations
Final ESMP	Revised based on feedback from AIIB, Baku Metro, and stakeholders	2 weeks after receiving comments
Implementation Support	Training sessions, compliance monitoring, quarterly E&S reports	Throughout implementation

9. Implementation Arrangements

- Client: Baku Metropolitan CJSC Promoter.
- Ministry of Digital Development and Transport (MDDT) Financier.
- Asian Infrastructure Investment Bank (AIIB) Supervision.
- Project Implementation Unit (PIU) under Baku Metro

The Consultant will report to the PIU Environmental and Social Specialist and coordinate with the Engineering Consultant, Contractor, and AIIB Task Team.

6. Personnel Requirements

The Consultant team shall include: Team Leader/Senior E&S Specialist, Environmental Engineer, Social Development and Resettlement Specialist, OHS Expert, Stakeholder Engagement Specialist, and Climate Specialist. All experts must have proven experience in IFI-financed infrastructure projects.

7. Duration and Level of Effort

The assignment is expected to last six (6) months from contract signature, with continued support during the 18-month implementation period.

Annex 1: Template for Environmental and Social Management Plan (ESMP)

The ESMP report should include the following structure:

1. Executive Summary

2. Introduction (Project background, objectives, and scope)

3. Legal and Institutional Framework (National, AIIB, ADB)

4. Project Description (Location, components, activities)

5. Baseline Environmental and Social Conditions

6. Key Environmental and Social Risks and Impacts

7. Mitigation and Monitoring Plan (tabulated)

8. Institutional Arrangements and Responsibilities

9. Capacity Building and Training Plan

10. ESMP Implementation Schedule and Budget

11. Stakeholder Engagement and Grievance Mechanism

12. Reporting and Disclosure Arrangements

Annexes: Data, maps, consultation records, monitoring templates.

Annex 2: Incorporation of the Climate Risk Assessment
All ESMPs (contractor ESMPs, CESMPs, and facility-specific plans) shall integrate and implement the mitigation and monitoring measures derived from the Project's CRA and from ESIA climate recommendations. The ESMP shall convert climate adaptation measures into practical construction and operational controls, including specifications, monitoring thresholds, and emergency protocols. At a minimum, each ESMP must demonstrate:

- Flood and groundwater resilience measures for all stations, tunnel sections, portals, pumping systems, stormwater evacuation routes, and below-grade rooms, including:
    - design of retaining walls, impermeable membranes, and pumping redundancy,
    - sizing of drainage based on future rainfall projections,
    - flood-safe emergency exits and power systems.
- Heat and ventilation resilience measures for depots, maintenance workshops, substations, control rooms, and rolling stock maintenance, including:
    - heat-tolerant electrical equipment and transformers,
    - increased cooling capacity for HVAC systems,
    - operational rules to protect workers from heat stress (e.g., rest cycles, shaded workstations, PPE specification for high-temperature environments).
- O&M procedures to monitor climate hazards, including:
    - groundwater level tracking and alarms in pumping chambers,
    - maintenance protocols for drainage systems,
    - heatwave operational plans for workshop and tunnel work,
    - resilience-focused Emergency Preparedness and Response (EPR) triggers tied to rainfall and temperature thresholds.

Every ESMP must include a climate resilience budget, assigned responsibilities, and monitoring indicators consistent with AIIB requirements, Annex F Emergency Preparedness and Response Plans, and the CRA.

Vista Environment

Annex C: Audit and Assessment of Existing Stations Terms of Reference

Background

This Annex describes the scope of work of an Environmental and Social Assessment for a generic infrastructure project categorised B in accordance with AIIB's Environmental and Social Policy (ESP, 2019).

Project Description

The Project is part of a broader programme aiming to assist Baku City in reforming its management of public transport by financing the renewal of bus and metro systems, and network restructuring. The operation will improve the reliability, safety and efficiency of public transport in Baku. Full details of the Project are provided in the ToR.

It is understood that the Project may be subject to local environmental impact assessment (EIA) with associated public consultation and public disclosure in accordance with local/national legal and permitting requirements.

The Project is categorised "B" in accordance with the AIIB ESP. The Consultant will be required to confirm project categorization based on the analysis of additional information obtained through ESDD and FS. Should the sub-project be categorized as A and require development of the full international ESIA in line with AIIB ESP, this will be included into a separate ToR.

The Bank therefore wishes to engage a consultant (the "Consultant") to carry out an Environmental and Social (E&S) Assessment of both the Project and the Client's existing operations.

Applicable Requirements

The E&S Assessment is to be carried out in accordance with:

- Applicable local, national and regional requirements, including those related with environmental and social impact assessments;
- The AIIB's ESP (2019) (and the incorporated Performance Requirements (PRs));
- Relevant international conventions and protocols relating to environmental and social issues, as transposed into national legislation

Objectives of the E&S Assessment

The objective of this assignment is to undertake an Environmental and Social (E&S) Audit and forward-looking Assessment of the Project to: (i) identify gaps against Azerbaijani legislation, AIIB's ESP (2019), the Environmental and Social Exclusion List, and the IFC/World Bank Environmental, Health and Safety (EHS) Guidelines; (ii) assess legacy risks; and (iii) prepare a time-bound Environmental and Social Action Plan (ESAP).

The assessment process will be commensurate with, and proportional to, the potential impacts and issues of the Project and the Client's existing operations. The assessment will cover, in an integrated way, all relevant direct and indirect environmental and social impacts and issues of the

Client's operations, the Project and the relevant stages of the project cycle (e.g. pre-construction, construction, operation, and decommissioning or closure and reinstatement).

The Environmental and Social Assessment will also determine whether further studies are required, focusing on specific risks and impacts, such as asbestos removal, climate change, human rights and / or gender.

The Environmental and Social Audit is required to assess the Client's current operations in terms of compliance with national legislation, national or local permitting requirements, the relevant provisions of the AIIB Environmental and Social Policy (ESP, 2019) and Environmental and Social Standards (ESS 1–3). Further, the audit must review possible historical environmental and social issues, such as potential contamination of soil and/or groundwater, the use of asbestos lining in tunnels or land acquisition disputes.

Scope of Work

The Consultant will:

- Confirm Project categorization
- Identify existing and Project-related environmental and social impacts and risks;
- Describe and characterise a relevant environmental and social baseline commensurate with the risks posed by the current site operations and the Project;
- Develop a draft E&S Assessment report in accordance with the Bank's requirements as defined in the ESP, including a Compliance Summary table with the Bank's PRs;
- Prepare a draft ESAP and draft Non-Technical Summary (NTS);
- Identify if any additional studies will be required to cover relevant aspects in greater detail (eg. biodiversity, resettlement, retrenchment, gender, etc.). (Any such work will be commissioned under separate Terms of Reference); and,
- Finalise all documentation further to the AIIB, other lenders' (if involved) and Client's comments.

TASK 1: Review of Available Data and Site Visit

The Consultant will review the following studies and baseline data available from the Client:

- Identify and assess relevant regional and strategic environmental and social assessments or studies that affect the Project. Where regional or strategic assessments or studies are identified and assessed, these will be included in the summary of due diligence undertaken, including the NTS.
- Complete a media search about the Project, Client, sector, country, etc. to determine the extent to which there has been relevant news coverage and, if so, whether any of the issues will require additional verification during the initial review and site visit. If no relevant issues are identified through this process the Consultant will include a statement to this effect within its results.

Data and documentation are in English and Azerbaijan This list is not exhaustive and the Consultant must be prepared to review, and also request, further documentation that does not appear above.

Following the review of available data, the Consultant will visit the site, to obtain any supplemental information needed to complete the E&S Assessment and carry out the on-site activities necessary to fulfil the E&S Audit reporting requirements.

Following completion of the data review and site visit the Consultant will deliver a summary of key findings.

TASK 2A: Environmental and Social Assessment

Environmental and Social Assessment

Project Description and Associated Facilities

The Consultant will prepare a description of the Project, including details of alternatives considered, the scope of rehabilitation and modernization at the 10 existing metro stations, and any associated facilities. In line with AIIB's ESP (2019) and Environmental and Social Standard (ESS) 1, the Consultant will also identify:

- Relevant associated activities or facilities that, while not part of the Project, may be directly or indirectly influenced by it or could pose risks to the Project.
- Cumulative impacts in combination with other past, present, or reasonably foreseeable developments.
- Unplanned but predictable activities enabled by the Project at later stages or different locations.
- Environmental and social risks linked to primary supply chains essential to the Project's operations.

Analysis of Legal and Institutional Requirements

The Consultant will identify applicable national and local environmental and social laws, regulations, and permitting requirements, including obligations under international conventions. These will be benchmarked against AIIB's ESP (2019) and its three ESS (ESS 1–3). The analysis will be presented as a gap analysis in tabular format, structured by AIIB requirements.

- For land acquisition and resettlement, the Consultant will confirm whether Resettlement Plans (RPs) or a Land Acquisition and Resettlement Policy Framework (LARPF) exist, assess their consistency with AIIB ESS 2, and identify corrective actions.
- For Indigenous Peoples, the Consultant will confirm applicability of AIIB ESS 3.
- The Consultant will review the compliance status of the Project with all relevant permits and authorizations.

Baseline Environmental and Social Conditions

The Assessment will summarize the physical, biological, and socio-economic environment in the Project's area of influence, drawing on available ESIA and screening data. This will cover:

- Physical environment (air quality, soils/groundwater, hydrology, noise and vibration).
- Biological environment (biodiversity, habitats, protected areas if relevant).
- Socio-economic environment (land use, cultural heritage, labor conditions, vulnerable groups, gender aspects, and community health and safety).

The baseline will describe inter-relationships, vulnerabilities, and resilience to natural and human-induced hazards.

Assessment of Potential Risks, Impacts, and Opportunities

The Consultant will assess the likely environmental and social risks and impacts of the Project, as well as potential benefits. The analysis will:

- Cover all phases of the Project: pre-construction, construction, operation/maintenance, and eventual closure or decommissioning.
- Identify adverse impacts (e.g., dust, noise, vibration, waste, worker influx, traffic safety, OHS, land acquisition/legacy issues) and beneficial impacts (e.g., improved accessibility, safety, air quality).
- Consider cumulative and residual impacts where applicable.
- Be commensurate with the magnitude and significance of the identified issues.

Management of Impacts and Issues

For each adverse impact or risk, the Consultant will propose feasible measures to avoid, minimize, mitigate, or compensate. Recommendations will align with Good International Industry Practice (GIIP) and be integrated into the draft ESAP.

AIIB ESP Compliance Assessment

The Consultant will prepare a compliance table benchmarking the Project against AIIB's ESP (2019) and ESSs, identifying gaps, and specifying corrective actions. This table will form the basis for the ESAP.

TASK 2B: Environmental and Social Audit

The Consultant will conduct an E&S Audit of the existing metro stations to identify legacy issues and assess the extent to which current operations align with national laws, AIIB's ESP (2019), and applicable ESSs. The Audit will:

- Review the Project's compliance with environmental permits, licenses, and authorizations, including reporting and monitoring obligations.
- Assess land acquisition and resettlement processes already undertaken, identify any outstanding grievances or unresolved cases, and determine alignment with ESS 2.
- Evaluate the organizational capacity of the Project entity, including staffing, roles, and procedures for managing environmental, social, labour, and OHS risks.
- Review the management of hazardous materials, including storage and disposal of fuels, oils, lubricants, asbestos, and other substances that may pose risks to workers, communities, or the environment.
- Review accident and incident records, including rates of industrial disease and injuries, and assess OHS procedures, emergency preparedness measures, and worker training.
- Assess labour and working conditions, including contracts, grievance management systems, non-discrimination, and protection against child and forced labour, with attention to gender and GBVH.
- Review supply chain risks, including procurement practices and whether supplier screening and monitoring address risks of child labour, forced labour, unsafe working conditions, and environmental non-compliance.

- Review past liabilities and unresolved legacy issues, such as historical contamination, unsafe infrastructure, or other environmental or social risks associated with previous activities at the stations.
- Assess public responsiveness, including how past grievances have been received and managed, the effectiveness of community engagement, and the visibility and accessibility of grievance mechanisms for affected stakeholders.
- Review community health and safety issues associated with past or ongoing operations, including traffic safety, access, and exposure to noise, dust, or vibration.
- Review of energy usage and energy efficiency.

The Audit will identify non-compliances, gaps, and legacy risks, and recommend corrective measures to be incorporated into the ESAP.

TASK 3: Reporting

Upon completion of Tasks 1 and 2, the Consultant shall prepare the following reports of the assessment findings.

Summary of Key Findings

Following the data review and site visit, the Consultant will deliver a Summary of Key Findings to present the initial issues identified. This report will summarize key risks and gaps and, where necessary, highlight the need for any additional studies (e.g., resettlement, livelihood, retrenchment, biodiversity, cultural heritage). The document may be delivered by email or in presentation format.

E&S Audit and Assessment Report

The Consultant will provide a concise but comprehensive report of the overall E&S Audit and Assessment.

Environmental and Social Action Plan (ESAP)

The Consultant shall prepare a project-specific ESAP to address issues identified during the Audit and Assessment. The ESAP will:

- Focus on measures needed to bring the operations into compliance with AIIB ESP/ESS requirements.
- Be presented in a matrix format, sequenced by priority, with each action numbered, clearly defined, time-bound, and assigned to a responsible party.
- Identify those actions that must be completed prior to financial close, where relevant.
- Include criteria for closure/verification of each action.
- Note any material budget implications (to be shared with the Client but not necessarily disclosed).

Where applicable, the Consultant will review existing corporate-level ESAPs previously developed with the Client and update them with project-specific action items. The ESAP will remain a concise document, with any supporting detail included in referenced sub-plans.

Non-Technical Summary (NTS)

The Consultant will prepare, in consultation with the Client, a concise, over-arching, standalone NTS. The NTS will be written in non-technical language and the Consultant will ensure that the NTS

can be used to demonstrate compliance with the AIIB requirements and provide confirmation that the documents are ready for public disclosure.

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APPENDIX 1

SAMPLE REPORT FORMAT FOR AN E&S AUDIT AND ASSESSMENT REPORT

Note: The following is an indicative list of issues for possible inclusion in an E&S Audit and Assessment report. The Consultant is expected to use its professional judgement to determine what issues (either listed below or additional) are relevant to the Project. Issues which are not relevant to this project should be covered by a short statement that they have been considered but do not apply in this case.

Executive Summary

A concise summary description of the Project, its rationale, the existing operations and overall setting, significant environmental and social impacts, recommended mitigation and enhancement measures, monitoring proposals, and the extent of the Client's commitment to these recommendations and proposals.

1 | Project Description

Precise description of the Project within its geographical, environmental and socio-economic context. This should include information on whether and how the Project is part of a wider development plan/programme. A systematic comparison of feasible alternatives to the project in terms of location, project technology or design in terms of potential environmental and social impacts. This should include the 'do-nothing' option.

2 | Legal Requirements

Outline of the policy, legal, and administrative framework relevant to the Project, summarising applicable national and local environmental and social requirements, as well as international obligations adopted by the host country. The section should also identify applicable requirements of the AIIB ESP (2019) and outline the process and timeframe for public consultation, project appraisal, and implementation.

- Applicable AIIB ESP (2019).
- Host country regulatory framework, including permitting processes.
- Relevant regional and international treaties and conventions.
- Approach to benchmarking:

3 | Baseline Conditions

A description of relevant aspects of the physical and natural environment and socio-economic conditions in areas affected by the existing operations and the Project to include, inter alia:

- Air emissions and noise
- Biological and ecological resources (fauna, flora, biodiversity, protected species, critical habitats, ecosystems)
- Climatic factors and climate change (e.g. greenhouse gas emissions, including from land use, land use change and forestry, and sectors of population more affected by climate change)

- Cultural heritage, including architectural and archaeological heritage
- Energy usage
- Geomorphology and geology;
- Land (past and current use, permanent or temporary acquisition)
- Land use patterns
- Landscape and visual aspects; and,
- Material assets
- Mitigation potential and impacts relevant to adaptation;
- Other social issues: community, settlement patterns and residential properties, vulnerable groups
- Public and / or site specific transportation system
- Socio-economic status of the population (disaggregated by gender, age, ethnicity, and other social characteristics)
- Soil (organic matter, erosion, compaction, sealing)
- Stakeholder engagement practices
- Supply chain
- Water (accessibility, quantity and quality, surface and groundwater) and waste water management;
- Worker and public health and safety

4 | Potential Impacts

Identification of the potential environmental and social impacts that could be associated with the existing operations and the Project, including those of an indirect and cumulative nature. Impacts which are unlikely to arise or be insignificant should be recorded, together with the rationale for why they are considered to be unlikely or insignificant. Potential impacts must be considered at the following levels:

- Local impacts
- National impacts
- Regional/Global impacts

5 | Characterisation of Impacts and Opportunities

Identification and characterisation of positive and negative environmental and social impacts in terms of magnitude, significance, reversibility, extent and duration. The possibility for cumulative impacts is to be considered. Quantitative data must be employed to the greatest extent possible. The chapter should also identify opportunities for environmental and social enhancement and identify key uncertainties and data gaps. Both the existing operations and the following Project stages must be considered in this evaluation where appropriate:

- Construction phase
- Operation and maintenance
- Closure and decommissioning
- Residual environmental and social impact

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6 | Management of Impacts and Issues

An outline of the feasible cost-effective measures to avoid, minimise, mitigate or compensate for environmental and social impacts to acceptable levels and address other environmental and social issues; such as the need for worker health and safety improvements, inter-agency coordination, community involvement, institutional strengthening or training within the executing agency/ governmental agencies/Client or at the community level. Additionally, an outline of any measures that would enhance environmental and social aspects within the area affected by the Project and the existing operations and characterisation of the nature of any residual environmental and social impacts or issues that have not been addressed. A description of the financial provisions for potential risks (for example escrow accounts and insurance cover to provide for inter alia abandonment and decommissioning, site remediation and oil spills and other emergencies). Both the existing operations and the following Project stages must be considered where appropriate:

- Construction
- Implementation and maintenance
- Closure and decommissioning
- Residual environmental and social impacts

7 | Monitoring and Supervision

A description of how environmental and social impacts and issues will be monitored and managed in practice; including an indication of how the Project will be supervised by lenders and governmental agencies. Estimates should be provided for capital expenditure and operation and maintenance costs where possible. The following stages must be considered where appropriate:

- Construction
- Implementation and maintenance
- Closure and decommissioning

8 | Mitigation and Management Plan

A record of all measures required to address environmental and social impacts and issues as well as monitoring and supervisory activities associated with these should be consolidated in tabular form. This should also indicate institutional responsibilities, timeframes and associated costs.

Appendices

- Names of those responsible for preparing the E&S Assessment
- References and sources of information
- Records of public meetings and consultations held
- Supporting technical data
- AIIB Compliance Summary Table

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Annex E: CESMP Template

1. Introduction & Purpose

This Construction Environmental & Social Management Plan (CESMP) sets out the Contractor's systems, procedures and site-specific controls to avoid, minimize, mitigate and monitor environmental and social risks and impacts for the Works. It translates the requirements of the Project ESMP/ESIA, the ESMPF, AIIB ESF/ESSs, applicable Azerbaijani laws and permits into actionable site measures. This CESMP must be approved by the Engineer prior to the Contractor taking possession of any work site.

Scope: [Brief summary of contract scope, work locations, construction methodology, interfaces].

2. Project & Site Description

Provide a concise description and attach up-to-date site layout drawings. Include:

- Site locations and access routes
- Work fronts, laydown areas, batching plants, spoil stockpiles, fuel/chemical storage
- Sensitive receptors (residences, schools, hospitals, heritage sites, water bodies, utilities)
- Work schedule (phasing/seasonality) and workforce (peak numbers, camps if any)

3. Legal and Other Requirements

Summarize applicable national legislation and permits; reference the AIIB ESF/ESS1 and Good International Industry Practice (e.g., IFC EHS Guidelines). Maintain a permits/consents register.

Permit / Consent	Authority	Reference/ID	Conditions	Status	Target Date	Responsible
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

4. E&S Management Structure, Roles & Responsibilities

Provide an organization chart and role descriptions. Minimum site E&S staffing to include Environmental Manager, OHS Manager, Community Liaison/Stakeholder Engagement focal point, Archaeological Monitor (as required).

Role	Name	Qualifications/Training	Phone/Email	Key Responsibilities
[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]

Interface & Approval: The Engineer will review and approve the CESMP (and updates at least every six months) and will conduct routine supervision and audits. The PIU will oversee compliance.

5. Activity–Aspect–Impact Register & Risk Assessment

Identify construction activities, their E&S aspects, receptors and risks; assign significance ratings and controls.

Activity	Aspect	Impact/Receiver	Risk Rating (Pre-mitigation)	Control/Mitigation	Residual Risk	Responsible
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

6. Management Programs & Sub-Plans

Develop concise sub-plans proportionate to risks. Cross-reference drawings, method statements and checklists.

6.1 Air Quality & Dust Control (stockpiles, dampening, covers, plant maintenance, complaints response)

6.2 Noise & Vibration Management (limits, monitoring, time-of-day restrictions, building/utility condition surveys)

6.3 Water & Wastewater Management (surface/groundwater protection, dewatering, sediment control, discharge monitoring)

6.4 Soil, Erosion & Sediment Control (topsoil, stabilization, runoff control)

6.5 Waste & Spoil Management (segregation, storage, transfer notes, spoil routes & approved disposal sites)

6.6 Hazardous Materials, Fuel & Spill Prevention (bunding, SDS, handling, spill kits & response)

6.7 Biodiversity & Vegetation (clearing controls, no-go areas, nesting seasons)

6.8 Cultural Heritage Management & Chance Finds Procedure (site screening, monitoring, stop-work, notify authorities)

6.9 Traffic & Road Safety (TMP, signage, flaggers, haul routes, public transport interface)

6.10 Community Health & Safety (barriers, lighting, vector control, SEA/SH prevention & Code of Conduct)

6.11 Occupational Health & Safety (risk assessments/JHAs, PTW, PPE, lifting, confined space, emergency response)

6.12 Labor Management & Worker Grievance (align with LMP; worker onboarding, GM access, workers' accommodation if any)

6.13 Stakeholder Engagement & Grievance (align with SEP; site notice boards, grievance log & response timelines)

6.14 Emergency Preparedness & Response (scenarios, drills, contacts, spill/incident escalation)

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6.15 Materials, Supply Chain & Resource Efficiency (sourcing, quarries/borrow, water/energy use, GHG)

6.16 Site Establishment & Demobilization (restoration, waste clearance, asset handover)

7. Monitoring Plan

Define measurable parameters, locations, frequency, methods, thresholds and actions. Include calibration and QA/QC.

Topic/Parameter	Location	Method/Standard	Frequency	Trigger/Threshold	Action if Exceeded	Responsible	Record/Report
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

8. Inspections, Audits & Corrective Actions

- Contractor: weekly E&S inspections using CESMP-based checklists; monthly internal audits.
- Engineer: routine supervision (at least monthly) and reviews; non-compliance notices and agreed corrective action plans (CAPs).
- PIU/AIIB: periodic monitoring missions.

Maintain an issues/CAP register:

Date	Source (Inspection/Audit)	Non-compliance/Observation	Required Action	Due Date	Owner	Status/Closure Evidence
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

9. Incident & Accident Management

Immediate notification and initial report to Engineer/PIU; investigate root causes; implement corrective actions; track to closure. Maintain an incident register.

Date/Time	Type/Severity	Description & Location	Immediate Actions	Root Cause	Corrective/Preventive Actions	Notified To	Closed (Y/N)
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

10. Training & Competency

Provide induction, toolbox talks and role-specific training (e.g., OHS/CHS, vibration monitoring, cultural heritage, spoil management, grievance handling, reporting). Keep a training matrix.

Training Topic	Target Personnel	Trainer	Duration	Schedule	Records/Assessment
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

11. Reporting

- Monthly E&S report to Engineer (inspections, monitoring data, incidents, grievances, training, CAP status).
- Ad hoc reporting of serious incidents/spills within 24 hours.
- Quarterly summary to PIU as requested.

12. Stakeholder Engagement & Grievance Mechanism

Implement the Project SEP on site. Maintain a grievance log and ensure accessible channels for communities and workers; acknowledge, assess and close grievances within defined timeframes.

Grievance ID	Date	Complainant (anonymize)	Issue Summary	Category/Severity	Actions Taken	Resolution Date	Status
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

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13. Document Control & Records

Maintain controlled copies of the CESMP, sub-plans, permits, method statements, risk assessments, checklists, monitoring data, incident reports, training records and communications. Include a version/change log.

Doc/Record	ID/Version	Owner	Location	Retention Period	Notes
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

14. Budget & Resources

Provide itemized budget for CESMP implementation (monitoring, PPE, training, specialist staff, heritage monitoring, lab analysis, community engagement, emergency equipment).

Appendices (to be attached by Contractor)

A. Approved site layout drawings (with E&S controls annotated)

B. Method statements and JHAs for key high-risk activities

C. Permits/consents and correspondence

D. Monitoring forms and calibration certificates

E. Traffic Management Plan

F. Chance Finds Procedure and Cultural Heritage Method Statement

G. Emergency Response Plan (including contacts)

H. Waste & Spoil transport/disposal approvals and manifests

I. Training materials and attendance records

J. Worker Code of Conduct (including SEA/SH provisions)

K. Subcontractor E&S requirements and oversight plan

L. Demobilization/rehabilitation plan

Annex F: Project Specific OHS Requirements

With regards to OHS/CHS deliverables, the minimum ESIA content is summarized below:

1. Legal and standards alignment: Azerbaijan OHS law; Metro CJSC OHS policy; lender policy (AIIB ESP); and applicable fire/life safety codes for rail and underground systems (or locally adopted equivalents). Identify gaps and propose bridging measures.

2. Hazard identification and risk assessment: task- and system-based HIRAs for stations, and tunnels (construction and operation), including confined space, PTW-controlled activities, excavation, lifting, electrical, crowd safety, fire and smoke, PWD access, and traffic interface.

3. Design-stage safety (Safety-in-Design): demonstrate how layout, materials, systems (ventilation, detection, egress, wayfinding, platform interface protection) reduce risk at source.

4. Management plans (to be appended to ESMP):

- Construction OHS Plan (per package; site specific).
- Confined Space Entry Plan (gas monitoring, ventilation, comms, rescue, drills).
- Excavation Safety Plan (shoring, access/egress, dewatering, plant stand-off).
- Lifting Plan (registers, maintenance, critical lifts).
- Electrical Safety and LOTO Procedure (including arc flash).
- Traffic Management Plan (stations/surface works; pedestrian protection and TMP implementation records such as driver training logs, signage/barrier installation records, inspection checklists, and complaints/incident logs).
- Fire and Life Safety Strategy (construction and operation interfaces; drills).
- Fatigue Management Procedure
- CHS Plan (public protection, accessibility, crowd management).

5. Emergency preparedness and response: integrated with the Ministry of Emergency Situations; package-specific drill schedule (tabletop, partial, full-scale).

6. Contractor management: pre-qualification criteria, onboarding, audits, performance KPIs, stop-work authority, NCR and close-out process.

7. Monitoring and reporting: leading/lagging indicators; audit cadence; incident classification; root cause analysis and lessons learned.

Training and competence: role-based matrix (e.g., confined space entrants/attendants/rescue, TBM operations, LOTO, hot-work, working at height, lifting operations).

Annex G: Project Specific Cultural Heritage Requirements

G.1 Green Line Expansion

The following specific requirements are needed for the Green Line Expansion works and should be fully developed as part of the ESIA:

- Preconstruction studies to identify, document, and assess cultural heritage resources along metro lines and at stations.
- Stakeholder engagement with affected communities/site users, the MoCT, and IoAE to develop culturally sensitive and legally compliant cultural heritage management plans.
- Structural integrity assessments of built and living heritage structures near lines and stations to evaluate vibration tolerances/thresholds, vibration monitoring during construction and operation, and potential structure repairs or upgrades to prevent vibration damage.
- Chance Finds Procedure including construction monitoring by professional archaeologists.

- Construction scheduling, in consultation with stakeholders, to avoid impacts to living heritage resources during peak periods of use. Noise reduction, air quality controls, visual screening to address impacts to resource settings.

G.2 Chance Find Procedures

The Chance Finds Procedure (CFP) defines the process that governs the management of any cultural heritage resources encountered unexpectedly during Project construction or operation (i.e., chance finds). The objectives of the CFP are to:

- Define the procedures to be followed to ensure appropriate management of chance finds, while also minimizing disruption to the construction schedule;
- Provide a consistent approach to chance find management to streamline Project team acceptance of and compliance with the CFP; and
- Align Project activities with relevant provisions of the Law and the relevant lender standards.

The CFP will be implemented by the Contractors during construction of the metro tunnels and metro stations, but Baku Metro CJSC is ultimately accountable for its implementation.

Active and Pass Cultural heritage resources Monitoring

The CFP will utilize two types of monitoring to identify archaeological chance finds: active and passive construction monitoring. Active monitoring will be performed by a professional archaeologist who observe/watch construction activities with the sole purpose of identifying previously undiscovered archaeological resources, if present, within Project work areas.

Passive construction monitoring refers to construction monitoring performed by non-cultural heritage specialists during their day-to-day activities. Passive construction monitoring relies on Project staff and subcontractors being aware of the potential for cultural heritage to be present in their work area, the types of resources that may be present, and an understanding of the stop work and reporting protocols of this CFP. In support of the passive monitoring program, the primary Contractor is responsible for providing cultural heritage awareness training to all Project personnel and subcontractors.

Cultural Heritage Awareness Training

The Contractor will develop cultural heritage awareness training materials, including training specific to the identification of chance finds and the implementation of the CFP, for all onsite project staff. The goal of the training will be to develop a basic understanding of the types and characteristics of archaeological resources that could be encountered during construction activities; the stop work, site protection, and reporting procedures in the CFP; and increase awareness of the importance of cultural heritage resources to local, national, and international stakeholders.

Training materials will be developed by a cultural heritage specialist and reviewed and approved by the Baku Metro CJSC and Ministry of Culture and Tourism (MoCT) to ensure they accurately reflect the CFP and Azerbaijan regulatory requirements. Cultural heritage awareness training will be provided to all Project personnel and subcontractors with the potential to encounter cultural heritage resources during their day-to-day activities as part of the standard Project induction training.

Archaeological Monitors

The Contractor will employ qualified archaeologists to observe all ground-disturbing construction activities, ensuring that at least one archaeologist is present at each tunnel excavation or boring site while a single archaeologist may monitor multiple station locations.

The archaeological monitors will meet the following professional qualifications:

- Advanced degree (Master of Arts [MA] or equivalent) in the archaeology and/or anthropology of Azerbaijan or the larger Caucasus region;
- A minimum of five (5) years of experience directing archaeological investigations;
- A minimum of two (2) years of experience supervising/monitoring construction works;
- Professional experience consulting with national government regulatory agencies, ministries, and/or departments.
- The ability to communicate in Azeri.

Tiered Approach to Chance Finds

The CFP will implement a two-tiered strategy for identifying, documenting, evaluating, and reporting chance finds. This approach aims to minimize the impact on resources and timelines associated with addressing chance finds while ensuring compliance with the Law and relevant lender standards.

To prevent significant Project delays and to reduce the consultation burden, the CFP defines two chance finds tiers with different reporting, documentation, and consultation requirements:

- **Minor Chance Finds:** archaeological resources that have limited or no cultural or scientific value to local, national, or international stakeholders such as isolated/individual or small scatters of archaeological materials not associated with an archaeological site.
- **Significant Chance Finds:** archaeological materials that have significant cultural and/or scientific value to local, national, or international stakeholders such as intact, complex archaeological sites.

Under the CFP, the archaeological monitors will be empowered by the MoCT, as the principle cultural heritage regulator in Azerbaijan, and the Institute of Archaeology and Ethnography (IoAE), the institution responsible for managing archaeological resources, to address minor chance finds through infield documentation and removal without consultations or a site visit by representatives from the IoAE and MoCT.

If the archaeological monitor(s) determines that a find is a Significant Find, all work will be stopped in the vicinity of the find and the Contractor and Baku Metro will consult with the IoAE and MoCT to develop and implement a treatment plan to avoid, minimize, and/or mitigate Project impacts to the Significant Find.

The following section provides step-by-step Chance Finds protocols for minor and significant chance finds.

Chance Finds Procedure

The following steps will be followed whenever a potential chance find is identified during Project construction or operation.

1. **Stop Work** - In the case of a potential chance find, Contractor or subcontractor staff will stop all work in the vicinity of the find.
2. **Initial Notification** - Construction supervisors, field personnel, and staff will be notified of the stop work. If the archaeological monitor is not already present, they will be notified of the potential chance find within two (2) hours of discovery.
3. **Demarcation and Site Protection** – Contractor will cordon off an area around the potential chance find, with a minimum buffer of 15 m, and the area will be established as a no-go area / total protection zone to secure the find and prevent disturbance. Further measures will be

taken to protect the potential chance find, including the installation of warning tape, fencing, and/or avoidance signs, as necessary.

4. **Document Find** – The archaeological monitor will document the potential chance find using narrative notes, digital photography, GPS coordinates, and hand drawn or digital maps, as appropriate.
5. **Evaluation** – The archaeological monitor will perform a preliminary evaluation to determine whether the find is cultural heritage resource and, if so, whether it is a minor or significant chance find. The monitor will also assess whether it is isolated or part of a larger site or feature. The evaluation will result in one of the following outcomes:
    a. If the find is not cultural, the archaeological monitor will authorize the removal of site protection measures and activity can resume.
    b. If it is a minor chance find, the cultural heritage monitor will document and, if movable, collect the find and then authorize the removal of site protection measures and construction activity can resume.
    c. If it is a significant chance find or human remains, the archaeological monitor will work with the construction team to install protective measures around the find and, if possible, develop a plan to allow construction works to proceed around the find buffer.
6. **Notification of Authorities** – Significant chance finds, and human remains require notification of relevant government authorities.
    a. If the find is determined to be a significant chance find, the archaeological monitor will notify the IoAE and MoCT within twenty-four (24) hours of evaluating the find.
    b. If the find is determined to include human remains, the archaeological monitor will immediately notify the Contractor, who will in turn notify local law enforcement and relevant village or religious leadership to alert the community of the find (to respect sociocultural and faith-based traditions).
7. **Chance Find Report** – The type and timing of reporting depends on the results of the chance finds assessment performed by archaeological monitor:
    a. If the find is determined to be a minor chance find, the monitor will document the find in the field, collect the find, if possible, and allow construction to continue, and provide the IoAE and MoCT with a summary report of the find within five (5) days. All collected materials will be transferred to the IoAE along with the summary report.
    b. If the find is determined to be a significant chance find work will be suspended around the find and the monitor will provide the IoAE and MoCT with a summary report of the find within forty-eight (48) hours.
8. **IoAE and MoCT Response**- After receiving notification of a significant chance find, the IoAE and MoCT will determine within twenty-four (24) hours of notification if they will send a representative to conduct a site visit to assess the find. If the IoAE and MoCT determine whether a site visit is necessary, the site visit will occur within forty-eight (48) hours of notification. Costs for transportation and additional expenses will be incurred by the Contractor.
9. **Treatment Plan** – For Significant Chance Finds, the archaeological monitor will prepare a report that includes recommendations for the treatment of the find (i.e., treatment plan). If the IoAE and MoCT choose to conduct a visit the site, the treatment plan will be developed in

consultation with the IoAE and MoCT representatives during the site visit. Options to be considered in the treatment plan include the following:

a. **Avoidance:** This option minimizes the impact to the resource through partial Project redesign or relocation of Project components. This is the preferred option from a cultural heritage management perspective and aligns with international standards.

b. **In-situ Protection or Management**: This option includes the application of site protection measures, such as fencing or barricades, or capping the site area with fill during construction followed by the removal of all protective measures after construction activities are complete.

c. **Surface Collection**: For archaeological resources, if a site is assessed as having limited salvage excavation potential but contains significant surface archaeological items, those surface finds may be mapped and collected by archaeologists from the IoAE.

d. **Archaeological Evaluation:** For archaeological resources, if the archaeological monitor and IoAE and MoCT representatives cannot determine, based on available information, whether the site requires a salvage excavation, they may recommend conducting an archaeological evaluation of the site. Archaeological evaluation typically consists of the excavation of small number of intrusive test units/pits to assess the stratigraphic integrity of the site. Any archaeological evaluations must be performed under the supervision and guidance of IoAE archaeologists.

e. **Rescue Excavation:** If a significant archaeological resource is encountered and the Project cannot sufficiently avoid or minimize impacts, the IoAE and MoCT may require a more extensive archaeological excavation. Rescue excavations consist of the controlled excavation and documentation of the portion of an archaeological site that will be impacted by a project by a team of trained/qualified archaeologists from the IoAE.

10. **Treatment Plan Review:** The IoAE and MoCT will review the treatment plan for the significant chance find and will provide comments/revisions or approve the plan within five (5) days of receiving it. The archaeological monitor will revise the plant to address comments from the DoA and resubmit the plan within two (2) days of receiving comments.

11. **Treatment Plan Implementation:** Upon receiving approval from the IoAE and MoCT, the archaeological monitor will implement the treatment plan with the support of experts from the IoAE. While treatment is ongoing, the archaeological monitor will coordinate with on-site personnel to keep them informed as to the status and schedule of investigations and when construction may resume.

12. **Resume Work:** After the treatment plan is complete, the IoAE and MoCT will provide the Project with written approval to resume construction activities. After receiving approval, construction activity will be allowed to resume at the chance find location.

Management of Chance Finds – Human Remains

If skeletal remains / bones are discovered, the CFP detailed above will apply. The archaeological monitor will attempt to identify whether the skeletal remains / bones are human remains. If they are determined to be human remains, the Contractor will immediately notify the IoAE, MoCT, and local police authorities. Construction activities will not resume until all legal requirements and the reasonable requests from local communities and stakeholders have been adequately addressed.

Record Keeping

The archaeological monitors at construction sites will maintain chance finds documentation and the treatment plans records which will include the following:

- Weekly reports summarizing chance finds identified, assessments and evaluations, internal and external communications and instructions, and supporting photographic documentation (or other reference materials as appropriate);
- Monthly reports summarizing monitoring and evaluation results, the status of any site treatment measures, and other internal and external communications;
- Technical reports detailing the results of any treatment plans implemented to address chance finds; and
- Any additional reports prepared to fulfil specific requirements of the IoAE and MoCT.

The weekly and monthly chance finds procedure reports will be submitted to the IoAE and MoCT for review and comment in lieu of formal technical reports. Technical reports will be submitted to the IoAE and MoCT for any treatment plans implemented to resolve chance finds.

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Annex H: Project Specific Spoil Disposal Requirements

1. Objectives

To ensure that spoil (excavated soil, rock, and construction waste) and tunnel dewatering activities during metro construction are conducted in full compliance with national environmental legislation, AIIB's Environmental and Social Framework (ESF), and Good International Industry Practice (GIIP). These requirements aim to minimize impacts on soil, water, and air quality; prevent pollution of surface and groundwater; and ensure safe handling, transport, reuse, and disposal of spoil materials.

2. Key Definitions

Spoil: All excavated material (rock, soil, sediment, tunnel muck) generated from tunnelling, shafts, and station construction.

Spoil Disposal Area (SDA): A designated and approved site for temporary or permanent deposition of spoil, approved by the Ministry of Ecology and Natural Resources (MENR).

Tunnel Dewatering: The process of removing groundwater and infiltrated water from tunnelling works to ensure dry and stable working conditions.

Water Treatment Unit (WTU): A temporary or mobile treatment plant for removing suspended solids, oil, grease, and potential contaminants from dewatered water prior to discharge.

3. Spoil Material Management Requirements

As part of the ESIA, the following items will be developed:

3.1 Spoil Management Plan (SMP)

The plan must include: volume estimates, spoil classification, reuse options, storage yard details, transport routes, disposal sites, and record-keeping systems. The plan will include sections relating to:

Spoil Characterization

- Conduct geotechnical and contamination testing prior to excavation (pH, heavy metals, hydrocarbons, sulfate/sulfide). Classify spoil as Category A (clean/inert), Category B (potentially contaminated), or Category C (contaminated).

Temporary Storage and Handling

- Storage areas must be ≥100 m from water bodies, with impermeable base, storm drains, and dust control measures. Spoil piles shall be covered, perimeter bunded, and equipped with silt traps and wheel-washing facilities.

Transport and Disposal

- Trucks must have covered loads, sealed gates, and follow approved haul routes between 07:00–19:00. Spoil must be disposed only at MENR-approved licensed facilities, with manifests and disposal receipts.

Reuse and Recycling

- Inert spoil should be reused for backfilling, landscaping, or subgrade. Contaminated spoil shall not be reused without MENR clearance.

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10. Tunnel Dewatering Management Requirements

As part of the ESIA, the following items will be developed:

4.1 Dewatering Plan

A Tunnel Dewatering and Water Management Plan (TDWMP) shall be prepared. It must include hydrogeological assessment, predicted discharge rates, treatment system design, discharge location, and monitoring program. The plan will include the following requirements:

Treatment Requirements

- All tunnel water must be treated before discharge or reuse using sedimentation tanks, oil-water separators, and filtration. Typical discharge limits: TSS ≤ 50 mg/L, Oil & Grease ≤ 10 mg/L, pH 6–9, Metals ≤ 0.5 mg/L, Temperature ≤ 3°C above ambient.

Discharge and Reuse

- Preference is for reuse of treated water for dust suppression or construction use. If discharged, MENR and municipal permits are required. Flow meters and sampling points shall be installed at discharge outlets.

Monitoring and Reporting

- Daily inspections of inflow/outflow, weekly sampling of TSS, oil/grease, pH, and monthly lab analysis for metals and hydrocarbons. Maintain a dewatering logbook and report exceedances to PIU within 24 hours.

Emergency and Contingency Measures

- Include automatic shut-off valves, secondary containment, spill kits, and immediate notification to PIU and MENR for any uncontrolled discharge.

The plan will also include the requirement to maintain daily spoil and dewatering logs, weekly inspection reports with photos, monthly compliance summaries, and final closure report.

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Annex I: Generic ESMP Template for Depots

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Environmental and Social Mitigation Plan – Design Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Cost
Natural Hazards	Seismic shaking (all sites)	• Design to national code/Eurocode 8.	• Signed structural calculations. • Design Review.	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
	Flooding / water intrusion at Darnegul depot	• Set finished floor levels above 1-in-100-year flood + climate allowance. • Site grading with drains to oil–water-separated outfalls. • Sump pits with duty/standby pumps and auto controls. • Deployable flood barriers at doors. • Backup power to pumps.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
	Shrink–swell soils / ground settlement at Khojasan	• Adopt deep foundations or ground improvement (e.g., stone columns/CFA piles)	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
	Windstorm stress on envelopes/roofs	• Design cladding/roof to site wind speeds per code.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).

Vista Environment

Environmental and Social Mitigation Plan – Design Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Cost
Air Quality	Combustion emissions from space/water heaters and depot vehicles (NOx, CO, PM)	• Prioritize electric equipment (heat pumps, electric forklifts). • Specify high-efficiency, low-NOx sealed-combustion heaters where unavoidable.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
	Paint/solvent VOCs and odors from finishing/cleaning operations	• Enclosed paint/solvent rooms with dedicated mechanical ventilation. • Segregated solvent storage (fire-rated cabinets) with spill containment.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
	Particulate/dust from sanding, grinding, and housekeeping (PM10/PM2.5)	• Dust collection/vacuum systems at sanding/grinding stations. • Sealed waste chutes/containers.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
Water Resources	Oily wastewater from vehicle washing and maintenance entering sewer or environment	• Oil–water separators sized to peak flows with bypass. • Wash-water recycling loop. • Closed-loop parts washers.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).

Environmental and Social Mitigation Plan – Design Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Cost
	Sanitary wastewater overloading or cross-connection risks	• Separate sanitary and industrial drainage networks. • Capacity check against municipal sewer. • Provide holding tank contingency where required.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
	Groundwater intrusion in pits/tunnels/sumps (esp. Darnegul)	• Waterproofing systems (membranes, waterstops). • Sump pits with duty/standby pumps.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
	Potable water supply reliability and high consumption	• Dual feeds or storage for critical uses. • Smart meters and sub-metering. • Greywater reuse for flushing/irrigation.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
Soil and Geology	Corrosion of buried steel/pipes/cable trays due to aggressive soils	• Specify coatings, wraps, and cathodic protection where needed. • Use corrosion-resistant materials.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).

Environmental and Social Mitigation Plan – Design Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Cost
	Differential settlement/subsidence (notably at Khojasan)	• Ground improvement or deep foundations. • Slab reinforcement/jointing to accommodate movement.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
Noise	Continuous operational plant noise (HVAC, compressors, pumps) impacting receptors.	• Set maximum sound power/pressure levels in equipment specs. • Acoustic enclosures/liners provided around all noisy equipment. • Silencers on fans. • Locate noisy plant away from boundaries.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
	Intermittent high noise (alarms, PA tests)	• Specify adjustable alarm/PA levels.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
Flora	Tree removal	• Update tree inventory. • Obtain permits for tree cutting. • Transplant where feasible. • Prepare compensatory planting plan with native/drought-tolerant species.	• Inventory • Permits	• DDC (prepare inventory). • PIU to obtain permits. • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).

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Environmental and Social Mitigation Plan – Design Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Cost
Resource Use and Energy Efficiency	High energy consumption of HVAC/lighting/process loads	• High-efficiency HVAC (heat pumps/VRF) installed. • LED lighting installed with controls (occupancy/daylight).	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
	Reliance on grid power without on-site generation or resilience.	• Rooftop PV with battery storage where feasible. • Backup generator for life-safety and critical loads.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	CAPEX for PV/storage/generator; OPEX savings from PV.
	Excess potable water consumption for non-potable uses	• Rainwater and greywater systems installed for flushing/irrigation. • Metering installed. • Low-flow fixtures and leak detection.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).
Waste Management	Mixed storage of recyclable and general waste leading to poor segregation	Design dedicated, roofed segregation area with color-coded bins.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).

Environmental and Social Mitigation Plan – Design Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Cost
	Improper storage of hazardous wastes (used oil, filters, solvents, batteries)	• Hazardous storage room with ventilation and secondary containment. • Bunded used-oil tanks. • Battery cabinets. • Eyewash/shower provision.	Items included in Detailed Design	• DDC (prepare design). • PIU/ Engineer (review and approval).	At detailed design	Included in design BOQ (no separate line item).

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Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
Natural Hazards	Seismic event during construction causing instability of partially completed structures	• Temporary bracing/shoring to seismic loads. • Emergency stop-work and muster procedures after seismic events. • Seismic toolbox talks and drills.	• Daily bracing inspections. • Procedures in place. • Training records.	• Contractor (OHSS) to implement • Engineer/PIU to monitor	• daily inspections. • monthly emergency drills.	Included as part of general construction costs.
	Flooding/water ingress on site damaging works and polluting runoff.	• Perimeter diversion drains/berms installed. • Temporary sumps with duty/standby pumps in place. • Sandbags/deployable barriers at openings. • Dewatering via sediment control per permit.	• No damaged sites recorded. • No incidents of polluted run-off.	• Contractor to implement. • Engineer/PIU to monitor	• Set up prior to rainy periods. • Inspect daily and after ≥10 mm rainfall.	Included as part of general construction costs.
	High-wind events affecting cranes, formwork, and cladding installation.	• Wind thresholds and stop-work criteria developed. • Tie-downs provided for formwork/scaffolds. • Crane wind monitoring. • Secure loose materials during windy periods.	• Weather/wind logs. • Inspection records.	• Contractor to implement. • Engineer/PIU to monitor	Daily checks when winds forecast.	Included as part of general construction costs.
	Heatwaves/cold snaps causing worker H&S risks and material performance issues	• Prepare thermal stress plan (shade, hydration, shift timing). • Provide insulated storage for temperature-sensitive materials.	• Weather-based work-rest schedules.	• Contractor to implement. • Engineer/PIU to monitor	Daily during extreme conditions.	Included as part of general construction costs.

Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
Air Quality	Dust (PM10/PM2.5) from earthworks & haul roads.	• Prepare pollution prevention plan as part of CESMP. • Water/mist suppression via water bowsers. • Cover stockpiles and trucks. • Provision of wheel wash at site entrance. • Earthwork operation will be suspended when the wind speed exceeds 20 km/h in areas.	• Plan implemented. • Daily dust visual checks. • Water truck logs. • Complaints register. • PM spot measurements during high-risk activities.	• Contractor to implement. • Engineer/PIU to monitor	• Daily (dry/windy periods). • PM checks as triggered after complaints.	Included as part of general construction costs. Hand held PM monitor – 1,000 USD per unit, one for each depot.
	Exhaust emissions (NOx/CO/PM/black smoke) from diesel plant and generators	• No-idling policy. • Routine maintenance of vehicles. • Provision of stage/Euro-compliant equipment. • Use low-sulfur fuel. • Provide correctly sized gensets with load sharing.	• Fuel and maintenance records. • Visible smoke observations.	• Contractor to implement. • Engineer/PIU to monitor	• Daily supervision. • Weekly records review.	Included as part of general construction costs.
	VOCs from paints/solvents, adhesives and cleaning agents during finishing works	• Use low-VOC products. • Store solvents in ventilated, fire-rated cabinets.	• Material submittals (low-VOC). • Ventilation operation logs • Storage inspection checklists.	• Contractor to implement. • Engineer/PIU to monitor	Per delivery/submittal; daily checks during works.	Included as part of general construction costs.

Vista Environment

Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
	Fumes from welding/cutting/soldering in workshops	Provide fume extraction arms/hoods in workshops.	• Extraction equipment checks.	• Contractor to implement. • Engineer/PIU to monitor	Daily during hot works; weekly verification.	Included as part of general construction costs.
	Open burning of waste materials	No burning of debris or other materials will occur on the at any camp or construction site.	• Complaints register.	• Contractor to implement. • Engineer/PIU to monitor	• Daily supervision.	Included as part of general construction costs.
Water Resources	Sediment-laden stormwater runoff from earthworks entering drains/watercourses	• Prepare Pollution Prevention Plan as part of CESMP. • Stabilize stockpiles (cover). • Wheel-wash at exits. • Phase works to minimize exposed areas.	• Plan implemented. • Photos of controls. • Turbidity checks after rain.	• Contractor to implement. • Engineer/PIU to monitor	inspect weekly and after ≥10 mm rain; maintain as needed.	Included as part of general construction costs.

	Oils/fuels/chemicals spills contaminating soil and drains	• Designate refueling/ maintenance on impermeable, bunded areas. • Spill kits provided at risk points. • Drip trays under parked plant. • Train staff on spill response. • Fueling operations will occur only within containment areas. • All fuel and chemical storage (if any) will be sited on an impervious base within a bund and secured by fencing. The storage area will be located away from any watercourse or wetlands. The base and bund walls will be impermeable and of sufficient capacity to contain 110% of the volume of tanks. • Filling and refueling will be strictly controlled and subject to formal procedures and will take place within areas surrounded by bunds to contain spills / leaks of	Spill register. Toolbox talk records Inspection of bunds/drip trays. Evidence of kit replenishment and waste disposal manifests.	• Contractor to implement. • Engineer/PIU to monitor	• Daily visual checks. • Formal weekly inspection.	Included as part of general construction costs.

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Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
		potentially contaminating liquids. • All valves and trigger guns will be resistant to unauthorized interference and vandalism and be turned off and securely locked when not in use. • The contents of any tank or drum will be clearly marked. Measures will be taken to ensure that no contaminated discharges enter any drain or watercourses. • Disposal of lubricating oil and other potentially hazardous liquids onto the ground or water bodies will be prohibited.				

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Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
		Should any accidental spills occur immediate cleanup will be undertaken and all cleanup materials stored in a secure area for disposal. Disposal of such will be undertaken by a waste management company contracted by the Contractor. The waste management company must have the required licenses to transport and dispose of hazardous waste before any such waste is removed from the site. The Contractor will keep copies of the company's licenses and provide waste transfer manifests at his camp site for routine inspection by the ISWS.				
	Concrete washout water entering soil/drainage (high pH)	Provide lined, contained washout pits or tanks. Prohibit washout on bare ground. Haul to licensed facility for disposal.	Washout locations marked on site plan. Inspection records Spot pH checks of residual water prior to removal.	• Contractor to implement. • Engineer/PIU to monitor	• Set-up before concreting. • Inspect daily during pours • After heavy rain events.	Included as part of general construction costs.

Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
	Dewatering discharge causing erosion or pollutant release	Pass dewatering flows through sediment tanks. Discharge to sewer as permitted.	Permit/approval records.	• Contractor to implement. • Engineer/PIU to monitor	• Daily during dewatering. • After heavy rain.	Included as part of general construction costs.

Noise	Construction Noise	• All exhaust systems will be maintained in good working order. • Properly designed engine enclosures and intake silencers will be employed. • Regular equipment maintenance will be undertaken. • No long-term generators of significant noise will be allowed that are located within 50 meters of sensitive receptors or the site boundary unless shielded by boundary wall directly. • Operations will be scheduled to coincide with periods when people would least likely be affected. • Work hours and workdays will be limited to less noise-sensitive times. • Hours-of-work will be approved by the Engineer having due regard for possible noise disturbance to the residents or other activities.	• Noise monitoring logs vs. project standard limits • Equipment maintenance records • Barrier installation. • Complaints register closed out.	• Contractor to implement. • Engineer/PIU to monitor	Baseline before works; weekly spot checks; continuous/attended monitoring during high-noise activities.	Included as part of general construction costs.

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Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost

		• Construction activities will be strictly prohibited between 10 PM and 6 AM.
		• Public notification of construction operations will incorporate noise considerations.
		• Stationary equipment will be:
		  ○ placed as far from sensitive land uses as practical and selected to minimize objectionable noise impacts.
		  ○ Provided with shielding mechanisms where possible.				

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Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
Vibration	Ground-borne vibration from compaction, piling, and demolition affecting structures/receptors	• Select low-vibration methods (static rollers, bored piles). • Pre-condition surveys of nearby structures. • Set PPV limits in alignment with project standards. • Install vibration monitors with alarms at any residential receptor within 20m of the work area during heavy works on this area, e.g. piling.	• Pre/post-condition survey records. • PPV monitoring data. • exceedance/stop-work logs. • method statements referencing limits.	• Contractor to implement. • Engineer/PIU to monitor	Continuous/attended monitoring during high-vibration tasks.	Included as part of general construction costs.
Flora	Damage to retained trees/vegetation at Darnegul from machinery and storage	• Prepare tree protection plan. • Erect tree protection fencing. • Hand-dig near roots. • Appoint arborist for any pruning/relocation.	• Tree protection plan implemented • Arborist reports for any interventions.	• Contractor to implement. • Engineer/PIU to monitor	Install before mobilization; inspect weekly.	Included as part of general construction costs. 1,500 USD for aborist.
	Failure of new plantings due to inadequate watering/ establishment care	• Implement establishment irrigation schedule. • Protect with mulch and windbreaks • Replace failed stock during defects liability period.	Watering logs. Plant survival counts.	• Contractor to implement. • Engineer/PIU to monitor	• Weekly during planting season. • Monthly during establishment.	Included as part of general construction costs.

Vista Environment

Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
Community Health and Safety	Traffic disruption and increased crash risk around depot gates and along approach roads.	• Prepare, submit, and implement a site-specific Traffic Management Plan (TMP) covering gate layouts, haul routes, delivery windows, lane closures, diversions, signage, lighting, barriers, flaggers, and speed limits; keep a copy on site.	• Approved TMP on file • site set-up matches TMP • toolbox records on TMP • no. of traffic incidents/near-misses = 0/month.	• Contractor to implement. • Engineer/PIU to monitor	• TMP approved before start of works. • Implementation monitored daily. • Reviewed monthly or after any incident.	Included as part of general construction costs.
	Access around gates	• Maintain safe temporary vehicle and pedestrian access at all times • Provide marshals at peaks • Prohibit truck queuing on public roads • Keep gate sightlines clear; coordinate with tenants/owners for any short closures and provide alternative access.	• complaints related to access = 0 substantiated/month.	• Contractor to implement. • Engineer/PIU to monitor	• Continuous during working hours • Weekly reporting	Included as part of general construction costs.
	Pedestrian safety risks near site perimeters, especially at shift changes and delivery peaks.	• Install robust perimeter fencing around gates. • Guarded gates. • Provide trained flaggers during deliveries. • Maintain lighting to ≥20 lux at access points.	• Fencing and delineation in place and maintained. • Flaggers present during deliveries.	• Contractor to implement. • Engineer/PIU to monitor	• Daily checks.	Included as part of general construction costs.

Vista Environment

Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
	Unsafe speeds of construction traffic near sensitive receptors.	• Impose and enforce max speed 30 km/h within 300 m of site access.	• Speed spot-checks (handheld)	• Contractor to implement. • Engineer/PIU to monitor	• Weekly speed checks	Included as part of general construction costs.
OHS	Accidents and injuries due to multiple contractors on site	• Require all contractors to prepare site-specific OHS plans aligned with international standards. • Enforce PPE • Ensure inductions and toolbox talks	• Number of approved OHS plans • % workers inducted • PPE compliance rate	• Contractor to implement. • Engineer/PIU to monitor	• Monthly reporting • Weekly spot checks	Included as part of general construction costs.
	Unsafe excavations (collapse, falls, machinery near edges)	• Provide safe access/egress, shoring, barricading, dewatering, spoil management • Daily excavation inspections	• Inspection checklists • umber of NCRs • Excavation safety audit findings	• Contractor to implement. • Engineer/PIU to monitor	• Daily inspections	Included as part of general construction costs.
	Working at height and fall risks	• Install scaffolds, guard rails, fall arrest systems • Use PTW system per LMP. • Worker training per LMP.	• % scaffolds with valid inspection tags • Number of PTWs • Incident records	• Contractor to implement. • Engineer/PIU to monitor	• Weekly inspections	Included as part of general construction costs.

Vista Environment

Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
	Electrical hazards during construction	• Apply lock-out/tag-out procedures and electrical PTW. • Test equipment • Provide insulated tools and PPE	• % workers trained; records of equipment testing • number of PTWs • Number of electrical incidents	• Contractor to implement. • Engineer/PIU to monitor	• Monthly	Included as part of general construction costs.
	Unsafe lifting operations and crane use	• Certified lifting equipment • Lifting plans for heavy loads. • Exclusion zones provided.	• Inspection reports • lifting permits • Incident/near-miss records	• Contractor to implement. • Engineer/PIU to monitor	• Weekly inspections	Included as part of general construction costs.
	Confined space entry risks (tunnels, shafts, tanks)	• Permit-to-work system in place. • Gas tests • Ventilation provided.	• Number of PTWs issued • gas test records.	• Contractor to implement. • Engineer/PIU to monitor	• For every entry • monthly audits	Included as part of general construction costs.
	Worker health and hygiene (sanitation, welfare facilities)	• Provide clean drinking water, toilets, washing facilities, shaded rest areas	• Number of facilities per workers • inspection records • Worker grievances	• Contractor to implement. • Engineer/PIU to monitor	• Monthly	Included as part of general construction costs.

Vista Environment

Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
Cultural Heritage	Non-compliance with articles 4 and 14 of the Law on Protection of the Historical and Cultural Monuments of the Republic of Azerbaijan	• Consultations with the Ministry of Culture and Tourism (MoCT) and Institute of Archaeology and Ethnography (IoAE)	• Correspondence from MoCT and IoAE documenting compliance	• PIU	• Once	Part of project management costs
	Damage/destruction of archaeological resources	• Archaeological monitoring and Chance Finds Procedure	• Archaeological monitoring logs and Chance Finds Procedure reports	• Contractor to implement. • Engineer/PIU to monitor	• Daily monitoring and chance finds response;	Included as part of general construction costs.
	Visual, auditory, and air quality impacts to cemetery adjacent to Darnagul Depot area	• Stakeholder engagement to develop culturally relevant and sensitive measures to avoid, minimize, and/or mitigate noise, air quality, and visual impacts such as construction scheduling, vegetative screening, dust management, etc.	• Stakeholder engagement plan; treatment plan; regular stakeholder engagement reports; Grievance Mechanism records	• Contractor to implement. • Engineer/PIU to monitor	• Monthly stakeholder engagement meetings; daily implementation of noise, visual, and air quality management measures.	Included as part of general construction costs.
Resource Use and Energy Efficiency	Excess fuel/energy use by idling equipment and inefficient temporary power	• No-idling policy followed • Use hybrid/electric plant where feasible.	• Fuel logs toolbox talks on energy efficiency.	• Contractor to implement. • Engineer/PIU to monitor	• Daily supervision • weekly fuel/energy review.	Included as part of general construction costs.

Vista Environment

Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
	High potable water use for dust suppression and curing	• Use non-potable sources where permitted (harvested rain/treated water). • Optimize application of dampening water.	• Water use logs.	• Contractor to implement. • Engineer/PIU to monitor	• Daily during dry/windy periods	Included as part of general construction costs.
Waste Management	Poor segregation of construction and demolition (C&D) waste	• Provide labeled skips for metal, wood, concrete, general waste; lay out internal collection points • Train workers in waste management requirements.	• Daily housekeeping checklists. • waste transfer notes	• Contractor to implement. • Engineer/PIU to monitor	• Daily inspections • monthly reporting.	Included as part of general construction costs.
	Hazardous waste (oily rags, filters, solvent containers) mishandled	• Store in bunded, ventilated, locked area • Use sealed containers. • Dispose via licensed operator.	• Inventory and manifest records. • storage inspection logs.	• Contractor to implement. • Engineer/PIU to monitor	• Weekly inspections	Included as part of general construction costs.

Vista Environment

Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
	Recycling and re-use	• Prepare and implement a Waste Management & Recycling Plan that maximizes reuse/recycling (wood, plastic, metals, glass), explores on-site concrete crushing for fill where practical. • Where possible, surplus materials will be reused or recycled. • Used oil and grease will be removed from site and sold to an approved used oil recycling company. • Contractor shall segregate all waste (domestic, construction, hazardous, recyclable). Implement a recycling/reuse plan (wood, asphalt, concrete, metal).	• Plan prepared • Recycling manifests • Records of recycled material volumes.	• Contractor to implement. • Engineer/PIU to monitor	Weekly inspections	Included as part of general construction costs.

Vista Environment

Environmental and Social Mitigation Plan – Construction Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Mitigation Cost
	Inert Solid & Liquid waste	• Provide refuse containers at each worksite. • Maintain all construction sites in a cleaner, tidy and safe condition. • Waste storage containers will be covered, tip-proof, weatherproof and scavenger proof. • Train and instruct all personnel in waste management practices and procedures. • Collect and transport non-hazardous wastes to all approved disposal sites.	• Containers in place and being used. • No waste scattered across the site. • Training records.	• Contractor to implement. • Engineer/PIU to monitor	Weekly inspections	Included as part of general construction costs.

Vista Environment

Environmental and Social Mitigation Plan – Operational Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Cost
Natural Hazards	Earthquake affecting buildings and rolling stock facilities	Maintain seismic restraints on MEP and storage racks; keep evacuation routes clear; conduct annual earthquake drills; post-event inspection and restart protocol.	Annual restraint inspection logs; drill records; post-event inspection checklists.	Baku Metro	Annual inspections/drills; after any felt event per SOP.	Part of general O&M costs.
	Site flooding/water intrusion (e.g., Darnegul) disrupting operations	Maintain pumps and flood barriers; keep drains clear; pre-storm deployment checklist; protect critical spares/equipment above flood level.	Pump runtime/alarm logs; drain cleaning records; pre/post-storm checklists; incident reports.	Baku Metro	Monthly maintenance; pre-storm checks; after rain events.	Part of general O&M costs.
	Windstorms damaging roofing/cladding and outdoor equipment	Routine inspection of fasteners/flashing; secure outdoor items; wind action plan for securing doors/vents; rapid post-storm assessment.	Inspection logs; inventory of tie-downs; post-storm inspection records; repair work orders.	Baku Metro	Quarterly checks; pre/post-storm as needed.	Part of general O&M costs.
	Ground movement/settlement (esp. Khojasan) affecting slabs and tracks	Read settlement markers; maintain drainage to prevent softening; initiate remedial grouting/repairs when thresholds exceeded.	Settlement readings; drainage maintenance records; repair closeout reports.	Baku Metro	Quarterly readings; annual survey; after extreme weather.	Part of general O&M costs.

Vista Environment

Environmental and Social Mitigation Plan – Operational Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Cost
Air Quality	Combustion emissions from standby boilers/heaters and depot vehicles in enclosed areas	Prioritize electric equipment; interlock CO sensors with ventilation; maintain flues and ensure stack heights; prohibit idling indoors.	CO sensor calibration logs; ventilation runtime; maintenance records; incident/complaint logs.	Baku Metro	Monthly sensor checks; quarterly maintenance; annual compliance review.	Part of general O&M costs.
	VOCs from paints/solvents used in routine maintenance	Use low-VOC products; operate spray booth/local exhaust; maintain storage cabinets; train staff on handling per SDS.	Inventory of low-VOC products; booth maintenance logs; storage inspection records; training certificates.	Baku Metro	Monthly inspections; annual training refreshers.	Part of general O&M costs.
	Particulate/dust from sanding, grinding, housekeeping in maintenance areas	Operate dust collection/central vacuum; keep surfaces cleanable; schedule housekeeping; replace filters per OEM.	Filter replacement logs; housekeeping records; PM spot checks; complaints register.	Baku Metro	Daily housekeeping; monthly system checks; quarterly PM checks.	Part of general O&M costs.
Water Resources	Oily wastewater from routine vehicle washing/maintenance exceeding discharge limits	Operate and maintain oil–water separators and filters per O&M; keep wash-water recycling system active; prohibit detergents that defeat separation; maintain spill kits near wash bays.	Monthly separator inspection & sludge removal log; effluent testing results vs. permit; recycling system runtime/flow logs; spill register.	Baku Metro	Weekly visual checks; monthly maintenance; quarterly/biannual effluent sampling per permit.	Part of general O&M costs.

Vista Environment

Environmental and Social Mitigation Plan – Operational Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Cost
	Groundwater/sump infiltration leading to uncontrolled discharge	Keep sump pumps in duty/standby service with functional alarms; test automatic start and backup power; maintain waterproofing patches.	Pump runtime logs; alarm test records; generator/UPS test sheets; leak inspection reports.	Baku Metro	Weekly visual; monthly functional tests; annual full emergency drill.	Part of general O&M costs.
	High potable water consumption and supply interruptions	Track sub-metered use and set reduction targets; maintain low-flow fixtures; operate rain/greywater systems; adjust irrigation scheduling to weather.	Monthly water balance with KPI vs. baseline; fixture maintenance records; cistern levels and reuse system runtime logs.	Baku Metro	Monthly KPI review; seasonal irrigation adjustments; annual performance report.	Part of general O&M costs.
Soils and Geology	Soil contamination from leaks (fuels, oils, chemicals) during operations	Maintain bunded storage; inspect refueling/maintenance areas; use drip trays and spill response; train staff and enforce SOPs.	Monthly storage inspection checklists; spill/cleanup logs; staff training records.	Baku Metro	Daily housekeeping; monthly inspections; immediate reporting upon spills.	Part of general O&M costs.
	Settlement affecting slabs, tracks, and buried utilities (especially Khojasan)	Read settlement monitoring points; inspect cracks/joints; plan corrective grouting or slab repairs if thresholds exceeded.	Instrumentation readings; crack/joint survey; maintenance work orders and closeouts.	Baku Metro	Quarterly readings (or after extreme events); annual condition survey.	Part of general O&M costs.

Vista Environment

Environmental and Social Mitigation Plan – Operational Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Cost
Noise	Fixed plant (HVAC, compressors, fans) exceeding boundary noise limits	Preventive maintenance of silencers/enclosures; replace worn bearings/fans; manage operating schedules; keep doors of plant rooms closed.	Boundary/operator noise measurements vs. limits; maintenance logs; complaints register.	Baku Metro	Quarterly spot measurements; continuous monitoring where installed; annual audit.	Part of general O&M costs.
	Public address (PA)/alarms causing nuisance during tests or incidents	Keep PA levels/zoning calibrated; schedule tests in permitted hours; provide public notices when needed.	PA calibration records; test schedules; complaint log follow-up.	Baku Metro	Monthly functional checks; biannual calibration; per-incident review.	Part of general O&M costs.
Vibration	Machinery/track-induced vibration affecting occupants/sensitive rooms	Maintain isolation mounts and pads; balance rotating equipment; inspect trackform/resilient elements; enforce speed limits in sensitive zones.	Vibration readings vs. criteria; maintenance records of mounts/balancing; track inspection reports.	Baku Metro	Quarterly checks for key equipment; after maintenance; annual vibration survey.	Part of general O&M costs.
Health and Safety	Passenger safety risks (fire, evacuation, crowding)	Maintain fire detection/ suppression systems; conduct evacuation drills; ensure signage and PA systems	% functioning fire alarms / extinguishers; drill records; evacuation times	Baku Metro	Quarterly drills; annual full-scale	Part of general O&M costs.
	Accessibility for PWDs	Keep lifts/ escalators operational; maintain SOS phones; provide safe devices for wheelchair access	Functionality test records; number of complaints	Baku Metro	Monthly inspections	Part of general O&M costs.
	Passenger injury risks on escalators and platforms	Maintain escalators; install warning signage; provide trained staff at peak times	Escalator maintenance records; incident statistics	Baku Metro	Monthly	Part of general O&M costs.

Vista Environment

Environmental and Social Mitigation Plan – Operational Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Cost
	Worker OHS risks in operations and maintenance	Apply PTW, LOTO, confined space entry procedures; refresher training	Number of PTWs; % trained staff; audit findings	Baku Metro	Ongoing; quarterly audits	Part of general O&M costs.
	Confined space hazards in maintenance (pits, tunnels, tanks)	Strict PTW system; continuous air monitoring; ventilation; rescue plan and equipment	PTW records; air monitoring results; drills conducted	Baku Metro	Each entry; annual drills	Part of general O&M costs.
Cultural Heritage	Visual, auditory, and air quality impacts to cemetery adjacent to Darnagul Depot area	• Stakeholder engagement to develop culturally relevant and sensitive measures to avoid, minimize, and/or mitigate noise, air quality, and visual impacts, noise reduction (see above), vegetative screening, dust management, etc.	• Operation Phase Treatment Plan; regular stakeholder engagement reports; Grievance Mechanism records	• Baku Metro	• Annual stakeholder engagement meetings; daily implementation of noise, visual, and air quality management measures.	Part of general O&M costs.
Resource Use and Energy Efficiency	Excess potable water use for sanitation/cleaning	• Maintain low-flow fixtures. • monitor leaks. • Use reclaimed water where available. Optimize cleaning schedules and methods.	• Water sub-meter readings. records of reclaimed water usage.	• Baku Metro	• Monthly audits	Part of general O&M costs.
Waste Management	Poor segregation and low recycling rates for operational wastes	• Maintain clearly labeled, color-coded bins. • Staff training/awareness provided.	• Volume of recycled waste,	• Baku Metro	• Monthly audits • Annual training	Part of general O&M costs.

Vista Environment

Environmental and Social Mitigation Plan – Operational Phase						
Topic	Risk/Impact	Mitigation Measure	Monitoring Indicator	Responsibility	Frequency	Cost
	Hazardous waste (oils, batteries, solvents) mishandled during routine operations	• Keep hazardous store ventilated and locked. • Maintain secondary containment. labeling per MSDS, • Licensed collection and manifests.	• All waste stored in correct location	• Baku Metro	• Monthly audits	Part of general O&M costs.

Vista Environment

Annex J: Generic ESMP for Tunnels and Stations

Activity / Source	Potential Environmental & Social Impact	Mitigation Measures	Monitoring Indicator	Responsibility	Frequency	Estimated Cost (USD)
Construction						
Site preparation, utility relocation, and fencing	Dust emissions, noise, community disturbance, temporary access restrictions	• Water unpaved surfaces and haul roads. • Install acoustic barriers near sensitive receptors. • Maintain safe pedestrian access routes and signage. • Restrict work hours near residences. • Notify local communities in advance of any closures.	Dust levels (visual), noise readings (dB), community complaints	Contractor / PIU E&S Team / Engineer	Weekly and as required	Included in Contractor's CESMP budget
Tunnel excavation using TBM	Ground settlement, vibration damage to structures, spoil generation, groundwater inflow, occupational hazards	• Conduct pre-construction building condition surveys. • Implement real-time vibration and settlement monitoring. • Control groundwater inflow using grouting/dewatering. • Manage spoil to designated licensed disposal areas. • Enforce strict OHS procedures for confined space and pressurised environments.	Settlement readings (mm), vibration (mm/s), spoil disposal records, TBM log sheets, OHS incident reports	Contractor / Engineer / PIU E&S Team	Continuous during excavation	Part of tunnelling package cost
Station box excavation and structural works	Noise, vibration, dewatering discharge, potential contamination of runoff, safety risks to workers and nearby residents	• Apply noise enclosures on pumps and compressors. • Treat dewatering effluent to meet MENR discharge standards. • Implement sediment traps and oil separators. • Ensure fencing, lighting, and safe access around station boxes. • Continuous supervision by safety officers.	Water quality (TSS, pH, oil), noise monitoring reports, inspection records	Contractor / Engineer / MENR (as required)	Weekly / Monthly	Included in construction contract

Activity / Source	Potential Environmental & Social Impact	Mitigation Measures	Monitoring Indicator	Responsibility	Frequency	Estimated Cost (USD)
Spoil transport and disposal	Air pollution, spillage, traffic congestion, community safety risks	• Cover trucks with tarpaulins. • Clean wheels before exit. • Use defined haul routes and timing to avoid peak hours. • Dispose only at MENR-approved sites. • Maintain haul route signage and safety marshals.	Truck cover compliance, route monitoring, disposal receipts	Contractor / PIU	Daily / Weekly	Included in CESMP
Material storage and handling	Hazardous material leakage, soil and water contamination	• Store fuels, lubricants, and chemicals on impervious surfaces with secondary containment. • Maintain MSDS for all chemicals. • Train workers on spill prevention and emergency response. • Provide spill kits and fire extinguishers at storage areas.	Inspection checklist, spill log, training records	Contractor / Engineer	Monthly and after any incident	Included in CESMP
Labour management and OHS	Injuries, unsafe work practices, GBVH, inadequate worker accommodation	• Implement Labour Management Plan (LMP) and Worker Code of Conduct. • Conduct regular toolbox talks and safety inductions. • Ensure PPE use and first-aid availability. • Establish Worker Grievance Mechanism (WGM).	Accident/incident records, PPE compliance, training attendance	Contractor / PIU	Continuous	Included in OHS management cost
Cultural Heritage	Physical damage or destruction of archaeological resources and built heritage during ground disturbing activities; Construction and operation phase vibrations damaging built and living	Preconstruction studies to identify, document, and assess cultural heritage resources along metro lines and at stations; Stakeholder engagement with affected communities/site users, the MoCT, and IoAE to develop culturally sensitive and legally compliant cultural heritage management plans;	Site records Consultation documents	Contractor / PIU	Throughout works	Included in CESMP

Activity / Source	Potential Environmental & Social Impact	Mitigation Measures	Monitoring Indicator	Responsibility	Frequency	Estimated Cost (USD)
	heritage structures and registered monuments; Temporary or permanent changes to setting (noise levels, viewsheds, etc.) of built heritage and living heritage resources; Increased noise, dust, and emissions and road closures temporarily interfering with stakeholder access or use of sites;	Structural integrity assessments of built and living heritage structures near lines and stations to evaluate vibration tolerances/thresholds, vibration monitoring during construction and operation, and potential structure repairs or upgrades to prevent vibration damage; Chance Finds Procedure including construction monitoring by professional archaeologists; Construction scheduling, in consultation with stakeholders, to avoid impacts to living heritage resources during peak periods of use. Noise reduction, air quality controls, visual screening to address impacts to resource settings.				
O&M						
Station operation and passenger services	Noise, vibration, waste generation, crowding, minor safety risks	• Maintain ventilation and noise control systems. • Regularly clean stations and manage waste. • Maintain CCTV, emergency exits, signage, and lighting. • Conduct periodic emergency drills.	Noise levels, waste disposal logs, maintenance and drill reports	Baku Metro O&M / PIU E&S Team	Quarterly	O&M budget
Tunnel and track maintenance	Worker exposure to confined spaces, vibration, and electrical hazards	• Enforce Lock-Out/Tag-Out (LOTO) procedures. • Conduct ventilation and gas testing prior to entry. • Provide PPE, rescue equipment, and emergency communication systems.	Maintenance logs, OHS inspection reports, PPE inventory	Baku Metro Maintenance Division / HSE	Monthly	Maintenance budget

Activity / Source	Potential Environmental & Social Impact	Mitigation Measures	Monitoring Indicator	Responsibility	Frequency	Estimated Cost (USD)
Station utilities and drainage systems	Water pollution due to improper wastewater management	• Maintain oil-water separators and sump pumps. • Periodically inspect drainage and water treatment systems. • Dispose of sludge via licensed contractors.	Effluent test results, inspection reports, disposal records	Baku Metro Facilities / MENR (as required)	Semi-annual	O&M budget
Ventilation shafts and air handling units	Air quality issues, noise, fire risks	• Maintain filters and fans. • Inspect fire dampers and alarms. • Maintain access control for safety.	Inspection and maintenance reports, air quality data	Baku Metro Engineering / PIU	Quarterly	O&M budget
Emergency and safety management	Fire, electrical, or evacuation failures	• Maintain updated Emergency Response Plan. • Conduct annual joint drills with MES. • Train station and train staff regularly.	Emergency drill records, inspection reports	Baku Metro / MES / PIU	Annual	O&M budget