Environmental and Social Impact Assessment (ESIA)

300 MW/600 MWh Zarafshan BESS Project in Uzbekistan

REV-3

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ABREVIATION AND ACRONYMS

Acronym	Definition
AAC	Approximate Allowable Concentrations
AC	Alternating Current
ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
AoI	Area of Influence
BESS	Battery Energy Storage System(s)
BMP	Biodiversity Management Plan
BMS	Battery Management System
BSSA	Battery Storage Service Agreement
CBD	Convention on Biological Diversity
CBO	Community-Based Organization
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COD	Commercial Operation Date
DC	Direct Current
DEM	Digital Elevation Model
E&S	Environmental and Social
EBRD	European Bank for Reconstruction and Development
EHS	Environmental, Health, and Safety
EIA	Environmental Impact Assessment
EMC	Electromagnetic compatibility
EMF	Electric and Magnetic Fields / Electromagnetic Field(s)
EMI	Electromagnetic interference
EMS	Energy Management System
EPC	Engineering, Procurement, and Construction
EPRP	Emergency Preparedness and Response Plan
ESAP	Environmental and Social Action Plan
ESEL	Environmental and Social Exclusion List
ESF	Environmental and Social Framework
ESHS	Environmental, Social, Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental and Social Management and Monitoring Plan
ESMP	Environmental and Social Management Plan
ESP	Environmental and Social Policy
ESR	Environmental and Social Requirement
ESS	Environmental and Social Standard(s)
EU	European Union
FGD	Focus Group Discussion(s)
GBV/SEAH	Gender-Based Violence / Sexual Exploitation, Abuse, and Harassment
GBVH	Gender-Based Violence and Harassment
GDP	Gross Domestic Product
GIIP	Good International Industry Practice
GIP	Good International Practice

GIS	Geographic Information System
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GoU	Government of Uzbekistan
HSE	Health, Safety and Environment
HSSE-MS	Health, Safety, Security, and Environment Management System
HVAC	Heating, Ventilation and Air Conditioning
IBA	Important Bird Area(s)
IBAT	Integrated Biodiversity Assessment Tool
IEA	International Energy Agency
IEC	International Electrotechnical Commission
IEC/TR	International Electrotechnical Commission Technical Report
IEEE	Institute of Electrical and Electronics Engineers
IFC	International Finance Corporation
IFI	International Financing Institution(s)
ILO	International Labor Organization
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Area(s)
KPI	Key Performance Indicator(s)
LADA	Land Degradation Assessment in Drylands
LOTO	Lock Out/Tag Out
LWCMP	Labor and Working Conditions Management Plan
MoE	Ministry of Energy
MoM	Minutes of Meeting
MS	Management System
MSDS	Material Safety Data Sheet
NEGU	JSC National Electric Grid of Uzbekistan
NFPA	National Fire Protection Association
NGO	Non-Governmental Organization(s)
NMMC	Navoi Mining and Metallurgical Company
NTS	Non-Technical Summary
O&M	Operation and Maintenance
OEM	Original Equipment Manufacturer
OHS	Occupational Health and Safety
OHSP	Occupational Health and Safety Plan
OHTL	Overhead Transmission Line(s)
OSHA	Occupational Safety and Health Administration
OVOS	Otsenka Vliyaniya na Okruzhayushchuyu Sredu
PCB	Polychlorinated Biphenyl(s)
PCS	Power Conversion System / Power Conversion Station
POP	Persistent Organic Pollutant(s)
PPA	Power Purchase Agreement
PPE	Personal Protective Equipment
PR	Performance Requirement
PS	Performance Standard(s)
PTW	Permit to Work
PV	Photovoltaic

PZVOS	Draft EIA / Draft Environmental Impact Statement stage under OVOS
SCADA	Supervisory Control and Data Acquisition
SDG	Sustainable Development Goal
SEAH	Sexual Exploitation, Abuse, and Harassment
SEBH	Sexual Exploitation, abuse, and harassment
SEP	Stakeholder Engagement Plan
SMP	Security Management Plan
SPV	Special Purpose Vehicle
SRA	Security Risk Assessment
TBD	To Be Determined
TBT	Toolbox Talks
TSP	Total Suspended Particulates
TTMP	Traffic and Transport Management Plan
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UPS	Uninterruptible Power System(s)
UTM	Universal Transverse Mercator
UzRDB	Uzbekistan / Uzbek Red Data Book
VES	Vertical Electrical Sounding
VP	Vantage Point
VU	Vulnerable
WAP	Worker Accommodation Plan
WBG	World Bank Group
WGS	World Geodetic System
WT	Walking Transect(s)
WWTP	Wastewater Treatment Plant(s)
ZEP	Final OVOS stage prior to Project commissioning
ZVOS	Updated/additional EIA stage under OVOS

1. INTRODUCTION

1.1 Background

Uzbekistan is the Eurasia's third-largest gas producer, after Russia and Turkmenistan, due to its abundant natural gas reserves. Energy production and consumption contribute almost 20% of its Gross Domestic Product (GDP) and 15% of industrial output, and energy exports (primarily gas) were 17.3% of total commodity exports[1].

However, with that, in recent years, Uzbekistan has faced a severe energy crisis and is going through a power system collapse – particularly during winter. The problem has affected every part of society, from businesses and industry to residents' daily lives. In December 2022, extremely low temperatures coupled with outdated infrastructure created pressure drops in the gas pipelines, which in turn created a big national crisis given that 80% of Uzbekistan's electricity comes from thermal power facilities that run on gas. The crisis has resulted in severe power outages with nation-wide blackouts[2].

Acknowledging the severity of the situation, the Government of Uzbekistan has taken ambitious measures to alleviate the energy crisis. One of the first priorities was to reduce reliance and dependency on natural gas for electricity generation and promote renewable energy sources such as solar and wind power.

The Government issued a Decree of the President of the Republic of Uzbekistan dated 11.09.2023 No. PF-158 ("Uzbekistan - 2030" Strategy), which sets a target of 25 GW of renewable energy capacity and 40% of electricity production from renewables by 2030[3].

In addition, the Government has implemented further actions to encourage investment and use of renewable energy, including the enactment of new regulations and legislation. The "Law on the Use of Renewable Energy Sources of 2019", provides a legal framework for development, use and promotion of renewable energy sources. Furthermore, the Resolution of the President of the Republic of Uzbekistan "Measures to Stimulate Investments in Renewable Energy" and "Green Growth Strategic Framework (GGSF)" enacted in 2020 and 2022 respectively, are aimed at attracting investments in the renewable energy sector. These resolutions provide a variety of financial incentives and support mechanisms to encourage investments and facilitate the growth of renewable energy initiatives.

These national efforts to expand renewable energy make the role of Battery Energy Storage Systems (BESS) increasingly important. The primary purposes of the BESS are energy shifting and grid support, both of which play a critical role in facilitating the integration of renewable energy into Uzbekistan's power grid by shifting the energy load to peak demand periods—particularly important as the country continues to expand its renewable energy capacity.

In accordance with the above, Abu Dhabi Future Energy Company – Masdar executed an Investment Agreement with the Republic of Uzbekistan, a Battery Storage Service Agreement ("BSSA") with JSC Uzenergosotish, Uzbekistan's state-owned joint-stock company, to a develop a 300 MW / 600 MWh Battery Energy Storage System (BESS) Project to be located in Navoiy Region within Uzbekistan (hereafter referred to as the '**Project**'). Masdar established a Special Purpose Vehicle (SPV) known as Zarafshan Energy Storage Foreign Enterprise Limited Liability Company (LLC) that is wholly owned by Masdar and that will be responsible for development of this project (hereafter referred to as the '**Developer**').

[1] Uzbekistan energy profile – Analysis - IEA
[2] Executive summary – Uzbekistan 2022 – Analysis - IEA
[3] Decree of the President of the Republic of Uzbekistan dated 11.09.2023 No. PF-158

The Project is expected to perform up to two full cycles per day (each of 2 hours), implying a daily energy throughput of 600 MWh. As a stand-alone grid-balancing asset that is not physically integrated with any specific renewable energy facility (which includes Solar PV Plants and Wind Farms) and connecting directly to the Muruntau substation, the Project will help stabilize the grid by balancing supply and demand, reducing blackouts, and enabling smoother integration of variable renewable sources. This initiative aligns with the government's strategy to diversify the energy mix, reduce fossil fuel dependence, and meet its greenhouse gas reduction targets under the Paris Agreement, supporting a more sustainable and resilient energy infrastructure.

1.2 ESIA Report

This ESIA has been prepared as the principal Environmental and Social (E&S) risk assessment and management instrument for the Project. Its purpose is to identify, assess and, in accordance with the mitigation hierarchy, avoid, minimize, mitigate and, where residual impacts remain, compensate for the E&S risks and impacts associated with the Project throughout its lifecycle, and to establish the management, monitoring and institutional arrangements through which those measures will be implemented. The ESIA has been prepared to meet the requirements of the national environmental clearance process in Uzbekistan and the requirements of the Project's lenders. Its principal output, the Environmental and Social Management Plan (ESMP) presented in Section 20, is binding on the entities responsible for delivering the Project and is incorporated into contractual requirements and site-specific management plans.

Masdar appointed ECO Consult to prepare the Environmental and Social Impact Assessment (ESIA) for the Project. ECO Consult managed the entire ESIA process, including management of subcontractors and overall development and compilation of ESIA and is responsible for all submissions to lenders and for addressing their comments, while providing all necessary guidance to its subcontractors during field surveys and data collection. ECO Consult in turn subcontracted the following entities:

- Green Business Innovation (GBI): a locally registered Uzbekistani Environmental and Social (E&S) consulting company responsible for undertaking stakeholder consultation and engagement activities, E&S baseline surveys, and data collection from governmental and non-governmental entities; and
- Turnstone Ecology: an international consulting company specializing in ecological assessments and studies responsible for undertaking the biodiversity assessment for the Project.

ECO Consult, GBI and Turnstone are hereafter referred to as the '**E&S Team'**.

As discussed in further details in "Section 5", the national environmental clearance process in Uzbekistan does not require a scoping process or submission of a scoping report.

1.2.1 Applicable E&S Requirements and Screening Outcomes

The Project is seeking financing from International Financing Institutions (IFIs). The Asian Infrastructure Investment Bank's (AIIB's) Environmental and Social Framework (ESF) is the primary applicable international framework for the Project. Therefore, the Developer designed and will manage the Project in accordance with internationalE&S standards and requirements including:

- Asian Infrastructure Investment Bank (AIIB)'s Environmental and Social Framework (ESF);
- The IFC Performance Standards (PS), 2012;

- Equator Principles – EP4;
- World Bank Group (WBG) EHS General Guidelines (2007); and
- WBG Guidelines for Electric Power Transmission and Distribution (2007).
- The Project has been categorized by AIIB as Category B under the ESF. This is based on the fact that the anticipated adverse E&S impacts from the Project are limited in number, largely site specific, and mainly reversible. In addition, such impacts can be addressed through the management measures identified throughout this ESIA and the ESMP. In particular, the following is noted:The Project is located on state-owned land which is not allocated under lease or any other formal use arrangement, and no formal or informal use of the Project land was identified. A formal land allocation process or agreement with the Government is required for Project development; however no physical or economic displacement is associated with the Project development;
- The Critical Habitat Screening Assessment undertaken as discussed in "Section 11.2.4" determined that no Critical Habitat thresholds are met and no Critical Habitat is triggered; and
- No tangible cultural heritage objects were identified within the Project site or surrounding.

The key residual risks for the Project are related to occupational health and safety during construction, labor and working conditions, worker accommodation, community health and safety in relation to battery emergency scenarios, and management of contractors and suppliers.

It is important to note that the AIIB categorization is separate from the national classification of the Project as Category 1, as discussed in "Section 5.1".

The applicability of each AIIB Environmental and Social Standard (ESS) is presented in the table below.

ESS	Applicability	Basis
ESS1 – Environmental and Social Assessment and Management	Applicable	The Project entails E&S risks and impacts which require assessment and management. This is addressed throughout this ESIA and the ESMP presented in "Section 20".
ESS2 – Land Acquisition and Involuntary Resettlement	Not triggered	The Project is located on state-owned land which is not allocated under lease and where there are no formal or informal land users. No physical displacement, economic displacement or restriction on land use or access is anticipated. The screening basis is presented in "Section 9.2".
ESS3 – Indigenous Peoples	Not triggered	There are no groups meeting the ESF definition of Indigenous Peoples within the Project area of influence. The basis is presented in "Section 6.2" and "Section 15.1.2".

Associated facilities screening was undertaken in accordance with the AIIB ESF definition of Associated Facilities as presented in "Section 2.3.5". Based on the current Project information, no facilities meeting this definition were identified for the Project.

1.2.2 Scope of the Assessment

The environmental scope of the ESIA covers landscape and visual, land use, geology, hydrology and hydrogeology, biodiversity, archaeology and cultural heritage, air quality and noise, and infrastructure and utilities. The social scope covers labor and working conditions, worker accommodation and welfare, land use and livelihoods, stakeholder engagement and consultation, community health safety and security, vulnerable groups, gender and GBVH/SEAH risks, and subcontractor and supplier management. Each of those is addressed within a dedicated section as presented in Table 1 below.

As the Project is a utility-scale lithium-ion BESS facility, there are several technology-specific considerations that were taken into account throughout the assessment. This includes the following:

- Emergency scenarios associated with the battery systems to include thermal runaway, fire, explosion, arc flash and toxic chemical release (refer to "Section 16.2.2");
- Transportation of battery components including oversized and heavy load movements (refer to "Section 2.4.2" and "Section 14.2.4");
- Battery replacement and augmentation during the operational phase (refer to "Section 2.4.3"); and
- End-of-life management including recycling arrangements and hazardous waste requirements (refer to "Section 14.2.2").

The Project will procure containerized battery systems and associated equipment through international supply chains. The ESIA identifies the E&S risks associated with the Project's contractors and suppliers, which include labor and working conditions at supplier premises and associated human rights risks. The applicable screening, contractual controls and monitoring requirements are presented in "Section 18". It is important to note that the detailed supply chain due diligence on the battery Original Equipment Manufacturer (OEM) will be undertaken as a separate Project deliverable and will be provided as a standalone document. Therefore, it does not form part of this ESIA.

1.3 Project Setup and Responsibilities

- *Zarafshan Energy Storage Foreign Enterprise LLC*: The owner and developer of the Project (hereafter referred to as 'the Developer'). As the Project Developer is ultimately responsible for E&S performance across all Project phases. The Developer incorporates relevant E&S requirements into EPC and O&M contractor's tender documents, oversees the E&S performance of the EPC and O&M contractors, as well as their subcontractors. The Developer has developed and implemented a Health, Safety Social and Environmental Management System (HSSE-MS), and ensures this is appropriately adapted to the Project specific requirements by the SPV and the EPC. The Developer is also responsible for overseeing its implementation, as well as the implementation of the Environmental and Social Action Plan (ESAP). The Developer will also monitor compliance with the AIIB ESF and national legislation throughout the Project life-cycle. It is important to note that Zarafshan Energy Storage Foreign Enterprise LLC is an SPV established and wholly owned by Masdar as described earlier in "Section 1.1".
- *Ministry of Ecology, Environmental Protection, and Climate Change*: the official governmental entity responsible for protection of the environment in Uzbekistan. The Ministry is responsible for approval of the Environmental and Social Impact Assessment (ESIA) and making sure it complies with the local environmental legislations and granting the environmental clearance for the Project.

- *Asian Infrastructure Investment Bank (AIIB)*: AIIB will provide financing for the development of the Project and will ensure that it is implemented in accordance with AIIB's Environmental and Social Policy, Environmental and Social (E&S) standards and good international industry practices. As described in the following sections, AIIB will require periodic monitoring, reporting, and independent verification (if applicable) to ensure ESF compliance.

- *Engineering, Procurement, and Construction (EPC) Contractor*: will be responsible for preparing the detailed design and layout of the Project; supply of the material and equipment (e.g. battery energy storage system components such as battery containers, transformers, power conversion systems, fire protection and cooling systems, monitoring and control equipment); construction of the Project and its various components (e.g. building infrastructure). In addition, the EPC contractor will be responsible for constructing and connecting the Project Site with the existing substation. After which it will be handed over to NEGU as discussed below. In accordance with the ESMP and the Project's Health, Safety, Security and Environment Management System (HSSE MS), the EPC Contractor will develop and implement site-specific management plans. These will include Occupational Health and Safety (OHS), labor management (including labor influx and workers' camp management), waste and environmental management, traffic management and other relevant plans. They will be based on the ESMP and must be approved by the Developer and the supervising engineer before work commences. These plans will be updated and implemented throughout construction and the EPC Contractor will report performance to the Developer for monitoring. The EPC Contractor for this Project has not been assigned yet;

- *Project Operator*: responsible for Operation and Maintenance (O&M) of the Project. The Project Operator has not been assigned at this stage;

- *JSC Uzenergosotish*: will be the off taker of electricity and is the entity who signed the Battery Storage Service Agreement ("BSSA") with the Developer.

- *JSC National Electric Grid of Uzbekistan (NEGU)*: is the entity that signed the Transmission Connection Agreement with the Developer. In addition, they will also be responsible for operating and maintaining the transmission connection once construction has been completed by the Developer; and

- E*&S Team (ECO Consult, Green Business Innovation and Turnstone Ecology)*: acts as the ESIA Practitioner and has been commissioned as the consultant responsible for preparing the Project ESIA in accordance with local requirements and AIIB's Environmental and Social Policy and Environmental and Social (E&S) standards and good international industry practices. as well as for providing E&S Due Diligence support to Project lenders, AIIB in particular. ECO Consult retains overall responsibility for ESIA outputs, coordination of subcontractors, and addressing comments from Masdar and AIIB, throughout the ESIA process.

Please note that the detailed allocation of roles, responsibilities and staffing requirements for the entities involved in implementing and monitoring the Environmental and Social Management Plan (ESMP) is presented in "Section 20.1" and Table 33 in particular. In addition, "Section 20.1" identifies the training, inspection, monitoring, meeting and reporting requirements applicable to each entity.

1.4 Document Structure

The following table provides an overview of the sections within this ESIA document. In addition, the ESIA includes a standalone Non-Technical Summary (NTS) and a Stakeholder Engagement Plan (SEP).

Table 1: Overall ESIA Structure

Section	Description of Content
Section 2 – Project Description	Provides a detailed description of the Project in relation to its location, the key project components and an overview of the proposed activities that are to take place during the various Project phases.
Section 3 – ESIA Approach and Methodology	Presents the methodology and approach that was adopted for the ESIA study.
Section 4 – E&S Alternatives Considered	Investigates several alternatives to the Project development and the reasons for the preferred choice. This includes alternatives in relation to the Project site, Project design, and finally investigates the 'no action alternative' – which assumes that the Project development does not take place.
Section 5 – Regulatory & Policy Framework	Provides an overview of the environmental and social regulatory and policy framework applicable to the Project.
Section 6 – Stakeholder Consultation and Engagement	Discusses in detail the stakeholder consultation and engagement plans which were undertaken as part of the ESIA process for the Project and provides an overview of the findings. In addition, this Section also discusses the future stakeholder engagement and consultation plans which are to take place at a later stage of the Project development.
Section 7 – Section 18	These sections first present the baseline conditions within the Project site and surroundings and then assess the anticipated impacts from the Project throughout its various phases on such a receptor. Finally, for each identified impact a set of mitigation and monitoring requirements have been identified which aim to eliminate the impact and/or reduce it to acceptable levels. This includes the following: Overview of Environmental and Economic Impacts (Section 7), Landscape and Visual (Section 8), Land Use (Section 9), Geology, Hydrology and Hydrogeology (Section 10), Biodiversity (Section 11), Archaeology and Cultural Heritage (Section 12), Air Quality and Noise (Section 13), Infrastructure and Utilities (Section 14), Socio-Economics (Section 15), Community Health, Safety and Security (Section 16), Worker Welfare, Health and Safety (Section 17), and Subcontractor and Supplier Management (Section 18).
Section 19 – Assessment of Cumulative Impacts	Investigates the cumulative impacts which could result from incremental impacts from other known existing and/or planned developments in the area based on currently available information.
Section 20 – Environmental and Social Management Plan (ESMP)	Presents the Environmental and Social Management Plan (ESMP) for the Project; which mainly summaries the impacts identified as well as the mitigation measures and monitoring requirements to be implemented throughout the various Project phases. In addition, this section describes the institutional framework and procedural arrangement for the ESMP implementation as well as the implementation of an Environment and Social Management System (HSSE).

The ESIA is supported by a number of related instruments which collectively form the Project's environmental and social management framework. The function of each is summarized below.

- ESIA: identifies and assesses the E&S risks and impacts anticipated from the Project and identifies the management measures required to address them.
- Environmental and Social Management Plan (ESMP): the key output of the ESIA as presented in "Section 20". The ESMP consolidates the management measures, monitoring requirements, frequencies and responsible entities into a single framework document which is binding on the entities involved in the Project.

- Environmental and Social Action Plan (ESAP): consolidates the key E&S actions, commitments, responsibilities, timelines and monitoring requirements agreed with the lenders. The ESAP will be developed following finalization of the ESIA as discussed in "Section 20.4".
- Stakeholder Engagement Plan (SEP): describes the approach to future stakeholder engagement and consultation and sets out the stakeholder grievance mechanism. The SEP is provided as a standalone document as discussed in "Section 6.5.2".
- Health, Safety, Security, and Environment (HSSE) Management System (MS): the management system through which the requirements of the ESMP and ESAP are implemented during the construction and operation phases. The HSSE MS must be Project and site specific and must be updated by the EPC Contractor and Project Operator as discussed in "Section 20.2".

In addition, the ESIA identifies a number of supporting management plans which are developed and implemented by the Developer, EPC Contractor and Project Operator as applicable. This includes the Biodiversity Management Plan, Labor and Working Conditions Management Plan, Worker Accommodation Plan, Traffic and Transport Management Plan, Security and Human Rights Management Plan, Emergency Preparedness and Response Plan, Occupational Health and Safety Plan, and Subcontractor and Supplier Management Plan, amongst others. Full list of required management plans for each entity is presented in "Section 20.2" below.

2. PROJECT DESCRIPTION

This section provides a detailed description of the Project in relation to its location, the key Project components, and an overview of the proposed activities that are to take place during the construction, operation, and decommissioning phase.

2.1 Administrative Setup and Project Location

It is important to understand the administrative setup of Uzbekistan as several terminologies will be referenced throughout the ESIA.

Administratively, Uzbekistan is divided into 12 Regions (also known as viloyatlar), 1 sovereign republic (known as the Sovereign Republic of Karakalpakstan), and 1 independent city (Tashkent City which is the capital of Uzbekistan).

The Project site is located in Tomdi District in Navoiy Region located in the central north/northwest of Uzbekistan. The site covers an approximate area of 10 hectares, along with the 788 m underground transmission line connecting the onsite substation to the existing Muruntau 500 kV substation as shown in Figure 1 below. The geographic coordinates of the Project site boundary and the underground transmission line route are presented in Table 3 below.

It is important to note that the Project BESS site boundary and the underground transmission line route presented below represent the footprint of Project disturbance. The Area of Influence (AoI) for the ESIA extends beyond this footprint for certain E&S parameters, and an appropriate thematic study area is determined for each parameter as discussed in "Section 3.3.1".

Table 2: Region Division of Uzbekistan

Division	Legend	Division	Legend	Division	Legend
Andijan Region	2	Qashqadaryo Region	8	Xorazm Region	13
Bukhara Region	3	Samarqand Region	9	Namangan Region	6
Fergana Region	4	Sirdaryo Region	10	Navoiy Region	7
Jizzakh Region	5	Surxondaryo Region	11	Tashkent Region	12
Karakalpakstan	14	Tashkent City	1		

Table 3: Coordinates of the Project Site Boundary and Underground Transmission Line Route

Point	Latitude	Longitude
BESS		
BESS 1	41.46336865	64.47481961
BESS 2	41.46510453	64.47257961
BESS 3	41.46742523	64.47575822
BESS 4	41.46705784	64.47640567
BESS 5	41.46605691	64.47803806
BESS 6	41.46584897	64.47821694
BESS 7	41.46336865	64.47481961
Underground Transmission Line		
C1.1	41.46539852	64.47752207
C1.2	41.4650843	64.47795696
C1.3	41.4619787	64.48231347
C1.4	41.46170778	64.48340601
C1.5	41.46157189	64.48367954
C1.6	41.46129293	64.48374389

C1.7	41.46103852	64.48367722
C1.8	41.46089563	64.48342057
C1.9	41.46083288	64.48312552
C2.1	41.4652065	64.47725783
C2.2	41.46506229	64.47793563
C2.3	41.46195493	64.48229459
C2.4	41.46168324	64.48339022
C2.5	41.46155578	64.4836468
C2.6	41.46129324	64.48370737
C2.7	41.46105401	64.48364467
C2.8	41.46092266	64.48340875
C2.9	41.46097519	64.48312585

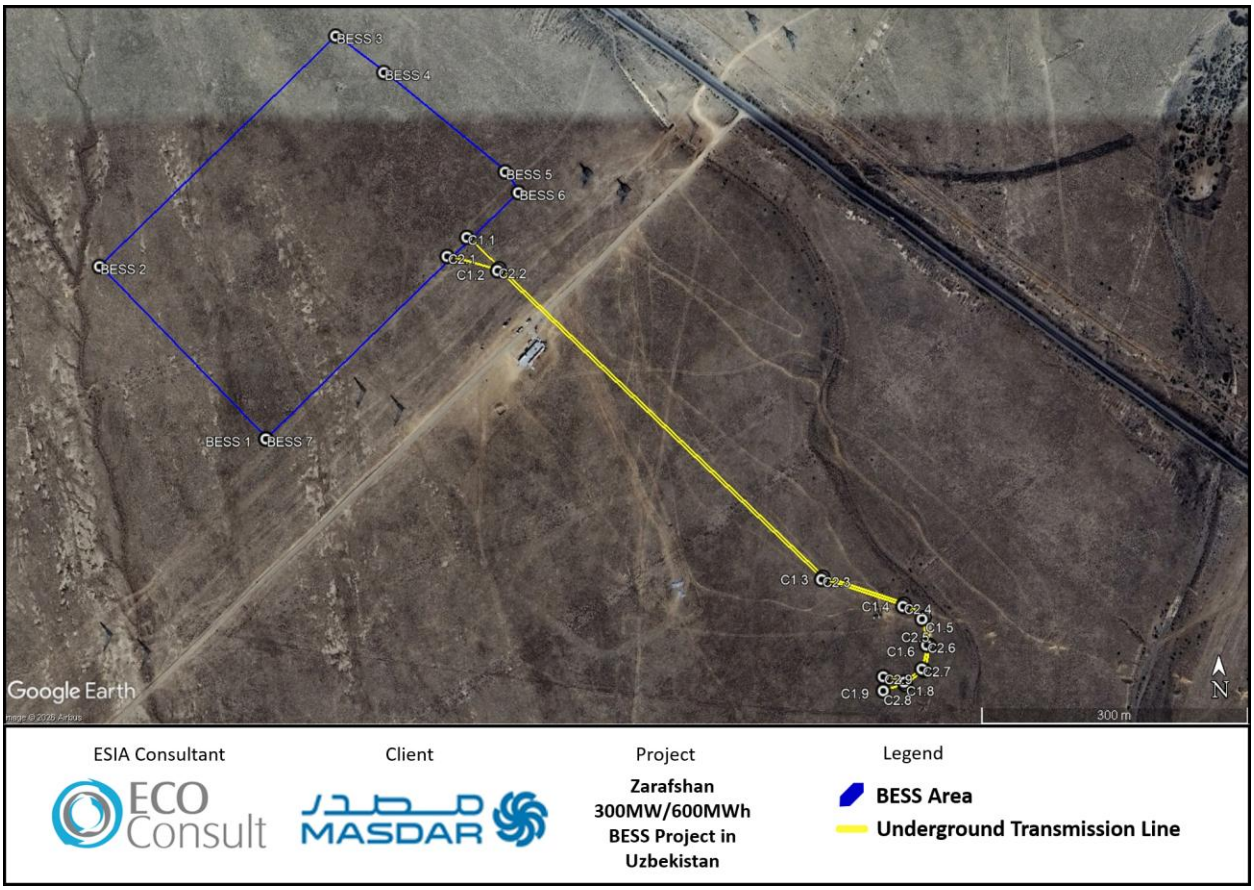


Figure 1: Coordinate Locations of the Project Site Boundary and Underground Transmission Line Route

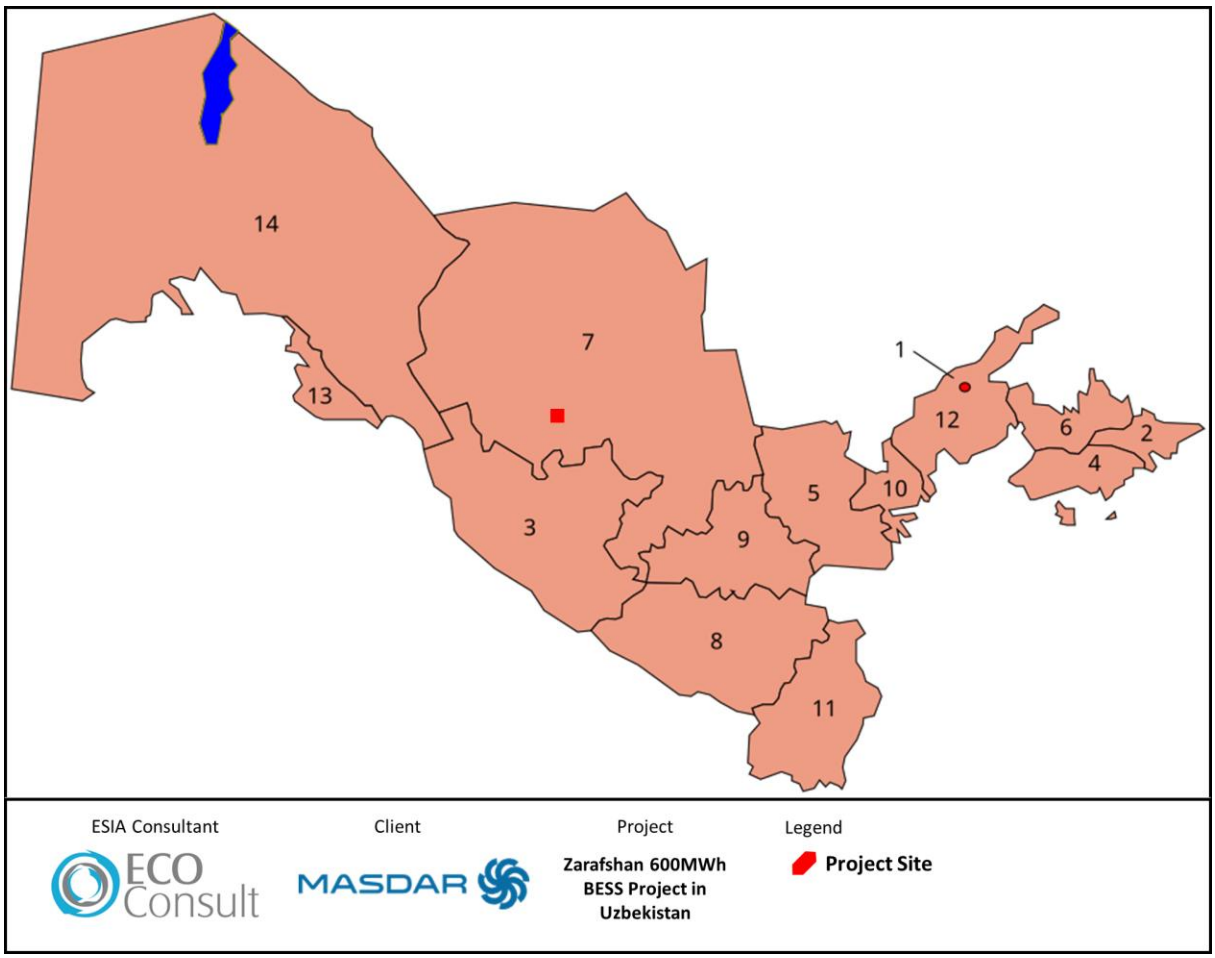


Figure 2: Region Division of Uzbekistan

The administrative setup of Navoiy Region includes multiple levels of governance to ensure effective management and service provision within the regions. At the highest level, each region is led by its own regional administration (known as ***Regional Khokimiyat***, also referred to locally as Khokimligi) which is led by Governors (known as ***Regional Khokim***– equivalent to a governor). The Regional Khokim – Governor is appointed by the President of the Republic of Uzbekistan and serves for 5 consecutive years.

Generally, the Regional Khokim - Governor is responsible for regional administrative governance, economic growth, and infrastructure development. They supervise social services such as healthcare and education, ensure public safety, and contribute to regional planning. They coordinate with local authorities, implement policies, and contribute to the region's welfare and growth. In addition, the Regional Khokim - Governor contributes to the provision of essential services to the region's residents.

Regional departments that are divisions of Ministries in Uzbekistan are present in Navoiy Region. For example, there is a National Committee on Ecology and Climate Change in Tashkent, and a Committee on Ecology and Climate Change of Navoiy, under the Ministry.

Administratively, Navoiy Region is divided into eight (8) Districts (known as ***Tumani***), with each district having its own local administration (known as ***District Khokimiyat***) which are led by Mayors (known as ***District Khokim – Mayor*** – equivalent to a mayor). The District Khokimiyat supervises the administration as a whole, which includes the provision of social services such as education and healthcare. In addition,

they play an important role in municipal services such as water distribution, waste management, and other essential public services.

The Project site is located in Tomdi District.

Table 4: District Divisions of Navoiy Region

District Name	Legend	District Name	Legend
Konimex District	1	Karmana District	5
Qiziltepa District	2	Nurota District	6
Xatirchi District	3	**Tomdi District**	**7**
Navbahor District	4	Uchquduq District	8

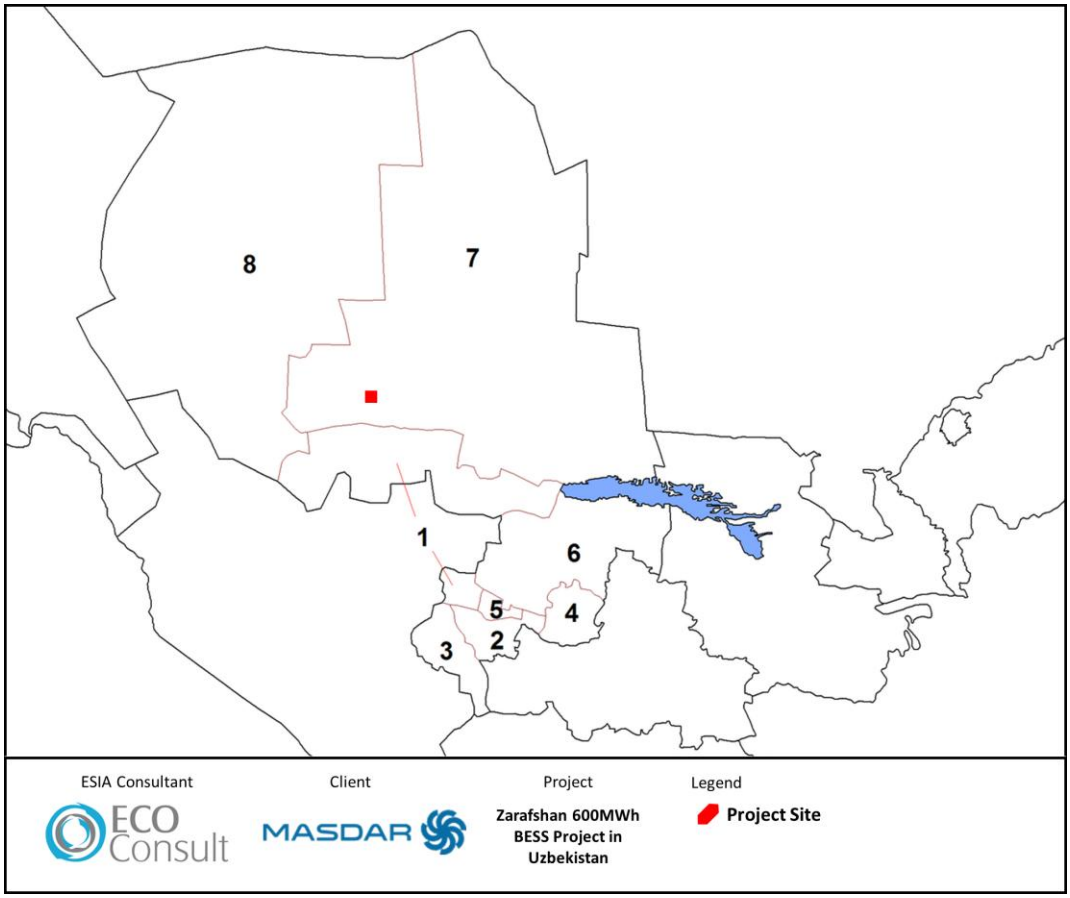


Figure 3: District Divisions in Tomdi Region

2.2 Local Communities

Throughout this ESIA Report, the term “local community” refers specifically to the Muruntau settlement in the Navoiy Region, which is administratively part of the city of Zarafshan. Muruntau is considered the closest local community to the Project site, located approximately 12 km northeast of the Project area.

Other settlements within Tomdi District, including Tomdibuloq, are located at a considerably greater distance from the Project site, with Tomdibuloq located approximately 33 km away. Given this distance, such settlements are considered less likely to physical impacts; however, their potential exposure to indirect impacts (including traffic movements, workforce interactions, and supply chain activities) will be further assessed as part of the ESIA.

In comparison, based on the current Project context, the only nearby settlement where potential community-related impacts could occur is Muruntau, particularly in relation to possible temporary worker influx, use of local services, and interactions between the Project workforce and the nearby community. Therefore, for the purposes of this Report, Muruntau is considered the relevant local community for the Project.

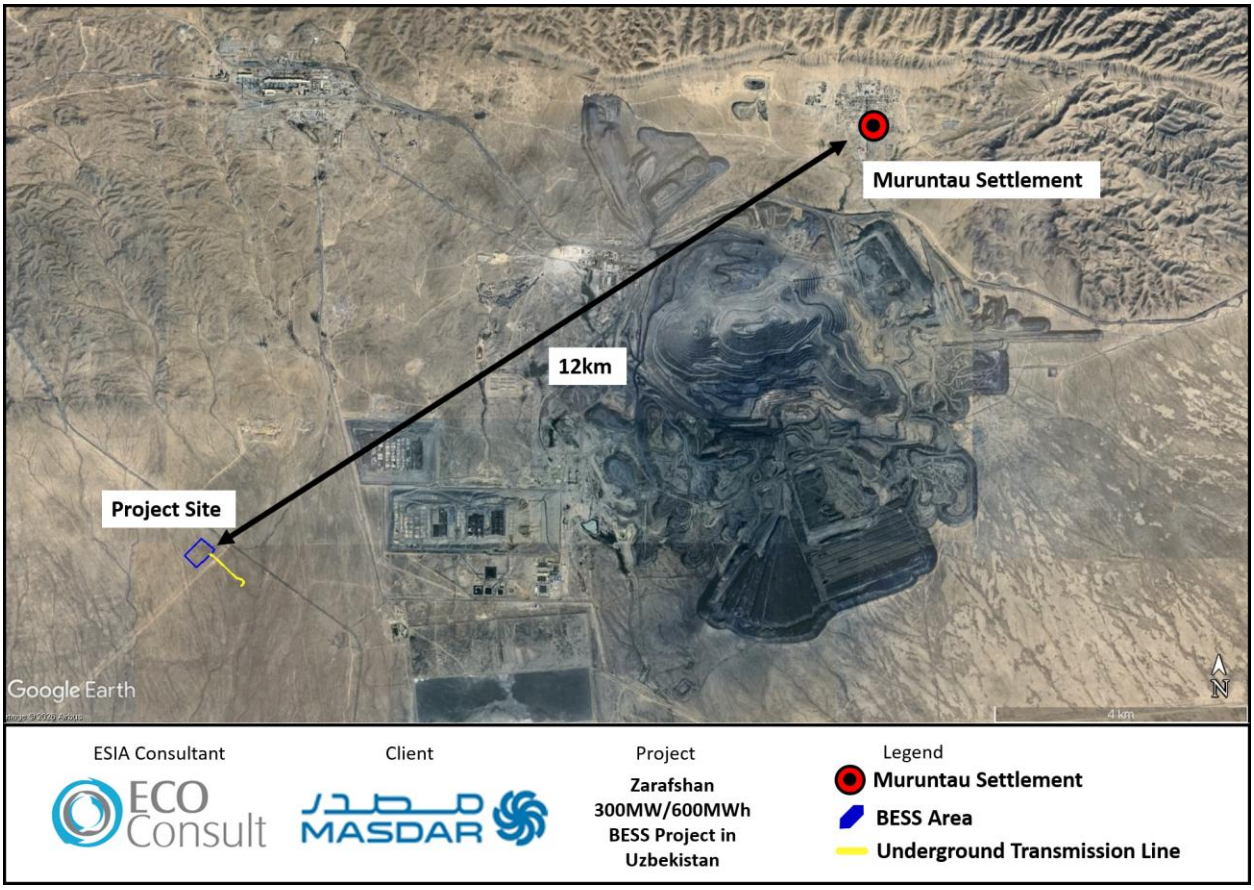


Figure 4: Project Site and Closest Community

2.3 Project Components

2.3.1 Outline of BESS Technology

The Project aims to connect a Battery Energy Storage System (BESS) with a production capacity of 300 MW to the national grid to enhance grid stability and support the integration of renewable energy sources. The BESS operates by absorbing excess electricity from the grid during periods of low demand and high generation—from renewable energy—and discharging the stored energy back into the grid when demand exceeds supply.

The system is designed to discharge at maximum power for up to two hours, followed by reduced power output for an additional six hours, offering a total discharge window of up to eight hours depending on grid needs.

To enable this functionality, the stored electrical energy passes through several conversion stages. Initially, energy is stored in the battery modules in Direct Current (DC) form. A Power Conversion System (PCS) then

converts the DC into Alternating Current (AC) at medium voltage. This AC power is subsequently stepped up to high voltage through power transformers to meet the interconnection requirements of the national grid. The conditioned power is then delivered to the grid via dedicated interconnection facilities.

This process enables the BESS to play a critical role in balancing supply and demand, enhancing system flexibility, and improving the reliability of renewable energy integration.

The figure below presents the key components of a BESS each of which is discussed in further details throughout the subsequent sections.

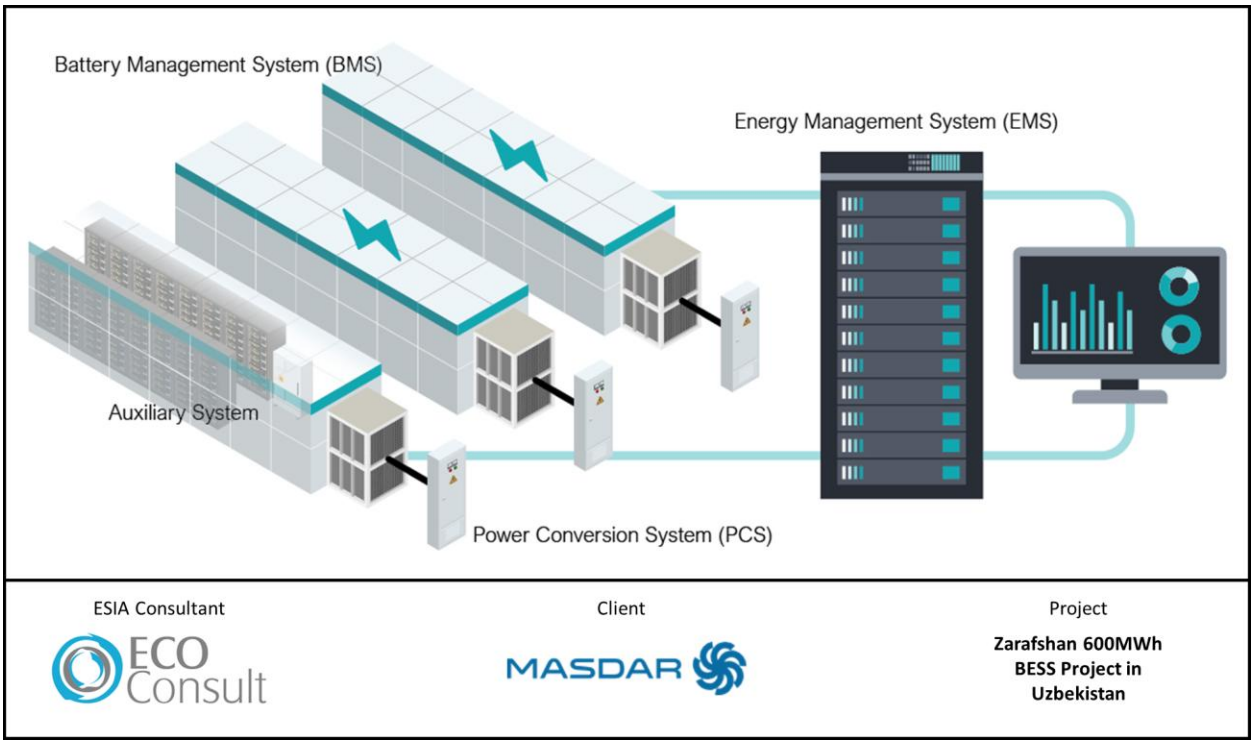


Figure 5: BESS Key Components

2.3.2 *Battery Energy Storage Systems (BESS)*

The Project will consist of a utility-scale BESS with an installed capacity of 300 MW / 600 MWh, providing around 2 hours of storage. The BESS will be based on Lithium Ferrous Phosphate (LFP) battery technology, which is a commonly used battery chemistry for utility-scale energy storage systems due to its safety and performance characteristics.

The key BESS components are expected to include the following:

Power Conversion Station (PCS)

The BESS will include Power Conversion System units, which enable the bi-directional conversion of electricity between direct current (DC) and alternating current (AC). During charging, electricity from the grid is converted from AC to DC and stored in the battery system. During discharging, the stored DC electricity is converted back to AC for export to the grid.

- Function: Converts electricity between DC and AC to allow charging and discharging of the battery system.
- Type: Central PCS, outdoor type.

- Voltage: The PCS operates within a DC voltage range of 1,000-1,500 V and has a rated AC voltage of 690 V.
- Efficiency: Charge and discharge efficiency is specified as 98.5%.
- Cooling: Forced-air cooling.
- Number and power rating: The number of PCS units and the individual PCS power rating are not confirmed in the available information and will be confirmed during detailed design.
- Transformers: LV/MV transformers will be provided to step up the voltage from 690 V to 35 kV.
- Switchgear and breakers: Ring Main Units (RMUs), switchgear and associated protection systems will be provided for electrical protection, control and isolation.

Battery Containers / Enclosures

The battery system will be arranged in modular containerised enclosures. Each enclosure will include battery cells, packs and racks, together with the associated management, monitoring, cooling and safety systems.

- Battery chemistry: Lithium Ferrous Phosphate (LFP).
- Battery arrangement: Battery cells are grouped into packs, packs are arranged into racks, and racks are housed within containerised battery enclosures.
- Battery Configuration: Each battery pack includes 104 cells; four packs form one rack; and 12 racks are housed within each battery enclosure.
- Battery enclosure type: 20-foot containerised enclosures.
- Voltage: The rated voltage of the battery enclosure is 1,331.2 V, with an operating voltage range of 1,164.8-1,497.6 V.
- Energy capacity: Each battery enclosure has a rated energy capacity of around 5.016 MWh.
- Thermal management: Liquid cooling/heating systems will be used to regulate battery temperature, operating within a closed-loop recirculating circuit using a 50% ethylene glycol aqueous solution.
- Cables and busbars: DC cabling, AC cabling, connectors and busbars will be provided as part of the electrical balance of plant.
- Auxiliary Power: Each enclosure will require auxiliary power for operation and standby functions, including cooling and control systems.
- Safety Features: The battery enclosures include fire-resistance provisions, battery monitoring systems, fire detection/suppression systems, and thermal management systems.

Energy Management, Control and Monitoring Systems

The BESS will include an Energy Management System (EMS), Battery Management System (BMS), SCADA, communication systems and local control systems. These systems will be used to monitor and control the operation of the BESS and support safe, efficient and reliable operation.

- EMS function: Controls and optimises charging, discharging and power flow.

- BMS function: Monitors battery condition, operating status and key safety parameters.
- SCADA and communications: Supports remote monitoring, operational control, data transfer and equipment status monitoring.
- Operation: The facility is expected to operate with 24/7 remote monitoring and control.

Battery Health, Thermal Management and Fire Protection Systems

The BESS will include monitoring and auxiliary systems to support battery health, temperature control and fire safety.

- Monitoring systems: Battery condition monitoring, BMS diagnostics, SCADA monitoring, fire/gas detection and alarm systems.
- Cooling systems: Liquid cooling/heating for battery enclosures and forced-air cooling for PCS units.
- Fire protection: Container-level fire/gas detection, dedicated suppression systems, explosion-relief venting, physical separation/firebreaks between battery containers or blocks, and on-site fire water storage.
- Emergency response: Emergency response arrangements will include coordination protocols with local emergency services.

2.3.3 Infrastructure and Utilities

The following highlights the key infrastructure and utility elements that will be required for the Project.

- Substation (including associated civils works and buildings): A 200kV substation will be built within the Project site to manage the output from the BESS facility. It will include the necessary equipment to prepare the electricity for export to the grid.
- Grid Connection: this includes offsite connection works from the onsite substation to the existing Muruntau Substation through an Underground Transmission Line with a length of 788 m. The Developer will be responsible for preparing the detailed design (including identification of the route), construction activities after which it will be handed over to NEGU for operation and maintenance. It is important to note that at this stage there are no details available on the specifications – other than the route as shown in the figure below.
- Amenities Building: Utility infrastructure will be provided to meet project needs and comply with applicable standards. The building will include office and sanitary facilities.
- Access route and internal road: The Project will be accessed via the existing road – A379 (Zarafshan – Navoiy Road). Two short access roads connecting the site to the existing public road infrastructure will be constructed as part of the project.
- Drainage and Stormwater Management: Appropriate drainage infrastructure will be incorporated to manage surface runoff within the Project site.
- Telecommunications: Communication systems will be installed for operational control, data transfer, and emergency response, in line with utility and regulatory requirements.
- Water supply: Water will be supplied using Water trucks to the site. The water will subsequently be

stored on-site in storage tanks for construction activities use.

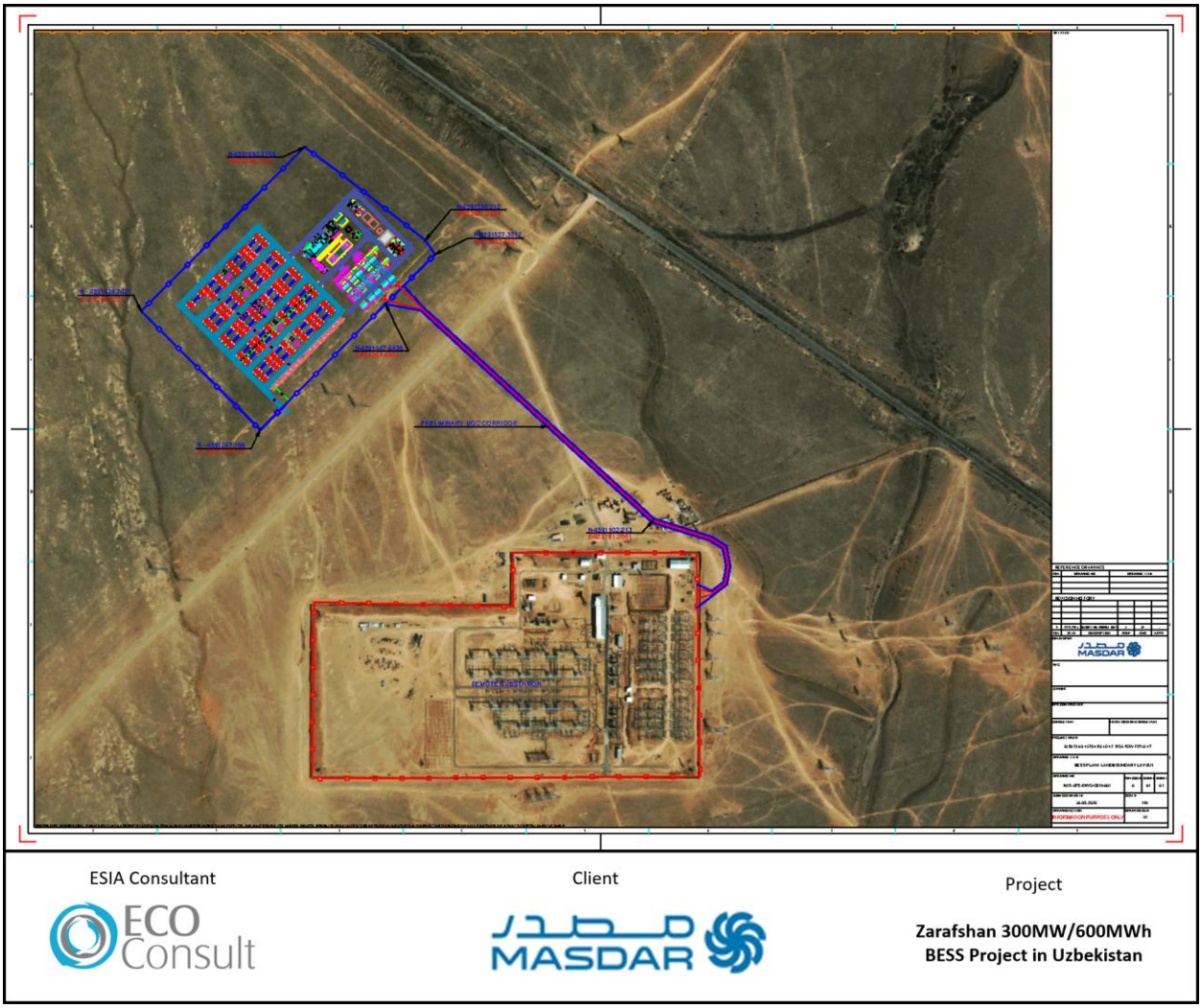


Figure 6: Project Layout

2.3.4 Other Temporary Components

There are additional Project components that will be required on a temporary basis throughout the construction phase of the Project. These components are identified below. However, details regarding their configuration and location are not available at this stage and are not expected to be available during the ESIA preparation phase. Such detailed information will become available once the EPC Contractor is appointed and a detailed design is completed. In any case, these facilities will be located within the Project-allocated land boundaries (refer to the blue-line polygon in Figure 6 above).

- Site Offices: temporary offices that will be used by Developer and EPC Contractor staff during the construction phase.
- Worker Camp: a temporary worker accommodation camp will be required during the construction phase to accommodate non-local workers. Based on the currently available information, the worker camp is expected to include dormitory blocks, an amenities block, kitchen, dining hall, prayer room, showers and toilets, fire stand pit, and septic tank. The final location, layout, capacity, and design of

the worker camp will be confirmed once the EPC Contractor is appointed and the detailed construction planning is completed. The worker camp will be located within the Project-allocated land boundaries. An indicative layout is presented in Figure 7 below.

- Laydown areas: this is a temporary storage area where tools, materials, equipment and vehicles are stored when not in use.
- Batching Plant: Concrete required for the Project will be supplied by existing commercial concrete batching plants in the area. Therefore, no dedicated batching plant will be established within the Project footprint or elsewhere for the purposes of the Project.
- Borrow Pits: Borrow pits are not anticipated for the Project. The Project site is generally flat and requires limited earthworks, and a cut-and-fill balance approach will be adopted during construction to minimize the need for imported fill material. Accordingly, no offsite borrow areas or extraction activities are envisaged.
- Generators: generators will be used for supply of electricity throughout the construction phase of the Project for various power supply requirements. There will be no temporary power supply lines erected before or during the construction period.
- Transport Vehicles and Machinery: During the construction phase, a fleet of machinery—including excavators, Tractor-Loader-Backhoes (TLBs), concrete mixers, concrete pumps, cranes, compaction rollers, and water trucks—will be mobilized.

It is important to note that requirements for temporary components will be included within the Environmental and Social Management Plan (ESMP) and Environmental and Social Management System (HSSE) to be considered by the EPC Contractor when planning for such components.

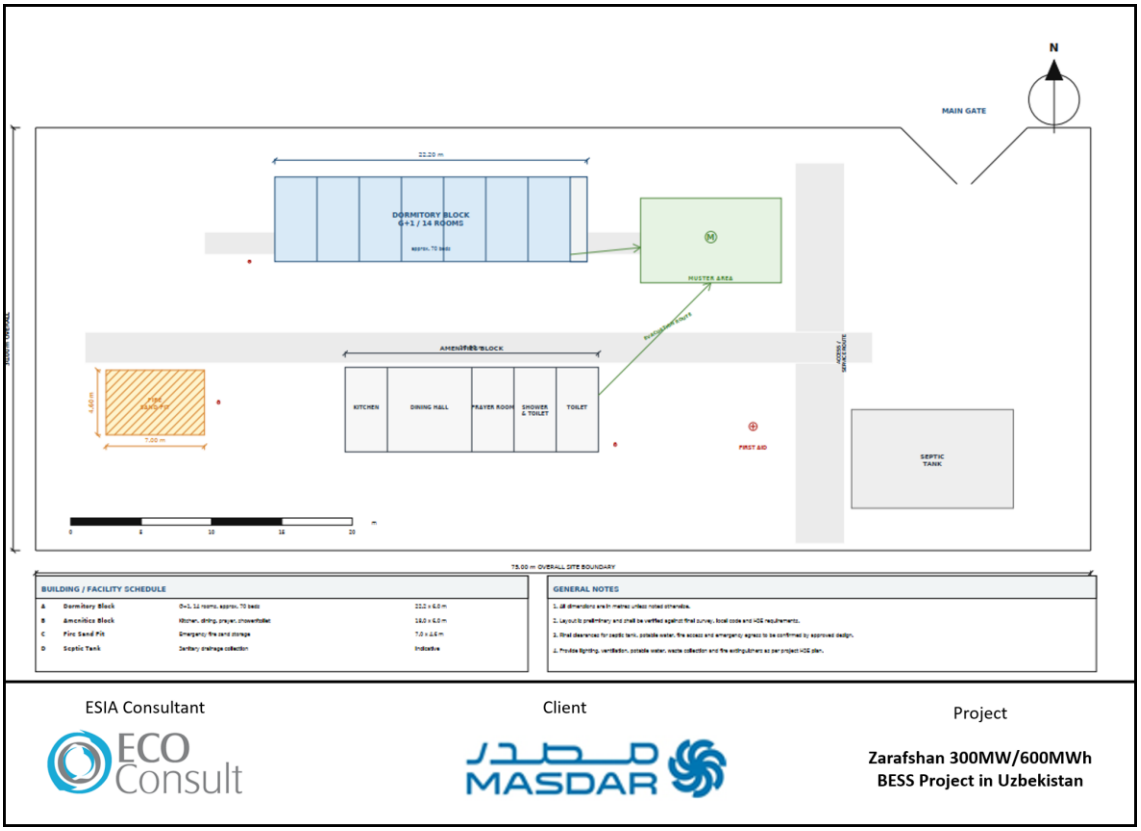


Figure 7: Worker Camp Preliminary Layout

2.3.5 *Associated Facilities*

For the purpose of this ESIA, Associated Facilities are defined in accordance with the AIIB ESF as facilities or activities that are not included within the Project scope, but which meet all of the following criteria: (i) are directly and materially related to the Project; (ii) are carried out, or planned to be carried out, contemporaneously with the Project; and (iii) are necessary for the Project to be viable and would not be carried out if the Project did not exist.

Based on the current Project information, there are no facilities that meet the definition of Associated Facilities for this Project. All components required for the construction and operation of the BESS, including the BESS units, internal electrical infrastructure, on-site substation, underground grid connection, access arrangements, temporary construction facilities, and worker camp, are considered part of the Project scope and are assessed as Project components within this ESIA.

Accordingly, no third-party facilities or infrastructure have been identified that are required for the Project's viability and that would be classified as Associated Facilities.

2.4 Overview of Project Activities

This section presents the likely activities to take place during the Project development and which will include three distinct phases: (i) planning and design, (ii) construction, (iii) operation, and (iv) decommissioning. Each of which is summarized below.

2.4.1 Planning and Design Phase

This phase will involve the following:

- Completion of all required studies for Project development. This will include but not limited to ESIA, topography study, geotechnical study, etc.;
- Obtaining and finalizing required financing from IFIs;
- Obtaining required permits;
- Appointment of EPC Contractor; and
- Preparation of detailed design and layout requirements.

2.4.2 Construction Phase

The typical activities that will take place during the planning and construction phase includes the following:

- Mobilization of E&S Team and equipment to the site and recruitment of workers;
- Undertake mobilization works for temporary facilities which will involve deployment of site offices and laydown areas;
- Shipment of the BESS components (i.e. containers) by road using hauling trucks. Based on the currently available information, the transport route will most likely be from China to Kazakhstan through the Khorgos border crossing, and then from Kazakhstan to Uzbekistan through the Yallama border crossing, before onward transport to the Project site. Each container is expected to require one truck and one trip. Around 160 vehicles are expected for the BESS containers, and around 55 vehicles are expected for the MV station containers. The battery enclosures are expected to be transported as 20-foot containers, while the MV station components are expected to be transported as 40-foot enclosures/containers. Given the size and weight of the equipment, transport requirements, including load classification, permits and route suitability, will be confirmed through a detailed route survey to be undertaken post-ESIA by the selected EPC Contractor. Assessment of transport routes, road safety risks, community receptors, and other associated transport risks will be addressed as part of the ESIA, and a Traffic and Transport Management Plan (TTMP) will be developed and implemented prior to construction;
- Site preparation for the installation of battery container foundations, involving survey works, site clearing, grading, levelling, excavation, and cement works;
- Excavation and backfilling activities for foundations and cable trenches;
- Installation of BESS components, including battery containers, associated electrical and power conversion systems, transformers, and auxiliary infrastructure, likely using onsite mobile cranes;
- Construction works to include civil works, electrical works and mechanical works for the development of the substation and building infrastructure, etc.; and
- Decommissioning of temporary facilities.

Figure 8: Loading and Transportation of BESS Components

2.4.3 Operation Phase

- BESS projects generally require regular preventative, predictive, and corrective maintenance as recommended by the Original Equipment Manufacturer (OEM).
- Maintenance activities are performed on a weekly, monthly, semi-annual, and annual basis to ensure optimal performance and safety.
- The BESS facility will maintain interconnection to the grid continuously, except during interruptions or maintenance periods, with the system actively charging and discharging for approximately 8 hours daily.
- Maintenance will also take place through a dedicated team. Typical routine maintenance period for a modern BESS is approximately 40 hours per year. Non-routine maintenance may be of a similar order. Although minimal maintenance activities may include battery system checks, thermal management system servicing, inverter and electrical component inspections, software updates, and safety system testing.

2.4.4 Decommissioning Phase

According to the BSSA agreement, the Project is expected to be operational for 15 years. In the case of complete decommissioning of BESS, the battery enclosures and associated equipment will be taken down, disassembled into components, and removed from the site.

Prior to transportation, the system will be fully de-energized and all components appropriately packaged to ensure safe handling. Depending on their condition, battery modules and systems may be refurbished

for use in other projects or sent for final disposal or recycled in accordance with applicable environmental regulations. Foundations will typically be removed, and excavated areas will be backfilled and restored with gravel or vegetation. Internal road networks may be retained, while gates and fences, including those surrounding the substation and battery units, will be dismantled.

2.5 Project Schedule

As stated by the Developer, the Project schedule includes a Planning and Design phase during Q3 2026 to Q1 2027, followed by Construction from Q4 2026 to Q1 2028. The Commercial Operation Date (COD) is expected in Q1 2028. The Project is designed to operate for a period of 15 years following the start of operations.

2.6 Worker Requirements

According to information provided by the Developer, the Project will require the following workforce throughout the construction and operation phase:

- During the construction phase, workforce requirements will increase progressively as activities advance, reaching a peak workforce of approximately 300-400 personnel during the main construction period before reducing during commissioning and demobilization. The workforce is expected to comprise a combination of skilled, semi-skilled, and unskilled workers, including engineers, technicians, supervisors, surveyors, equipment operators, labourers, drivers, security personnel, and support staff.
- The Project is committed to maximizing local employment and procurement opportunities wherever suitably qualified personnel and services are available. It is anticipated that a substantial proportion of the construction workforce will be recruited from local and regional communities, creating employment opportunities and contributing to local economic development. Specialist personnel may be mobilized from elsewhere within Uzbekistan or internationally where specific technical expertise is required.
- A temporary workforce accommodation facility may be required for non-local construction workers and specialist personnel. Worker accommodation, where provided, will be developed and managed in accordance with applicable national legislation, lender requirements, and international good practice, including provisions related to worker welfare, health and safety, and living conditions.
- Construction workforce numbers and accommodation requirements may vary throughout the construction period depending on the final construction methodology, contractor mobilization strategy, and project schedule.
- Around 15 job positions during the operation phase for a duration of 15 years. This will include around 5 skilled job opportunities (such as engineers, technicians, administrative employees, etc.), 5 semi-skilled and 5 unskilled job opportunities (such as security personnel, drivers, etc.).

The workforce estimates presented above represent a conservative assessment scenario for the purposes of the ESIA. Actual workforce requirements will be confirmed during detailed Project planning and may be lower than those currently assessed.

The Developer is committed to adhering to transparent recruitment procedures which include local community members. In addition, the Developer is aiming to hire local community members to the greatest extent possible throughout the construction and operation phase for skilled and unskilled jobs, where community members have the prerequisite skills and qualities for the job. Recruitment will be undertaken in accordance with Uzbekistan law, on fair assessment of skills and qualities for the job. All employees will be subject to normal human resource practices and will have to conduct themselves in accordance with the Developer's disciplinary code. No discrimination, on ethnic, gender, race or other such demographic factor will be allowed during recruitment. The only preferential factor shall be the fact that those are directly affected, subject to meeting all the prerequisites for recruitment of the specific job.

Please note that for the purposes of this ESIA, local workers are those residing within Muruntau Mahalla and Zarafshan City who are expected to commute to the Project site on a daily basis. Regional workers are those residing elsewhere within Navoiy Region and Uzbekistan. Non-local workers are those who are not able to commute to the Project site on a daily basis and therefore require accommodation. This includes foreign workers as well as Uzbek workers residing outside the daily commuting distance of the Project site.

2.7 Other Developments in the Area

The Project site is situated in a general area already served by electrical and industrial infrastructure, as summarised below:

- Muruntau 500 kV Substation: Approximately 300 m south of the BESS site is the Muruntau 500 kV substation, part of the national transmission grid. Several overhead transmission lines connect to this substation and traverse the general area. These facilities are existing infrastructure and are considered part of the baseline context.
- Zarafshan Wind Farm: The Zarafshan Wind Farm starts approximately7 km north of the Project site is the Zarafshan Wind Farm, a large-scale wind energy project located in the Navoi region. The Zarafshan Wind Farm has a capacity of 500 MW, consisting of 111 direct-drive wind turbines. It provides enough electricity to power around 150 000 homes and displaces more than 1 million tonnes of CO_2 per year[4].
- Muruntau Gold Mining Facility: Approximately 3 km east of the Project site lies the Muruntau open-pit gold mine. It is one of the world's largest gold mines; mining started in 1967 and the pit has grown to about 3.5 km wide and 600 m deep. In 2021, it produced as much as 3 million ounces (85 000 kg) of gold[5].
- Existing Overhead Lines: A number of overhead transmission and distribution lines run through the region, connecting the Muruntau substation to the national grid and the wind farm.

Beyond the facilities noted above, there are no other major industrial or energy developments within the immediate vicinity of the Project site.

[4] Zarafshan Wind Farm Overview
[5] Muruntau Gold Mine – NASA Earth Observatory, 2022

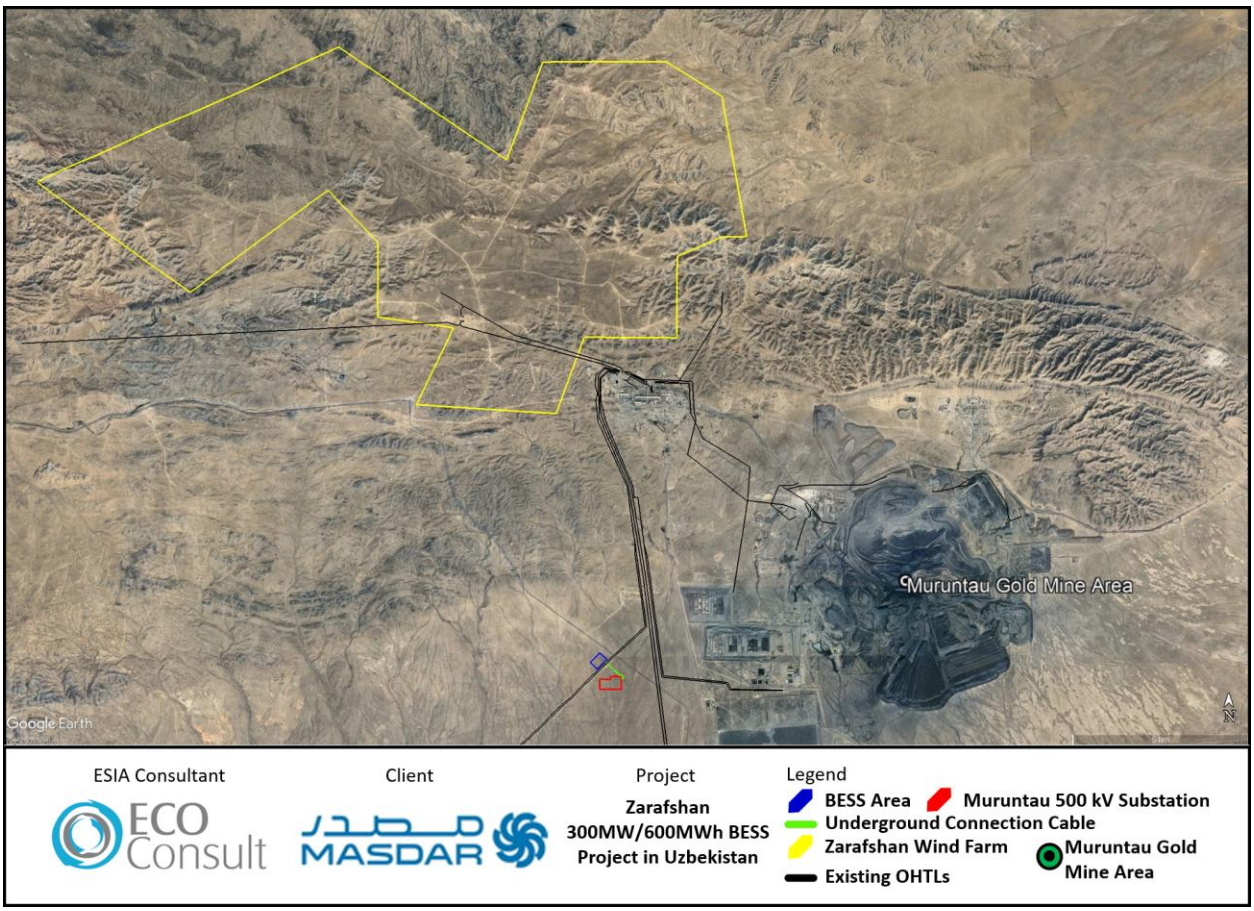


Figure 9: Developments in the General Project Vicinity

3. ESIA APPROACH AND METHODOLOGY

This section presents the overall approach and methodology that was followed throughout the ESIA process for the Project.

3.1 Analysis of Alternatives

The "Resolution №541 of the Cabinet of Ministers on Procedure of EIA Mechanism (07 September 2020)" requires that the ESIA identify and analyze alternatives and present the main reason for the preferred choice. The examination of alternatives is also considered to be a key element of the ESIA process under all international E&S standards and requirements as well.

The analysis of alternatives is presented in “Section 4”. The section discusses and compares several alternatives to the Project development in relation to: (i) the Project site, (ii) the Project design, and finally investigated the ‘no action alternative’ - which assumes that the Project development does not take place.

3.2 Stakeholder Consultation and Engagement

Stakeholder consultation and engagement is an essential part of the ESIA process and has been carried out in accordance with the regulatory requirements in Uzbekistan and the international E&S standards and requirements. The previous and future stakeholder consultation and engagement for the Project are summarized below and discussed in detail in “Section 6”.

The Project to date has included extensive stakeholder consultation and engagement with various stakeholder groups such as national governmental entities, regional and local governmental entities, Non-Governmental Organizations (NGOs), local communities, and other as appropriate. This has been undertaken through bi-lateral meetings, Focus Group Discussions (FGD), e-mail communication, phone communication, formal letters, and other.

“Section 6” also discusses future stakeholder engagement and consultations which are to take place at a later stage. This mainly includes: (i) disclosure of Project documentation on Developer’s website; (ii) distribution of Project documentation at key local community platforms; and (iii) implementation of the Stakeholder Engagement Plan (SEP) by the Developer which describes the planned stakeholder consultation activities and engagement process’ to take place after the ESIA approval.

3.3 Delineation of Study Boundaries and Scope Assessment

3.3.1 Definition of Spatial Study Area or Area of Influence (AoI)

Before detailing the methodology of the assessment, it is important to delineate the study boundaries and the scope of the assessment that was undertaken, both of which are discussed below.

Definition of Spatial Study Area

The overall study area for the ESIA represents the potential Area of Influence (AoI) of the Project. This is ‘the area over which significant effects of the Project could reasonably occur, either on their own, or in combination with those of other developments and projects’.

In general terms, the study area for the Project ESIA includes the footprint of Project disturbance as demarcated in the figure below. This includes the BESS Project Site with a total area of 0.1 km^2 (presented in dark blue) as well as the 788 m underground line (presented in green).

However, for certain E&S parameters (such as noise, landscape and visual, socio-economics, etc.), the study area goes beyond the actual footprint of the Project site, and therefore an appropriate thematic study area is determined for each theme on a case-by-case basis. Such a thematic study area is clearly identified within the relevant section it relates to throughout this ESIA.

In identifying this thematic study area, the type and degree of the potential direct and indirect effects were taken into consideration. The core area where direct effects are likely to occur was determined, as well as the wider area of influence where indirect, combined and cumulative effects are likely to occur on the surrounding areas and communities.

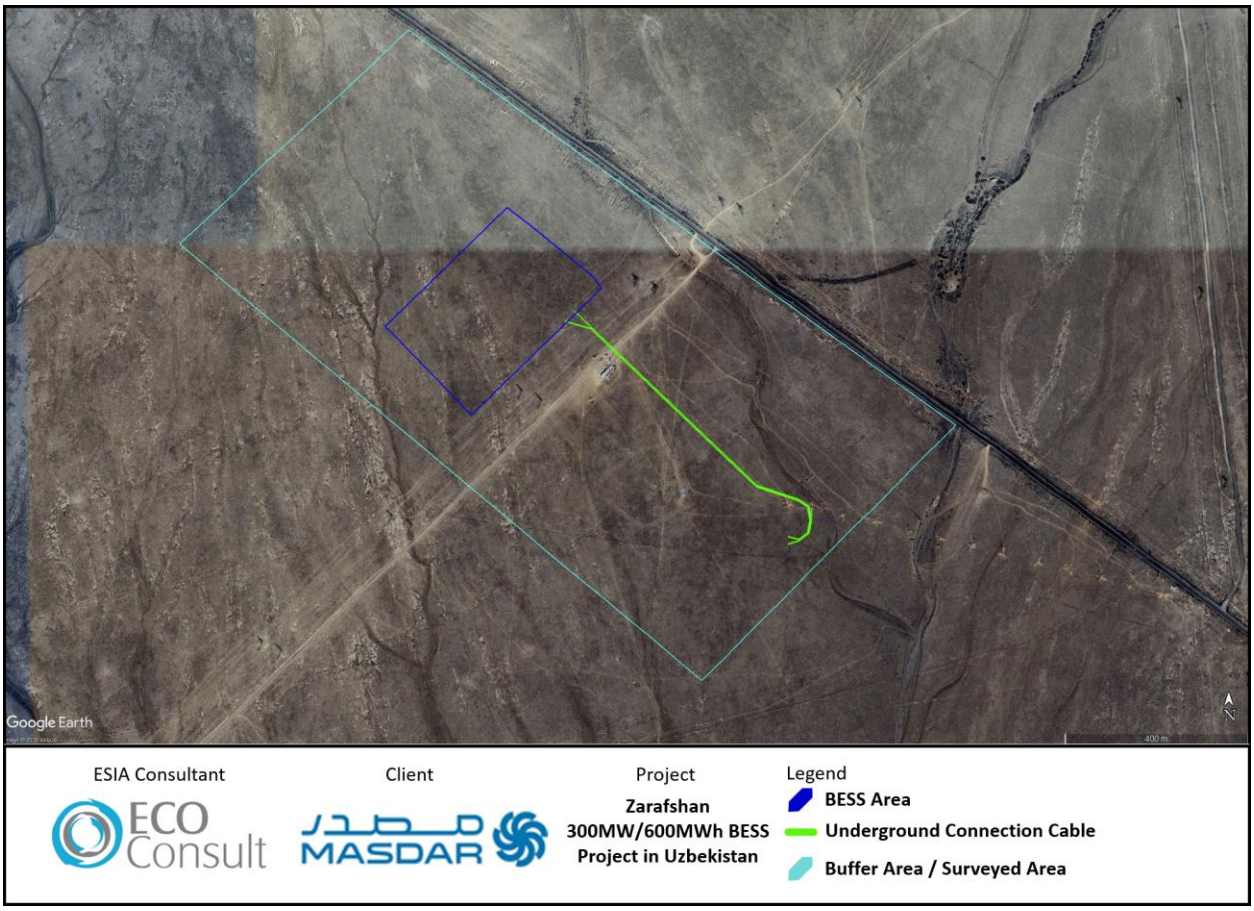


Figure 10: Study Area

Scope of Assessment

The main phases that characterize the lifetime of a project from its start date until its end date and for which the potential impacts were assessed are as follows:

- Planning and Construction Phase;
- Operation Phase; and
- Decommissioning Phase.

(i) Planning and Construction Phase

This includes onsite construction activities which will be undertaken by the EPC Contractors under the guidance of the Developer. This mainly includes preparing the detailed design and layout of the BESS facility, transportation of Project components onsite, construction of the substation and transmission line, as well as onsite site preparation and installation of battery units and associated infrastructure.

(ii) Operation Phase

This includes activities to be carried out by the Project Operator, primarily involving the routine operation of the BESS facility and regular maintenance activities to ensure optimal performance and system reliability.

(iii) Decommissioning Phase

Generally, the anticipated impacts throughout the decommissioning phase are similar in nature to impacts assessed during the construction phase and were considered in line with ESS1 – and specifically in impacts related to soil and groundwater (from improper management of waste streams), air quality and noise, and occupational health and safety, waste management, including hazardous materials associated with BESS components such as batteries and related electrical equipment. Therefore, the assessment of impacts for those receptors and mitigation identified during the construction phase is assumed to apply to this phase, supplemented by specific measures for hazardous waste management, battery handling and disposal, and land reinstatement, as relevant, without the need to reiterate or emphasize this throughout subsequent chapters.

3.3.2 Environmental and Social Baseline Conditions

As part of the ESIA process, the baseline environmental and social conditions of the study area were established. Describing the baseline includes identifying and defining the importance and sensitivity of the various environmental and social resources and receptors likely to be impacted, i.e. within the study area. Understanding the value or sensitivity of the resources and receptors to impacts and changes is an important consideration when determining the significance of effects and allows for better identification of the most appropriate measures that could be employed to avoid impacts, and to mitigate any adverse impacts.

The description of environmental and social baseline conditions considered a wide range of data and information gathered from various sources, including:

- Desk-based studies and literature reviews;
- Data from statutory and non-statutory stakeholders; and
- Field surveys and site investigations.

These studies covered all the E&S aspects related to the Project. The baseline conditions are treated as those conditions which would prevail in the absence of the Project.

However, for certain receptors, secondary data might not be available and if available might be inadequate, not specific to the project site, and/or outdated. Therefore, a site assessment to evaluate environmental and social baseline conditions was undertaken, based on a comprehensive field survey of the proposed site by the expert for the relevant receptor.

Studies of the environment and social baseline are described in “Section 8” – “Section 18” to include the following: landscape and visual; land use; geology/hydrology/hydrogeology; biodiversity; archaeology and cultural heritage; air quality and noise; community health, safety and security; worker welfare; socio-economics; infrastructure and utilities; subcontractor and supplier. Within each section, the methodology which was undertaken for assessment of each of those baseline conditions is described in detail.

The baseline assessment also included social baseline surveys to verify existing land use, livelihood activities, presence of formal or informal land users, vulnerable groups, and key stakeholder groups within the Project area of influence. This included land use verification, livelihoods assessment, vulnerability assessment, and stakeholder mapping to inform the ESIA assessment and stakeholder engagement process.

3.4 Impact Assessment Methodology

The main body of the ESIA related to undertaking the assessment of impacts on environmental and social parameters for each receptor under the relevant section, from “Section 8” – “Section 18”. The following section provides a description of the approach, methodology and process adopted for the impact assessment presented within this ESIA.

3.4.1 Approach to Assessment of Impacts

The adverse and beneficial E&S impacts of the Project were identified and assessed against the established baseline. A consistent approach to the assessment of impacts was followed to enable E&S impacts to be broadly compared across ESIA. A set of generic criteria was used to determine significance (see below) which was applied across the various E&S parameters.

As far as possible, E&S impacts were quantified. Where it was not possible to quantify impacts, a qualitative assessment was conducted using professional experience, judgment and available knowledge, and including the consideration of stakeholder views. Where there are limitations to the data, and/or uncertainties, these were recorded in the relevant chapters, along with any assumptions considered during the assessment.

In order to determine the significance of each impact, two overall factors are considered:

- The sensitivity of the E&S receiving parameter, as determined during the assessment of baseline conditions; and
- Magnitude and Nature of the impact.

The assessment also included social impacts, including potential impacts related to land access, land use, livelihoods, vulnerable groups, community health and safety, labor, and stakeholder concerns. Where relevant, the assessment screened potential risks related to land acquisition, economic displacement, restrictions on land use or access, and livelihood impacts in line with AIIB ESS2 requirements. Any identified social impacts were assessed based on receptor sensitivity, impact magnitude, stakeholder feedback, and the need for mitigation, management, or livelihood restoration measures, as applicable.

3.4.2 Sensitivity of the Receiving Parameter

Receiving parameter sensitivity was determined using information taken from the baseline description on the importance, significance or value of the E&S component under examination. It is important to understand the sensitivity of the receiving parameter, as this is a measure of the adaptability and resilience of an E&S parameter to an identified impact. The following categories of sensitivity were applied to the assessment:

- High: The E&S parameter/receptor is fragile and an impact is likely to leave it in an altered state from which recovery would be difficult or impossible;
- Medium: The parameter/receptor has a degree of adaptability and resilience and is likely to cope with the changes caused by an impact, although there may be some residual modification as a result; and
- Low: The parameter/receptor is adaptable and is resilient to change.

3.4.3 Magnitude and Nature of the Impact

The magnitude of the impact is the scale of change which the impact may cause compared to the baseline and how this change relates to accepted thresholds and standards. The following categories were applied to the assessment:

- High: a large change compared to variations in baseline. Potentially a clear breach of accepted limits;
- Medium: change which may be noticeable and may breach accepted limits; and
- Low: when compared with the baseline, change which may only just be noticeable. Existing thresholds would not exceed.

Furthermore, in determining the magnitude of the impact it is important to take into account and consider several other factors which define the nature of the impact. This includes the following:

Type of Impact

- Positive: applies to impacts that have a beneficial E&S result, such as enhancement of conditions; and
- Negative: applies to impacts that have a harmful aspect associated with them such as loss or degradation of E&S resources.

Type of Effect

- Direct: applies to impacts which can be clearly and directly attributed to a particular E&S parameter (e.g. generation of dust directly impacts air quality); and
- Indirect: applies to impacts which may be associated with or are subsequent to a particular impact on a certain E&S parameter (e.g. high levels of dust could affect occupational health and safety).

Duration (how long the stressor or its effect last)

- Short Term: applies to impacts whose effects on the E&S attributes will disappear within a 1-year period;
- Medium Term: applies to impacts whose effects on E&S attributes will disappear within 5-years; and

- Long Term: applies to impacts whose effects on E&S attributes will disappear in more than 5 years.

Reversibility

- Reversible: applies to impacts whose significance will be reduced and disappeared over time (either naturally or artificially), once the impacting activity ceases; and
- Irreversible: applies to impacts whose significance will not be reduced nor disappeared over time (either naturally or artificially), once the impacting activity ceases.

Likelihood

- Low: applies to impacts that are unlikely to occur for several reasons either related to onsite conditions, nature of construction activities or other factors;
- Medium: applies to impacts that are likely to occur; and
- High: applies to impacts that are almost certain to occur.

Frequency

- Rare: applies to impacts that are expected to occur once throughout the duration or in very minimal occasions in a given month
- Periodic: applies to impacts that are expected to occur regulatory in a given month
- Frequent: applies to impacts that are expected to occur frequently in a given month

Timing

This will be relevant for certain and specific impacts only that are expected to occur during a specific time period within the year. For example, impacts on certain biodiversity species are expected during spring season only (e.g. March). If so, the timing of the impact will be clearly identified and for other impacts a "not relevant" statement will be added for the impact.

Extent

- Low: applies to impacts that will occur within the actual footprint of project component / impact area.
- Medium: applies to impacts that will occur up to 5km from the footprint of project component / impact area. For example, dust from construction activities can impact the exact footprint area where activities are undertaken and up to 2km radius within the surrounding area due to wind; and
- High: applies to impacts that will occur more than 10km from the footprint of project component / impact area.

3.4.4 Assessing the Significance of the Impacts

The concept of 'significance' is central to the ESIA process and aids the identification and categorization of E&S effects. As noted, in order to determine impact significance, the sensitivity of each E&S parameter/receptor were considered in combination with the magnitude of the impact. The table below demonstrates how these parameters were considered in the assessment of significance.

Table 5: Determination of Significance

Sensitivity of Receiving Parameter/Receptor \ Magnitude of Impact	Low	Medium	High
Low	Not significant	Minor	Minor
Medium	Minor	Moderate	Moderate
High	Minor	Moderate	Major

While the above matrix provides a framework for the determination of significance, and enables comparison across E&S parameters, a degree of professional judgement must be used and some parameter-specific factors to be considered in making the determination of significance. Below provides additional guidance to the degrees of significance that were used in the ESIA. Note that positive impacts are defined but are not rated for significance.

- *Major significance*: Based on the above methodology such impacts will result in high magnitude and affect receptors that are highly sensitive. Those are impacts that are considered to have potentially significant and adverse risks and will be a key factor in the overall decision-making process of the Project. In addition, they will also require detailed considerations for mitigation and monitoring measures;
- *Moderate significance*: Based on the above methodology such impacts either (i) result in medium magnitude and affects receptors that are of medium or high sensitivity; or (ii) result in high magnitude and affect receptors that are of medium sensitivity. Those are impacts that are considered to have potentially limited adverse risks and are unlikely to have a significant effect on the overall decision-making process. In addition, mitigation and monitoring measures require some consideration.
- *Minor significance*: Based on the above methodology such impacts either: (i) result in low magnitude and affects receptors that are of medium or high sensitivity; or (ii) result in medium magnitude and affects receptors that are of low sensitivity; or (iii) result in high magnitude and affects receptors that are of low sensitivity. Those are impacts that are considered to have minimal risks and unlikely to be of importance for the overall decision-making process. In addition, mitigation and monitoring measures are readily available to address such risks.
- *Not significant*: Based on the above methodology such impacts will result in low magnitude and affects receptors that are of low sensitivity. Such impacts are beneath the level of perception and do not require any mitigation or monitoring measures.

3.4.5 Management Measures

Based on the impact assessment undertaken a set of management measures are identified for each impact which aims to address it. Management measures include the following:

- *Additional Requirements*: those are generally regulatory requirements which have been identified and which must be taken into account at a later stage.
- *Additional Studies*: for certain E&S receptors additional studies may be required during the construction phase or operation phase as applicable. Such studies and their scope, timing, etc. have been highlighted were applicable.
- *Mitigation Measures*: a vital step in the ESIA process is the identification of measures that can be taken to ensure that impacts are mitigated or reduced to acceptable levels. The ESIA firstly considered the

significance of any impacts caused by the Project and then assigned mitigation options through applying the following hierarchy:

- Avoiding or 'designing out' impacts wherever possible;
- Considering alternatives or modifications to the design to reduce the impacts wherever possible;
- Applying measures to minimize and manage impacts on the receptor; then
- As a last resort, identifying fair compensation, remediation and offsetting measures to address any potentially significant residual effects.

Some negative impacts can be easily mitigated, whilst others cannot or are too difficult and costly to mitigate. The various potential impacts are described in this ESIA, along with the provision of 'feasible mitigation measures' that can be implemented.

- *Recommendations*: for positive impacts it is not possible to identify mitigation measures, but rather recommendations have been identified which aim to enhance the positive impact.

3.4.6 Assessment of Residual Significance

If there are mitigation measures it is then necessary to make an assessment of the 'residual significance' after mitigation has been taken into account. A re-assessment of Project impacts is then made, taking into account the effect of the proposed mitigation measures in order to determine the significance of the residual effects. Residual effects are discussed for each E&S theme in the ESIA sections, and their significance determined and summarized in an Impact Assessment Table in "Section 7.4".

3.4.7 Assessment of Cumulative Impacts

For each of the impacts assessed, the ESIA investigates the cumulative impacts which could result from incremental impacts from other known existing and/or planned developments in the area and based on currently available information on such existing/planned developments. Assessment of cumulative impacts is presented in "Section 19".

3.5 Development of an Environmental and Social Management Plan (ESMP)

Based on the results of the impact assessment, development of management measures, and development of monitoring plan, an ESMP has been compiled into a single table that details the management mesaures. The ESMP is a key document and the E&S requirements, specific management plans to be developed and procedures necessary for managing the significant E&S issues connected to proposed Project activities are included in the plan. The ESMP is developed specifically to provide flexibility in the nature and exact location of operations, while ensuring all potential impacts are identified and properly mitigated and monitored throughout the later stages of the Project. The requirements of the ESMP will be binding on the EPC Contractor and relevant subcontractors and will be incorporated into contractual requirements and site-specific management plans.

The ESMP can be used as a stand-alone document during the different phases of the Project by Developer, EPC Contractor, Ministry of Ecology, Environmental Protection, and Climate Change, and other responsible parties.

Note: as discussed previously under “Section 2.3”, during the construction phase there will be temporary facilities which their location will not be known throughout the ESIA phase. This includes site offices, laydown areas, and worker camp area. The ESMP will identify key requirements for such facilities in particular.

3.6 Health, Safety, Security, and Environment (HSSE) Management System (MS) Structure

The ESIA is considered a key document in assessing and managing environmental and social risks related to the Project. A key output of the ESIA is the ESMP which aims to provide high level mitigations and requirements for managing the E&S risks anticipated from the Project.

Throughout the Project’s construction and operation phase the HSSE MS that is available and developed by Masdar will be updated and implemented by all relevant parties (i.e. EPC Contractor for construction phase and Project Operator for operation phase).

The HSSE MS will be updated to become project and site specific and must build on and take into account the requirements of the ESMP. The development and implementation of an HSSE MS is considered a key requirement under the applicable international standards, including AIIB ESF.

Please note that the ESMP and ESAP will define the Project’s E&S management, mitigation, monitoring, and corrective action requirements. These requirements will be integrated into the Project HSSE MS and relevant contractor management plans to support implementation during construction and operation. Implementation of the HSSE MS will be subject to Developer oversight to ensure alignment with the ESMP, ESAP, and applicable lender requirements.

4. E&S ALTERNATIVES CONSIDERED TO DATE

This section presents the alternatives that were considered for the Project development to date. This includes site alternatives as well as design alternatives, and finally the no-action alternative.

4.1 Site Alternatives BESS Facility

The Government of Uzbekistan (GoU) has allocated government-owned land in the Navoi region for development of the Project. This land, which is managed by the Navoiy Regional Territorial Pasture Management Department, falls under the Committee for Veterinary and Livestock Development. The Committee for Veterinary and Livestock Development assumed responsibility for pasture management after the Committee for the Development of Sericulture and the Wool Industry was dissolved by Presidential Decree No. PF-15 on 1 February 2025; that decree transferred pasture management functions to the Veterinary Committee[6].

Consultations with the relevant authorities as discussed in 'Section 5' below, confirmed that the Project site is designated for energy-storage and renewable energy projects as part of Uzbekistan's national battery storage programme. The land is state-owned and assigned through an official arrangement between the Developer and the GoU, represented by the Ministry of Energy (MoE) and JSC National Electric Grid of Uzbekistan (NEGU). NEGU has a dedicated department responsible for land identification and allocation for energy projects, coordinating with national agencies including the Ministry of Energy and the Ministry of Agriculture.

At the site selection stage, the GoU allocated two broader candidate areas (Area A and Area B), located on either side of the A379 (Zarafshan–Navoiy Highway), for evaluation (refer to Figure 11 below). Following an initial assessment of technical, environmental, and other project-related considerations, the current Project site was selected within the southern portion of candidate Area A, in close proximity to the existing Muruntau 500 kV substation. The selection of the Project site was influenced by several factors, including:

- Shorter Cable Connection Distance: The selected site's immediate proximity to the substation allows for a significantly shorter underground transmission line connection;
- Reduced Crossings: The location minimizes the need for road and utility crossings, in particular avoiding a crossing of the A379 (Zarafshan–Navoiy Highway); and
- Reduced Environmental Impact and Technical Complexity: The shorter connection distance and reduced crossing requirements translate into a smaller disturbance footprint, lower construction risk, and reduced overall technical complexity.

[6] The Committee for the Development of Sericulture and the Wool Industry Will Be Abolished

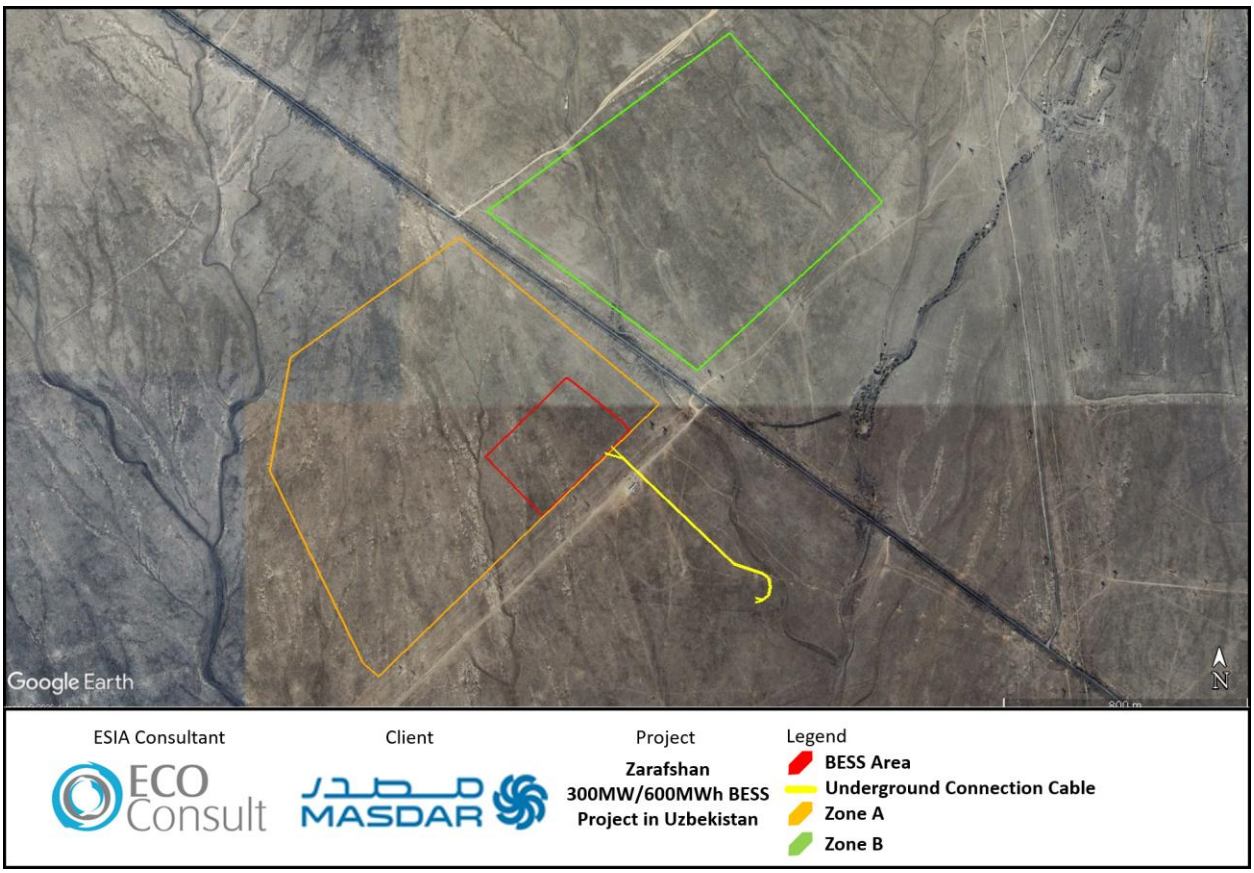


Figure 11: Candidate Areas A and B Considered at the Site Selection Stage

In addition to the above, key factors considered in selecting this area for the Project include:

- Government Ownership: The land is state-owned land; therefore no land acquisition is required.
- Absence of Land Uses: The site is free from competing uses, whether formal or informal, or overlapping rights and is not earmarked for other development projects.
- Proximity to Grid Infrastructure: The site is immediately adjacent to the Muruntau 500 kV substation, enabling a short connection via an underground transmission line.
- Undeveloped Land: The site comprises open pastureland, which minimizes the need for clearing and grading.
- Access: The area is accessible via existing roads; only limited improvements may be required.

Taking the above into account, it is important to note that the Developer had no influence or authority in any way possible in the identification and allocation of the candidate areas. The candidate areas were fully selected and identified by the MoE and NEGU and handed over to the Developer for the development of the Project.

However, the Developer, instructed the "E&S Team" at the scoping stage to undertake an initial and high-level E&S analysis on the site to determine if there are any key E&S issues to be considered for the site allocation or siting. The outcomes of such analysis are presented below and then in further details throughout the ESIA. As noted throughout the section below, no key E&S considerations were identified at that stage, however additional verification and assessments were completed as part of this ESIA study.

4.1.1 Biodiversity

Initial biodiversity screening was undertaken by the E&S team using the Integrated Biodiversity Assessment Tool (IBAT) and other desktop sources. A proximity report was generated for the Project site using buffers of 1 km, 5 km and 10 km. The IBAT report confirmed that no protected areas, Important Bird Areas (IBAs) or Key Biodiversity Areas (KBAs) are present within 10 km of the proposed site. The nearest designated area is the Mount Aktau IBA, which lies around 20 km north of the site as shown in Figure 12 below; this site is designated for breeding populations of Egyptian Vulture and Lesser Kestrel, along with resident Cinereous Vultures. Based on the distance and the absence of habitat connectivity, the Mount Aktau IBA is considered outside the Project's AoI.

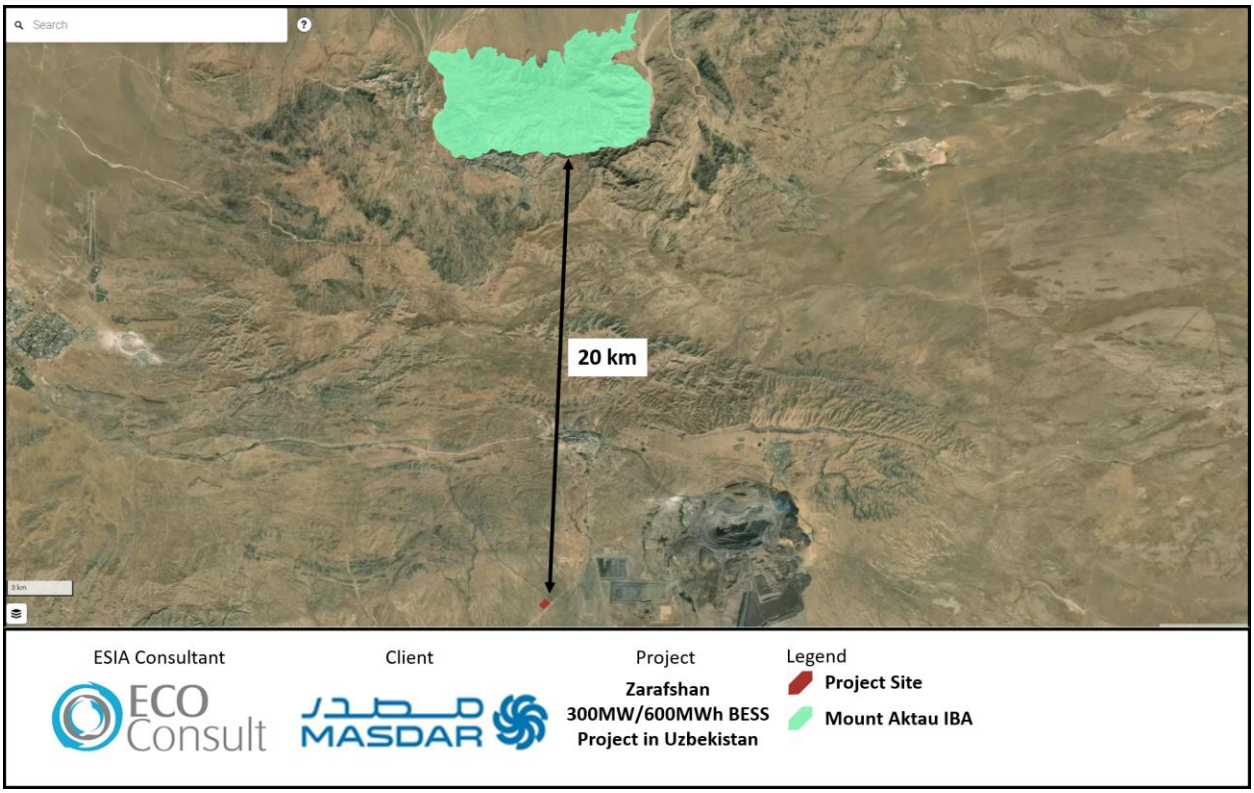


Figure 12: Protected Areas and KBAs around the Project Site

In addition, stakeholder engagement was undertaken with national biodiversity experts. The Institute of Zoology under the Academy of Sciences of Uzbekistan reviewed the preliminary biodiversity screening, as well as the methodology for undertaking biodiversity surveys, and raised no objections to the planned Project. The Uzbekistan Society for the Protection of Birds[7] confirmed that the construction of the BESS facility will not result in significant changes to the landscape and natural conditions of the area.

4.1.2 Archaeology and Cultural Heritage

Consultations were undertaken in April and May 2026 with the Ministry of Culture, the Agency of Cultural Heritage, and the Institute of Anthropology (National Archaeological Centre) under the Academy of

[7] The Uzbekistan Society for the Protection of Birds is the Birdlife International partner in Uzbekistan.

Sciences to identify any possible archaeological and cultural heritage sites within the Project site and its surroundings. Additional details on the outcomes of consultation are provided in “Section 6.3” below.

The Ministry of Culture confirmed that matters related to material cultural heritage objects fall under the principal areas of activity of the Agency of Cultural Heritage, in accordance with the relevant administrative reforms, and directed the E&S Team to consult the Agency directly.

The Agency of Cultural Heritage stated that no existing secondary information relating to archaeological sites or cultural heritage objects is available for the Project area. However, based on the reviewed Project location information, the Agency confirmed that no tangible cultural heritage objects were identified within the Project area, and no cultural heritage sites or protected cultural heritage objects were identified within the Project site or within a 5 km radius. The Agency did not identify any specific cultural heritage risks or specify any requirement for additional cultural heritage surveys within the Project area.

Consultation with the Institute of Anthropology indicated that the Project area is located within the Central Kyzylkum mining region and the foothills of the Tomditov and Muruntau Mountains, where ethnographic research has historically been undertaken since 1937. The Institute confirmed that no officially registered archaeological or cultural heritage sites have been identified within the Project area or within a 5 km radius. However, the Institute noted that this does not exclude the possibility of previously unidentified archaeological or cultural heritage remains being present within the Project area.

The Institute further indicated that several small mountain massifs within the wider area of the planned Project site may contain archaeological remains dating from the Stone Age through to the Late Middle Ages, subject to confirmation through field investigations. As such, archaeological reconnaissance and survey works are recommended prior to Project implementation and should be undertaken by qualified specialists in coordination with the Institute. If archaeological or cultural heritage assets are identified during the survey, further investigations may be required.

Taking the above into account, an archaeological and cultural heritage site survey was undertaken by relevant experts through the E&S Team, in coordination with the Agency of Cultural Heritage, as presented in Section 12below. In addition, a chance finds procedure will be implemented during site preparation and construction activities to manage any previously unidentified archaeological or cultural heritage remains that may be encountered.

4.2 Design Alternatives

The Developer is committed to ensuring that all E&S constraints identified throughout the ESIA process are considered fully throughout the Project design, specifications and layout.

As described below, the ESIA process has directly informed the Project design in two key respects: the selection and routing of the grid connection, and the micro-siting of the BESS facility, in line with Good International Industry Practice (GIIP).

4.2.1 Grid Connection Alternatives

Two (2) options were considered for connecting the BESS facility to the adjacent Muruntau 500 kV substation: an overhead transmission line (OHTL) and an underground transmission line connection.

An OHTL connection would typically represent the lower-cost and more straightforward option from a construction and maintenance perspective. However, an OHTL would introduce a number of E&S considerations, including collision and electrocution risk for birds, permanent visual intrusion, and a wider

disturbance corridor associated with tower foundations and stringing activities. In addition, the baseline surveys undertaken as part of this ESIA identified areas where sensitive flora species were recorded (which is *Tulipa lehmanniana* Merckl. (IUCN NT)) as discussed in 'Chapter 11'. An OHTL alignment, together with its tower foundations and associated construction disturbance, would have been located within the areas where these species were recorded.

An underground transmission line connection, by contrast, confines disturbance to a narrow trench corridor that can be fully reinstated following construction, eliminates avifauna collision and electrocution risk, and has no permanent above-ground visual footprint. Critically, the underground cable also allowed the routing flexibility required to align the connection so as to avoid the areas where the species were recorded, as also discussed in 'Chapter 11'. Given the short connection distance afforded by the Project site's immediate proximity to the substation, the cost and technical differential between the two options was limited.

On this basis, the underground transmission line option was selected as the preferred grid connection solution, and its alignment was routed to avoid the areas where the species were recorded, reflecting the E&S considerations identified through the ESIA process and the application of the mitigation hierarchy (with avoidance as the first priority).

4.2.2 Micro-Siting of the BESS Facility

The baseline surveys undertaken as part of this ESIA recorded sensitive flora species within part of the land allocated for the Project. In response to this finding, and in consultation with the E&S Team, the BESS facility was micro-sited to the south, entirely outside the areas where the *Tulipa lehmanniana* Merckl. species were recorded (refer to Chapter 11). This design adjustment demonstrates how the findings of the ESIA baseline surveys have directly influenced the Project layout, avoiding impacts on the recorded species in line with the mitigation hierarchy and GIIP.

Based on the above, no other key E&S constraints have been identified which would impact the design or site configuration – this could include for example, archaeological sites, sensitive habitats, land use conflicts, as well as other. As noted within the subsequent chapters, no such additional constraints have been identified and therefore there is no other requirement for consideration of any E&S constraints as part of the Project design.

4.3 Technology Alternatives

4.3.1 Battery Technology

Several battery technologies are available for utility-scale energy storage applications. The following chemistries were considered as part of the technology selection process:

- Lithium Ferrous Phosphate (LFP);
- Nickel Manganese Cobalt (NMC);
- Lithium Titanate Oxide (LTO);
- Sodium-ion (Na-ion); and
- Vanadium Redox Flow (VRFB).

A comparison of the key technical and commercial parameters is presented in the table below.

Table 6: Comparison of Battery Technologies Considered for the Project

Parameter	LFP	NMC	LTO	Na-ion	VRFB
Energy density (Wh/kg, cell level)	140 – 190	180 – 260	70 – 100	100 – 160	<50
Power density (kW/kg)	4 – 6	6 – 8	9 – 12	5 – 7	2 – 3
Round-trip efficiency (%)	90 – 94	90 – 95	85 – 90	88 – 92	70 – 80
Cycle life (x10³ cycles)	6 – 10	2 – 5	15 – 30+	3 – 6	10 – 20
Calendar life (years to 80% SoH)	12 – 20	8 – 12	15 – 25	10 – 15	15 – 25
Cost (USD/kWh)	85 – 115	110 – 160	170 – 250	80 – 110	180 – 300
Safety (thermal stability)	High	Moderate	Very high	High	High

The LFP chemistry was selected as it provides the most balanced option for utility-scale applications in terms of cost, lifetime and safety, and reflects the best mix of technical and commercial benefits for the Project. LFP is also the dominant chemistry within the energy storage industry for large-scale BESS facilities. In addition, LFP is characterized by a high thermal stability in comparison with NMC, which is reflected in the safety and performance characteristics of the selected technology as discussed in "Section 2.3.1".

The alternative chemistries were not selected for the following reasons.

- NMC offers a higher energy density but has a lower thermal stability and a shorter cycle and calendar life.
- LTO offers an exceptional lifetime and power capability but at a substantially higher cost, and is better suited to niche applications.
- Na-ion is an emerging low-cost alternative to LFP with improving performance, but is less established for utility-scale applications.
- VRFB is best suited to long-duration storage of six to ten hours or more and to safety-critical applications, and is therefore not suited to the two-hour storage duration of the Project.

4.3.2 Battery Cooling Technology

Alternative battery cooling technologies, including air-cooled and liquid-cooled systems, were reviewed during the technology selection process. Air-cooled systems represent an older technology for utility-scale energy storage systems and are not the optimal solution offered by Tier 1 BESS Original Equipment Manufacturers (OEMs). The liquid-cooling system was selected taking into account the following in particular:

- Enhanced thermal management performance, particularly under the high ambient temperature conditions characteristic of the Project area;
- More effective heat removal and improved temperature uniformity across battery cells, resulting in lower cell degradation and improved longevity and operational reliability;
- Improved temperature control, which assists in reducing the potential for battery overheating and thermal runaway events;
- Lower auxiliary power consumption under high ambient conditions; and
- Better suitability for the Project use case of 0.5C and two daily cycles.

The selected system comprises a dedicated liquid cooling unit, piping network and battery-pack cooling channels, operating within a closed-loop recirculating circuit, combined with container air conditioning. The cooling medium is a 50% ethylene glycol aqueous solution which is continuously circulated through the battery racks and returned to the cooling unit for reuse. The system does not rely on evaporative cooling and does not require a continuous external water supply during operation.

The cooling circuit is pre-filled with coolant at the factory prior to delivery, with an approximate quantity of 480 liters per BESS enclosure. The coolant circulates within a sealed piping system and a coolant level gauge is provided to allow the coolant level to be monitored during routine site inspections. Under normal operating conditions, top-up is not required at a fixed frequency and is undertaken only when the coolant level reaches the designated alarm level indicated on the gauge. As part of preventive maintenance, the coolant is typically replaced approximately every five years.

Coolant required for maintenance or top-up will be supplied to the site in drums as a pre-mixed water and glycol solution and injected into the coolant circuit using a filling pump. Therefore, the Project does not require the abstraction or use of any water resources for the preparation, filling or top-up of the coolant throughout the operation phase, and the Project water requirements presented in "Section 14.2.3" do not include any requirements associated with battery cooling.

Accordingly, no impacts on water resources or on community water supplies are anticipated in relation to the cooling system, and water availability was not a determining factor in the selection of the cooling technology.

4.4 No-Project Alternative

The ‘no Project’ alternative assumes that the Project will not be developed. Should this be the case, then the Project site area would remain the same. The land area would remain with its current characteristics.

Should the Project not move forward, then the Project-related negative E&S impacts discussed throughout this ESIA would be averted. However, as noted throughout the ESIA, generally such impacts do not pose any key issues of concern and can be adequately controlled and mitigated through the implementation of the ESMP discussed in “Section 20”. Nevertheless, should the Project not move forward; the significant and crucial positive economic and E&S benefits would not be realized. Such benefits include the following:

- Primary purposes of the BESS are energy shifting and grid support, both of which play a critical role in facilitating the integration of renewable energy into Uzbekistan’s power grid by shifting the energy load to peak demand periods—particularly important as the country continues to expand its renewable energy capacity.
- This will help stabilize the grid, reducing blackouts, and enabling smoother integration of variable renewable sources. This initiative aligns with the government’s strategy to diversify the energy mix, reduce fossil fuel dependence, and meet its greenhouse gas reduction targets under the Paris Agreement, supporting a more sustainable and resilient energy infrastructure.
- This development allows for more sustainable development and shows the commitment of the Government of Uzbekistan to realizing the energy strategy;
- Contribute to increasing energy security through development of local energy resources and reducing dependency on external energy sources;

- Project is expected during the construction and operation phase to generate local employment and commit to other social responsibilities. As such, this is expected, to a certain extent, to subsequently enhance the socio-economic conditions and standards of living of the local communities.

In conclusion, an ESIA must investigate all potential positive and negative impacts from project development. In the case of this Project, it is important to weigh the significant positive economic and E&S impacts incurred from the Project development, against the negative E&S impacts anticipated at the site-specific level – in which generally the ESIA concludes that they can be mitigated, managed and controlled to acceptable levels. The comparison in this chapter clearly concludes that the 'no Project' alternative is not a preferable option.

5. REGULATORY AND POLICY FRAMEWORK

This section presents the environmental clearance process in Uzbekistan, the key E&S legislations that are applicable for the Project, and the relevant international E&S standards and requirements.

5.1 Environmental Clearance Process in Uzbekistan

The Ministry of Ecology, Environmental Protection and Climate Change is the primary environmental regulator who reports directly to the Parliament and is responsible at national, regional and local levels for the development and enforcement of the national environmental and conservation policy, issuing environmental permits, overseeing environmental compliance, and integrating environmental management across various sectors.

The Ministry's mandate is set forth in the Regulation on the State Committee for Nature Protection of the Republic of Uzbekistan enacted by the Parliament in 1996, including issuance of environmental permits for development projects.

The Uzbekistan EIA requirements are set forth within the "Resolution №541 of the Cabinet of Ministers on Procedure of EIA Mechanism (07 September 2020)". The EIA process is known as Otsenka Vliyaniya na Okruzhayushchuyu Sredu (OVOS) within the local context.

Annex 1 of the Resolution classifies all large-scale battery energy storage projects (BESS) as Category 1, which mandates the completion of a full Environmental Impact Assessment (EIA) study to obtain an environmental permit. Within the local context, this EIA study is referred to as PZVOS. Category 1 EIA studies for BESS must be submitted to the central Ministry in Tashkent City for review and approval. In addition. as also discussed in Section 6.3 above, the State Environmental Expertise Centre – National Committee on Ecology and Climate Change based on the proposed Project's capacity, the Project falls under Category 1 of environmental impact.

The key components of the EIA study (or PZVOS) for Category 1 projects includes the following:

- Public hearing: a public hearing is required to be undertaken for the Project which should take place in Muruntau Mahalla with the participation of local community members, representatives from the Khokimiyat, and the Ministry of Ecology, Environmental Protection, and Climate Change. The public hearing will be announced within an appropriate timeframe prior to the session, in line with national requirements, GIIP and AIIB ESF requirements, to allow sufficient time for stakeholders to be informed and participate. The public hearing will be organized as an open-invitation event, and the relevant Khokimiyat will issue invitations to relevant regional entities, government agencies and other key stakeholders within Navoiy Region. During the public hearing, the Project will be presented, including its key E&S outcomes, potential impacts, proposed mitigation measures, and grievance mechanism. Stakeholders will also be informed of the locations, methods and timeframe for disclosure of Project-related information and documentation, including the relevant E&S assessment materials, as well as the procedures through which comments, questions and concerns may be submitted, recorded, considered and responded to, including through the Project grievance mechanism.
- Current state of the environment (before the Project implementation): physical and geographical location, climatic characteristics of the area, existing sources of anthropogenic impact on the environment, condition of atmospheric air, geomorphological characteristics of the area, surface and ground water, soil, flora and fauna, noise, cultural heritage sites and socio-economic aspects.

- Characteristics of the design object: description of the production facility, production technology with the provision of a master plan of the facility being designed and a technological scheme of production, data on water supply and sanitation, data on waste generated and methods of their processing.
- Assessment of the types and levels of impact on the environment
- Assessment of existing alternatives
- Assessment of possible emergency situations with environmental impact at the enterprise
- Environmental control and management measures
- Forecast of the state of the environment after the implementation of the Project

The Draft EIA is then submitted to the Ministry for review. A conclusion is received within four (4) weeks following submission. The conclusion will either include approval of the EIA and issuance of environmental permit or determination for a ZVOS. The ZVOS involves updating the PZVOS (i.e. EIA) with any additional information / research / surveys as requested by the Ministry based on their review of the PZVOS.

The environmental permit that will be issued will be for the construction phase of the Project. Prior to the operational phase, the Developer will be required to submit the ZEP, which is the final stage of the OVOS to be conducted prior to Project commissioning. This involves the submission of a report that details any minor modifications compared to the submitted PZVOS as well as reporting normative to be provided during the operational phase.

Compliance with national environmental and social requirements will be required as a minimum. Where national requirements are less stringent than, or do not fully address, the requirements of the AIIB ESF, gap-filling measures will be identified and applied to ensure the Project is implemented in accordance with AIIB ESF requirements.

Note: the OVOS was submitted for the Project on 31 July 2026.

5.2 Uzbekistan E&S Regulatory Context

This section lists those legislations that are directly related to E&S compliance that must be adhered to by all parties involved in the Project throughout the planning and construction, operation, and decommissioning phase. These legislations include: (i) those issued by the Ministry of Ecology, Environmental Protection and Climate Change (laws, regulations and instruction), and (ii) the relevant national legislations issued by other line ministries (laws, regulations, instructions, standards).

The relevance and applicability of the above legislation has been reviewed in relation to the Project's specific activities and environmental and social risks. Where gaps exist between national legislation and IFI requirements (to include AIIB ESF requirements), additional measures will be identified and implemented through the ESIA and associated management plans.

The table below lists the key relevant legislation to each of the environmental and social parameter being studied and assessed within the ESIA.

Table 7: National Legislation and Guidelines Governing the E&S Compliance for the Project

Legislation
Environmental Management
Constitution of the Republic of Uzbekistan

Environmental Audit Law No. ZRU-678 of 2021
Law on Efficient Use of Power Energy of 1997
Law on Environmental Control of 2013
Law on Renewable Energy Sources of 2019
Law of the Republic of Uzbekistan № LRU-1036 “On environmental expertise, environmental impact assessment, and strategic environmental assessment” (effective on 25.08.2025)
Land Use
Decree of the President of the Republic of Uzbekistan №5495, “On measures on major improvement of the investment climate in the Republic of Uzbekistan."
Land Code of 1998
Civil Code of the Republic of Uzbekistan of 1966
Law of the Republic of Uzbekistan No. ZRU-728 “On the privatization of non-agricultural land plots.”
Law of the Republic of Uzbekistan №ZRU-781 on Procedures for Withdrawal of Land Plots for Public Need with Compensation
Law of the Republic of Uzbekistan on State Land Cadaster No.666-1 of 1998
Presidential Decree 6243 of 2021, “On Measures to Ensure Equality & Transparency in Land Relations, Reliable Protection of Land Rights & their Transformation into a Market Asset.”
Presidential Decree No. UP-5742 "On Measures for The Efficient Use of Land and Water Resources in Agriculture" of 2019
Resolution of 2011 "On the procedure for compensation for losses of owners, users, tenants and owners of land plots, as well as losses in agricultural and forestry production."
Resolution of Cabinet Ministers №3857, “On procedure for preparation and implementation of projects with the participation of International Financial Institutions and foreign Governmental Financial Organizations.”
Resolution of Cabinet of Ministers No.317 “On amending and adding to some decrees of the Republic of Uzbekistan, aimed the further improvement of registration of cadastral document on a real property.”
Resolution of Cabinet of Ministers № 911, “On further improving procedures for providing property rights of individuals and legal entities and procedures for removal and compensation for land plots.”
Resolution of Cabinet of Ministers № 146, “On measures to improve the procedure for providing land plots for urban planning activities and other non-agricultural needs.”
Regulation of 2011 "On the procedure for compensation for losses of owners, users, tenants and owners of land plots, as well as losses in agricultural and forestry production." (annex to Resolution №146)
Law of the Republic of Uzbekistan №ZRU-937 “On the recognition of rights to illegally seized land plots and buildings and structures built on them”
Resolution of Cabinet of Ministers №122 “On the approval of the regulation on the procedure for reimbursing expenses to persons with disabilities and families with a person with disabilities for the purchase of a land plot through an electronic online auction”
Resolution of the President of the Republic of Uzbekistan No. PP-314 “On Amendments and Supplements to Certain Acts of the President of the Republic of Uzbekistan in Order to Allocate Necessary Land Plots for the Development of Renewable Energy Sources”
Law of the Republic of Uzbekistan № LRU-903 “On protecting soil and increasing its fertility”
Law of the Republic of Uzbekistan № LRU-936, “On introducing amendments and additions to some legislative acts of the Republic of Uzbekistan”
Resolution of the President of the Republic of Uzbekistan № RP-264, “On additional measures for the development of entrepreneurship in the northern districts of the Republic of Karakalpakstan”
Geology, Hydrology, Hydrogeology
Resolution of the Cabinet of Ministers No. 255 "On Approval of Some Administrative Regulations of State Services in The Sphere of Nature Management."
SanPin No 0183-05: Hygienic Requirements for the Quality of Soil in Populated Areas in the Specific Natural and Climatic Conditions of Uzbekistan.
SanPin No.0191-05: Maximum Permissible Concentrations (MPC) and Approximate Allowable Concentrations (AAC) of Exogenous Harmful Substances in soil.

SanPin No.0212-06: Sanitary Rules and Norms for the Hygienic Assessment of Soil Contamination of Different Types of Land Use.
SanPin № 0272-09: Sanitary Rules and Norms for Drawing Up Hygienic Justifications for Soil Protection Schemes from Pollution in the Conditions of Uzbekistan.
Resolution of the President of the Republic of Uzbekistan № RP-439 “On additional measures for the protection and orderly rational use of underground water resources”
Biodiversity
Law № 73-II on Environmental Expertise
Law on Nature Protection of 1992
Law ZRU-363 on Environmental Control
Law ZRU-678 on Environmental Audit
Presidential Decree No. UP-5863 “Validating the Strategy for Environmental Protection in The Republic of Uzbekistan Until 2030.”
Resolution of Cabinet of Ministers of Republic of Uzbekistan No. 95 “On Approval of General Technical Regulations of Environmental Safety.”
Resolution of the Cabinet of Ministers No. 286 “Standard Regulations on the Procedure for Implementing Industrial Environmental Control.”
Resolution of the Cabinet of Ministers No. 484 “On Approval of the Strategy for the Conservation of Biodiversity in The Republic of Uzbekistan for the Period 2019-2028”.
Resolution of the Cabinet of Ministers No. 86 "Approval of The Uniform Regulation on the Procedures for Issuing Certain Documents Through a Special Electronic System.”
Resolution of the Cabinet of Ministers No. 93 "On Additional Measures to Conserve Valuable Varieties of Trees and Shrubs Not Included in the State Forest Fund".
The Law of the Republic of Uzbekistan № 543-I “On Protection and Use of Flora and Vegetation.”
The Law of the Republic of Uzbekistan, No. ZRU-877 “On plant protection” of 2023
The Law of the Republic of Uzbekistan № 710-II “On Protected Natural Reserves.”
The Law of the Republic of Uzbekistan № 73-II “On Ecological Expertise.”
The Law of the Republic of Uzbekistan ZRU-408, "On Protection and Use of the Wildlife."
The Red Book of the Republic of Uzbekistan
The Resolution of Cabinet of Ministries of the Republic of Uzbekistan No. 820 “On Measures to Further Improve the Economic Mechanisms for Ensuring Nature Protection.”
The Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 14. “On Approval of the Regulation on the Procedure for the Development and Agreement of Projects with Environmental Standards.”
The Resolution of the Cabinet of Ministries of the Republic of Uzbekistan No. 541 “On further improvement of the environmental impact assessment mechanism.”
The Resolutions of Cabinet of Ministers of the Republic of Uzbekistan No. 290 "About the Settlement of Use of Biological Resources and about the Procedure for Passing of Allowing Procedures in the Field of Environmental Management."
Archaeology and Cultural Heritage
Constitution of the Republic of Uzbekistan
Criminal Code of the Republic of Uzbekistan
Code of the Republic of Uzbekistan on Administrative Responsibility
Law No. ZRU-229 “On Protection and Use of the Objects of Archaeological Heritage.”
Law No. 269-II “On the Protection and Use of Cultural Heritage Sites.”
Resolution of the Cabinet of Ministers of the Republic of Uzbekistan № 846 “On Approval of the National List of Real Estate Sites and Objects of Tangible Cultural Heritage.”
Presidential Decree No. R-5181 “On Improving the Protection and Use of Objects of Tangible Cultural and Archaeological Heritage.”
Presidential Decree no. PP-4068 “Regarding the Strengthening of the Protection, Management and Enhancement of Tangible and Intangible Cultural Heritage.”

Air Quality and Noise
Sanitary Standards and Rules No. 0008-20 on Permissible Noise Levels in Residential Buildings, Public Buildings and Recreation Zones.
Sanitary Standards and Rules No. 0325-16 for Permissible Noise Levels in the Workplace
SanPin № 0293-11 “Hygienic regulations List of maximum permissible concentrations (MPC) of contaminants in the atmospheric air of inhabitant areas in the territory of the Republic of Uzbekistan.”
SanPin №. 0339-16. “Sanitary rules and norms of planning and development of settlements of Uzbekistan.”
Standard No. 0350-17, “Sanitary norms and rules for the protection of atmospheric air in populated areas of the Republic of. Uzbekistan.”
The Law of the Republic of Uzbekistan № 353- I “On Atmospheric Air Protection.”
SanPin № 0267-21 “Permissible Ambient Noise Levels in Residential Areas (inside and outside buildings”
Community Development
Decree No. 964 of 5 December 2017 "On the Measures for Perfection of the Activity of Self-Government Bodies Aimed at Ensuring Employment, firstly for the Youth and Women."
Decree of the Cabinet of the Ministers No. 1011 "On Perfection of the Methodology of Definition of Number of People in Need of Job Placement.”
Resolution of the Cabinet of Ministries of the Republic of Uzbekistan No. 541 “On further improvement of mechanism for Environmental Impact Assessment.”
Infrastructure and Utilities
Criteria and Procedure for Determining International Road Transportation of Loads of 2019, No. 6 (approved by the Resolution №3194 of The Ministry of Transport of The Republic of Uzbekistan, The State Customs Committee of The Republic of Uzbekistan)
Decree of the Cabinet of Ministers of the Republic of Uzbekistan No.1050 “On approval of Rules for Protection of Power Grid Facilities
The Law of the Republic of Uzbekistan No. ZRU-117 on Highways of 2007
Law of the Republic of Uzbekistan, No. ZRU-900 “On Road Traffic” (2024)
The Law of the Republic of Uzbekistan No. LRU-1015 “On telecommunications” of 2024
The Law of the Republic of Uzbekistan № 725-1 “On Radio Frequency Spectrum” of 1998
Resolution of the Cabinet of Ministers of the Republic of Uzbekistan, No. 417 of 2023 and Resolution of the Cabinet of Ministers No. 801 of 2020 "On authorization in the field of radio frequency spectrum use and regulation of the use of radio electronic devices and high frequency devices "
The Law of the Republic of Uzbekistan No. LRU-939 “On electric energy” of 2024
Regulations on Provision of Energy Services, Resolution No. 551 of the Cabinet of Ministers of the Republic of Uzbekistan, of 2018.
Regulations on road safety during transportation of large and heavy loads by road transport (Annex No.2 to the Decree of Cabinet of Ministers No. 342 of 2011).
Regulations on Rules for Cargo Transportation by road in the Republic of Uzbekistan (Annex to Decree of Cabinet of Ministers No. 213 of 2014)
Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 319 of 2024: On the approval of rules for the use of electricity and natural gas
Resolution of the President of the Republic of Uzbekistan №PP-57, “On measures to accelerate the implementation of renewable energy sources and energy-saving technologies in 2023.”
Sanitary Norms No. 0236-07: Sanitary Standards and Regulations to Ensure Safety for Populations Living near High Voltage Power Lines.
Sanitary Rules and Regulations № 0370-19 for The Placement and Operation of Radio Engineering Facilities in Populated Areas
Air Code for the Republic of Uzbekistan of 1993
Aviation Regulations (AP RUZ-150) Registered under No. 73 of 2006

Labor and Working Conditions
Decree of the Cabinet of the Ministers No. 965 "On the Measures of Further Perfection of the Procedure of Establishment and Reservation of Minimum Number of Job Places for the Job Placement of Persons who are in need of Social protection and Face Difficulties in Searching Employment and Incapable of Competing in Labor Market with Equal Conditions."
Joint Decree of the Ministry of Labor and Social Protection of the Population (No. 33) and the Ministry of Healthcare (No. 13) of Uzbekistan "On the approval of the list of jobs with unfavorable working conditions where the employment of persons under 18 years is prohibited" registered by the Ministry of Justice of the Republic of Uzbekistan.
Labor Code of the Republic of Uzbekistan
The Law of the Republic of Uzbekistan "On the employment of the population, No. ZRU- 642 of 2020
The Law of the Republic of Uzbekistan No. ZRU-641 on Rights of Persons with Disabilities of 2020
Resolution of Cabinet of Ministers No. 244 "On the approval of the regulations on the procedure for the attraction and use of foreign workforce in the Republic of Uzbekistan" of 2019
Management of Solid Waste, Hazardous Waste and Wastewater
The Law of the Republic of Uzbekistan No. ZRU-784 on Drinking Water and Wastewater, of 2022
Regulation "On the Procedure for the Disposal, Collection, Pay Settlement, Storage and Removal of Waste Industrial Oils" (annex to the Decree of the Cabinet of Ministers No.258 of 2012)
Regulation on the Procedure for Handling Colored and Black Metal Scrap" (annex to the Decree of Cabinet of Ministers No. 425 of 2018)
Resolution of Cabinet of Ministers of Republic of Uzbekistan No. 95 "On Approval of Regulatory and Legal Acts in the Field of Waste Management."
SanPin (Sanitary Rules & Norms) No. 0158-04 - Sanitarian Rules and Norms on collection, transportation and disposal of wastes contained asbestos in Uzbekistan."
SanPin № 0127-02 "Sanitary procedures for inventory, classification, storage and disposal of industrial waste."
SanPin № 0157-04 "Sanitary requirements to the storage and neutralization of solid domestic waste on special grounds in Uzbekistan."
SanPin of the Republic of Uzbekistan № 0128-02 – "Hygienic classifier of toxic industrial wastes in the Republic of Uzbekistan."
SanPin of the Republic of Uzbekistan №0300-11 "Sanitary Rules and Standards for managing collection, inventory, classification, treatment, storage and disposal of industrial waste in the context of Uzbekistan."
The Law of the Republic of Uzbekistan No. 362-II "On Waste" of 2002
The Resolution of Cabinet of Ministries of the Republic of Uzbekistan No. 820 "On Measures to Further Improve the Economic Mechanisms for Ensuring Nature Protection."
Decree of the President of the Republic of Uzbekistan, No. UP-5 of 2024 "On Measures to Improve the Waste Management System and Reducing its Negative Impact on the Environmental Situation"
The Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No 14. "On Approval of the Regulation on the Procedure for the Development and Agreement of Projects with Environmental Standards."
Occupational Health and Safety
The Law of the Republic of Uzbekistan No. ZRU-174 "About mandatory state social insurance against industrial accidents and occupational diseases" of 2008
The Law of the Republic of Uzbekistan No. ZRU-393 of the Republic of Uzbekistan "On Sanitary and Epidemiological Welfare of Population" of 2015
Order of the Head of the State Inspectorate for Supervision in the Electric Power Industry, No. 19 "On approval of safety rules when performing electrical installation work at power facilities."
Ordinance No. 30-31 of the Ministry of Labor and Social Security and the Ministry of Health of the Republic of Uzbekistan
Sanitary Standards and Rules No 03225-16 for permissible noise levels in the workplace
SanPin (Sanitary Rules & Norms) 0372-20 (May 2020) on "Temporary sanitary rules and regulations on the organization of activities of state authorities and other organizations."
Resolution of the Cabinet of Ministers of the Republic of Uzbekistan, No. 711 of 2020 "On Approval of Fire Safety Rules for Power Energy Organizations"

Resolution No. 638 of the Cabinet of Ministers of the Republic of Uzbekistan of 2020 "On approval of safety regulations for the operation of electrical devices"
Standard No. 0294-11 on “Permissible Amount of Harmful Substance in Air in Working Space.”
Public Health and Safety
Sanitary Norms No. 0236-07 “Sanitary Standards and Regulations to Ensure Safety for Populations Living near High Voltage Power Lines.”
Decree of the Cabinet of Ministers of the Republic of Uzbekistan No.1050 “On approval of Rules for Protection of Power Grid Facilities
Water Resources
Decree of the President of the Republic of Uzbekistan No. PP-5005 “On approval of the strategy for water resources management and development of the irrigation sector in the Republic of Uzbekistan for 2021-2023.”
The Law of the Republic of Uzbekistan No. ZRU-784 on Drinking Water and Wastewater
Presidential Decree No. UP-6024 Validating the Concept for The Development of Water Sector of The Republic of Uzbekistan for The Period Of 2020-2030.
The Law of the Republic of Uzbekistan No. ZRU-837-XII “On Water and Water Use.”
Decree of the Cabinet of Ministers of the Republic of Uzbekistan, dated 09.10.2019, No. 855 “On practical measures to ensure the rational use of underground water in certain regions.”
Decree of the Cabinet of Ministers of the Republic of Uzbekistan, 31.03.2018 No.255 “On approval of some administrative regulations for the provision of public services in the field of natural resources management.”
Resolution of the Cabinet of Ministers of the Republic of Uzbekistan, dated 19.03.2013, No. 82 “On approval of the regulation on water use and water supply in the republic of Uzbekistan.”
Law of the Republic of Uzbekistan of 25.12.2009 No. ZRU-240 “On amendments and additions to certain legislative acts of the republic of Uzbekistan in connection with deepening economic reforms in rural and water economy.”
Decree of the Cabinet of Ministers of the Republic of Uzbekistan, 08.01.2021 No. 9, “On measures to further improve the procedure for issuing permits for the use of groundwater.”
Criteria and Procedure for Determining International Road Transportation of Loads of 2019, No. 6 (approved by the Resolution №3194 of The Ministry of Transport of The Republic of Uzbekistan, The State Customs Committee of The Republic of Uzbekistan)

5.3 International Agreements

Uzbekistan has signed and ratified a number of international conventions committing the country to the conservation of E&S resources and protection of workers’ health & safety and labor rights. The following table lists the key conventions:

Table 8: Relevant International Conventions and Agreements

Name of Multilateral E&S Agreement	Year
Biodiversity and Natural Resources	
Agreement between the Government of Kazakhstan, the Government of Kyrgyzstan and the Government of Uzbekistan on Management of Water Resources in Central Asia	1996
Agreement on the Convention of African-Eurasian Migratory Waterbirds	2004
Agreement on the Cooperation in the Field of Joint Water Resources Management and Conservation of Interstate Sources	1992
Agreement on the Use of Water and Energy Resources of the Syr Darya Basin	1999
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal	1996
Convention on Biological Diversity (CBD)	1995
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	1997
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	1998
Convention on the Convention of the Migratory Species of Wild Fauna and Flora	1997

Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention)	2007
Convention on Wetlands of International Importance (Ramsar Convention)	2002
Kyoto Protocol	1997
Montreal Protocol on Substances that deplete the Ozone Layer	1993
Paris Agreement	2017
Stockholm Convention on Persistent Organic Pollutants (POPs)	2019
United Nations Convention to Combat Desertification (UNCCD)	1995
United Nations Framework Convention on Climate Change (UNFCCC)	1993
Vienna Convention on the Protection of the Ozone Layer	1993
Human Rights	
UN Convention on the Elimination of All forms of Discrimination against Women	1995
UN International Covenant on Economic, Social and Cultural Rights	1995
UN Convention on the Rights of a Child	2008
UN Convention on the Elimination of All Forms of Racial Discrimination	1995
UN Convention on the Rights of Persons with Disabilities	2009
UN International Covenant on Civil and Political Rights	1995
Cultural Heritage	
Convention for the Safeguarding of the Intangible Cultural Heritage	2008
Paris Convention Concerning the Protection of the World Cultural and Natural Heritage	1993
Key ILO Conventions	
C 105: Convention on the Abolition of Forced Labor (ratified 1997)	1957
C 138: Convention on the minimum Age (ratified 2009)	1973
C 111: Discrimination (Employment and Occupation) Convention (ratified 1992)	1958
C 100: Equal Remuneration Convention (ratified 1992)	1951
C 29: Forced Labor Convention (ratified in 1992)	1930
C 87: Freedom of Association and Protection of the Right to Organize Convention (ratified in 2016)	1948
C 81: Labor Inspection Convention (ratified in 2019)	1947
C 138: Minimum Age Convention (ratified 2009)	1973
C 187: Promotional Framework for Occupational Safety & Health Convention (ratified in 2021)	2006
C 98: Right to Organize and Collective Bargaining Convention (ratified 1992)	1949
C 182: Worst Forms of Child Labor Convention (ratified 2008)	1999
C 155: Uzbekistan ratified ILO Convention No. 155 on Occupational Safety and Health	2024

The requirements of the conventions listed above are reflected within the assessment and the management measures identified for each relevant attribute throughout this ESIA. For example, the requirements of the labor and human rights conventions are addressed in "Section 17.2.3" and "Section 17.2.4".

5.4 Requirements for Project Financing

The Project will be seeking financing from International Financing Institutions (IFIs), mainly the Asian Infrastructure Investment Bank (AIIB). Therefore, the Developer wishes to design and manage the Project in accordance with international E&S standards and requirements identified below.

5.4.1 Asian Infrastructure Investment Bank (AIIB)

AIIB is a multilateral financial institution established to foster sustainable economic development, create wealth and improve infrastructure connectivity in Asia, while promoting regional cooperation through collaboration with other multilateral and bilateral development institutions. Under its Articles of

Agreement, AIIB conducts their operations in accordance with policies addressing environmental and social impacts.

AIIB has established an Environmental and Social Framework (ESF) that defines the environmental and social requirements for AIIB-financed projects. The ESF consists of the Environmental and Social Policy (ESP), three Environmental and Social Standards (ESSs), and an Environmental and Social Exclusion List (ESEL). The ESF replaced the May 2021 version and became effective on 22 November 2022, with a further revised ESF entering into effect on 26 June 2024. The ESP contains the mandatory environmental and social requirements for all projects and is supported by ESSs and the ESEL, which defines activities that AIIB will not finance and that Developers must exclude from the Project.

The three ESSs cover the following areas:

- ESS 1 Environmental and Social Assessment and Management: applies to projects that may generate adverse environmental or social risks or impacts and requires Developers to undertake environmental and social assessment proportional to risks and to implement measures to avoid, minimize, mitigate, offset or compensate for impacts.
- ESS 2 Land Acquisition and Involuntary Resettlement: applies where projects may involve Involuntary Resettlement, including physical displacement, economic displacement, and/or restrictions on land use or access, and requires Developers to avoid it where feasible and, when unavoidable, minimize displacement and restore or improve the livelihoods of affected persons through appropriate planning instruments.
- ESS 3 Indigenous Peoples: applies when projects may affect Indigenous Peoples as defined under the ESF and requires Developers to prepare and implement measures to avoid or mitigate adverse impacts and enhance benefits, where applicable.

The applicability of each ESS to the Project was screened as part of the ESIA process. The outcome of the screening is presented in the table below.

Table 9: Applicability of the AIIB Environmental and Social Standards to the Project

AIIB ESS	Applicability	Justification
ESS 1: Environmental and Social Assessment and Management	Applicable	The Project may generate environmental and social impacts associated with construction and operation of the BESS facility, including impacts related to biodiversity, waste management, hazardous materials, labour and working conditions, community health and safety, traffic, noise and cultural heritage.
ESS 2: Land Acquisition and Involuntary Resettlement	Not Applicable	The Project is being developed on land provided by the State which is not allocated under lease and where no formal or informal land users were identified. As presented in "Section 9", no physical displacement, economic displacement, loss of access to land or natural resources, livelihood impacts, or restrictions on land use affecting third parties are anticipated. Accordingly, the Project does not trigger the requirements of ESS 2.
ESS 3: Indigenous Peoples	Not Applicable	No Indigenous Peoples meeting the definition of ESS 3 have been identified within the Project area of influence; therefore, ESS 3 is not triggered.

AIIB also requires meaningful stakeholder engagement, accessible grievance mechanisms, monitoring and reporting throughout the project lifecycle, and allows for reliance on co-financier or host country systems where these are materially consistent with the ESF. This positions AIIB's requirements in alignment with good international industry practice for E&S risk management.

5.4.2 Other

There are additional international E&S standards and requirements that were considered throughout the ESIA study. Those are identified in the table below along with their applicability.

Please note that the AIIB ESF will be the primary applicable international E&S framework for the Project. The additional international E&S standards as identified in the table below will be used only to supplement specific thematic areas, where relevant.

Table 10: Other International E&S Requirements and Standards

Requirement	Applicability for ESIA
IFC Good Practice Note – Addressing Grievances from Project-Affected Communities & IFC Good Practice Manual – Doing Better Business Through Effective Public Consultation and Disclosure	Those identify additional requirements that should be considered and taken into account as part of the planned stakeholder engagement activities as well as the SEP that is provided as a standalone document.
IFC Good Practice Note: A Good Practice Handbook for Companies Doing Business in Emerging Markets	The note identifies key concepts and principles of stakeholder engagement and how to integrate stakeholder engagement with the project cycle. This has been considered for the SEP that is provided as a standalone document.
EBRD and IFC Guidance Note on Worker's accommodation	Identify key issues of concern that should be addressed as well as best practice requirements to be taken into account in relation to worker accommodation
▪ IFC Good Practice Note on Non-Discrimination and Equal Opportunity ▪ IFC Good Practice Note – Managing Retrenchment ▪ IFC Handbook for Labor and Working Conditions - Measure & Improve Your Labor Standards Performance ▪ Good Practice Note: Managing Risks Associated with Modern Slavery ▪ International Labor Organization (ILO) Conventions. This will include all ILO conventions signed and ratified by the Government of Uzbekistan and at a minimum all ILO conventions covering core labor standards and all ILO conventions covering the basic terms and conditions of employment	Those are related to workforce management as applicable within the ESIA and associated management plans.
Good Practice Note (GPN) IFC's Use of Security Forces: Assessing and Managing Risks and Impacts	The handbook provides practical, project-level guidance for companies to better understand and implement the requirements outlined in PS 4. Chapters focus on risk assessment, managing private security, managing the relationship with public security, preparing a security management plan, and assessing allegations or incidents related to security personnel.
UN Voluntary Principles on Security and Human Rights	Promotes implementation of a set of principles on providing security for their operations in a manner that respects human rights

Addressing Gender-Based Violence and Harassment (GBVH): Emerging Good Practice for the Private Sector	The note prevents the physical, sexual, emotional and financial harm GBVH causes to individuals, as well as the financial, reputational and legal risks it poses to businesses and investors

6. STAKEHOLDER CONSULTATIONS AND ENGAGEMENT

6.1 Introduction

The Developer is committed to a technically and culturally appropriate approach to consultation and engagement with all stakeholders affected either directly or indirectly by the Project. The consultation program for the Project is based on informed consultation and participation in line with good international practice requirements with affected people and is designed to be both fair and inclusive. Consultation activities have been an ongoing process since the commencement of Project development in March 2025.

As part of the scoping process, the following was undertaken both of which are discussed in further details throughout this section.

- Targeted consultations with key national, regional and local governmental entities, Non-Governmental Organizations (NGOs), academic and research institutions and other; and
- Focus Group discussions (FGD) with local communities.

6.2 Stakeholder Identification

The purpose of stakeholder identification is to identify and prioritise Project stakeholders for consultation. Stakeholder identification is an ongoing process, and thus key stakeholders will be identified during different stages of the Project. A systematic approach is used to map the stakeholders based on the Project zone of impacts. In this approach, by mapping the zone of social impacts, stakeholders are identified by the impact area.

As a result of the stakeholder mapping, Project stakeholders are categorised into the following main categories:

- People and groups who will be directly or indirectly affected by the Project (such as local communities);
- People and groups who may participate in the implementation of the Project (such as investors and lenders as well as workers);
- People and groups who are not affected by the Project development per se may but have a possibility to influence and make decisions on implementation of the Project (such as Ministries or regulatory agencies).

The main groups of stakeholders identified so far are listed in the table below. The list can be updated and modified in the course of the Project development and as a result of cooperation of the parties.

Table 11: Identified Groups of Stakeholders

Stakeholder Group	Description	Relevance
Stakeholders who may be directly or indirectly affected by the Project		
Local communities which as identified include Muruntau Mahalla		This includes the following groups within the local communities in specific: ▪ Community Members: local community members have a vested interest in the Project due to mainly potential for job opportunities. In addition, local community members could potentially be impacted

		by Project's negative impacts (e.g. noise, dust, etc.). Such impacts are identified and discussed and identified within the ESIA. ▪ Community Leaders: They are socially active individuals and recognized community representatives who are widely known and respected within the local community, and who may or may not hold formal government positions. ▪ Business Community (local subcontractors): such groups have a vested interest in the Project due to potential for procurement opportunities such as subcontracting works (e.g. civil works, provision of food and amenities, etc.)
Stakeholders who may Participate in Implementation of the Project		
Investor / lender	Entities that will provide financing for the Project development.	They have interest in ensuring that the Project is developed and implemented in accordance with their E&S requirements and standards and will monitor the compliance of the Project against such requirements.
Workers	This includes all workforce including but not limited to workers from Developer team, workers from EPC Contractor, Project Operator and any involved subcontractors.	Issues related to labor and working conditions such as contracts, working hours, grievance mechanism, leaves, and other.
Stakeholders who may have a possibility to influence and make decisions on implementation of the project and/or may have an interest in the Project		
Government Ministries		
Ministry of Ecology, Environmental Protection and Climate Change	Local government body mandated to implement state laws on environment protection and management and the use of natural resources.	For this Project, this will include review and approval of ESIA, issuance of environmental permit, monitoring implementation of Environmental and Social Management Plan (ESMP) and compliance with other conditions, as applicable
Ministry of Water Resources	Local government body mandated to protect and manage water resources.	For this Project, this will include ensuring water requirements of the Project do not impact and affect existing water resources.
Ministry of Health	Official governmental entity responsible for setting health policies and legislations as well as ensuring protection of the public.	Has a vested interest in ensuring that community health and safety is maintained for local communities in accordance with public health laws and regulations.
Ministry of Transport	Responsible for the provision and maintenance of transport infrastructure including road networks used to transport personnel and equipment to the Project area.	For this Project the Ministry has interest in ensuring that transportation activities of the project (BESS in particular) are planned and undertaken properly and in compliance with relevant legislations and without impacting existing highways and road networks.

Ministry of Labor	Official governmental entity responsible for setting labor policies and legislations as well as ensuring protection of labor rights and working conditions.	Has a vested interest in ensuring that labor rights and proper working condition are maintained for the Project in accordance with labor laws and regulations.
Ministry of Culture	The ministry is the entity responsible for the preservation and protection of archaeology and cultural heritage.	For this Project, the Ministry has an interest in ensuring that cultural heritage is appropriately managed and protected. The Ministry must also be notified in case of chance finds related to archaeology and cultural heritage for implementation of specific requirements.
Ministry of Emergency Situations	The ministry is responsible for preventing and responding to natural disasters, industrial accidents, and other emergencies to protect the population and national infrastructure.	Such entity must be coordinated with and notified of emergency response procedures related to the Project.
Ministry of Mining Industry and Geology	Official governmental body responsible for overall land use planning related to geology exploration, oil and gas exploration activities and other.	For this Project, the Ministry has an interest in ensuring that Project activities do not conflict with existing or planned geological exploration, mining, or mineral resource development activities. Coordination with the Ministry may be required to identify any potential interfaces, constraints, approvals, or other regulatory requirements relevant to the Project area.
Ministry of Digital Technologies	Official governmental body responsible for planning and management of telecommunication, radio/TV and other related elements.	Ministry of Digital Technologies Official governmental body responsible for planning and management of telecommunication, radio/TV and other related elements. Project area could be located within above or underground infrastructure utilities such as underground telecommunication cables
Cadastral Agency under the Ministry of Economy and Finance of the Republic of Uzbekistan	Official governmental body responsible for overall land use planning and allocations.	For this Project, the Agency has an interest in confirming land ownership, land use classification, and land allocation status, and in ensuring that the Project does not conflict with existing or planned land uses, land rights, or other cadastral restrictions within the Project area
JSC National Electric Grid of Uzbekistan (NEGU)	Entity responsible for electricity transmission development projects in the country.	Off-taker and entity that signed the Power Purchase Agreement (PPA) with Company. NEGU has a key interest in the design, construction, commissioning, operation, and maintenance of the grid connection infrastructure and in ensuring the Project is integrated into the national transmission network in accordance with applicable technical and operational requirements. NEGU = will also be responsible for operating the Project's cable connection to the grid once constructed.
Youth Affairs Agency of the Republic of Uzbekistan	This is a government agency that works on programs and social issues for youth.	The Agency's specific focus is expected to be the potential for inclusion and engagement of young people to become part of the workforce as well as other overall development process of the project.

State Committee of Family and Women	This is a government entity that works on programs and social issues for women.	The Committee's focus is expected to be the potential for inclusion of and engagement of women groups within the workforce as well as other overall development process of the project.
Regional and Local Government Ministries and District Authorities		
Khokimiyat of Zarafshan District	Responsible for acting on behalf of its citizens for the sustainable development of the District.	Specific focus areas are expected to be grievance management, land-related impacts, local employment opportunities, and community development benefits implemented by the Developer.
Khokimiyat of Tomdi District		
Muruntau Mahalla	Responsible for acting on behalf of its citizens for the sustainable development of the Mahalla.	Specific interest areas are expected to include obtaining overall Project updates, grievance management, land-related impacts as well as ensuring benefits to local communities through procurement and employment opportunities as well as social responsibility programs.
NGOs		
Uzbekistan Society for the Protection of Birds	National organization involved in the protection of nature within the Project Area and wider region. This society is the local partner for Birdlife International in Uzbekistan.	Their specific focus is likely to include the potential impacts on biodiversity during construction and operation from the Project.
Association of Persons with Disabilities of Uzbekistan	This is an active NGO for Disabled People that has branches throughout Uzbekistan	Their specific focus is expected to be the potential for disabled people to become part of the workforce as well as other overall development process of the project.
Ne Molchi	NGO that works within the area of women domestic violence.	The organisation may have an interest in the management of potential GBVH and related grievances involving Project workers or community stakeholders.
Relevant health service providers and Civil Defense	Respond to emergency incidents should they occur onsite	They could provide health care services to the Project and its workforce (such as routine and non-routine medical examinations, checkups, etc.) or may support emergency response activities (such as workforce occupational accidents).
Academic and Research Institutions		
RES group of Academy of Sciences	Branch under the Academy of science with specific focus on environmental protection and management.	Potential interest to obtain information and updates on potential impacts of the Project on key E&S attributes to include biodiversity, archeology and cultural heritage, environment and other.
Research Institute for the Human Science under Academy of Science	Branch under the Academy of science with specific focus on archeology and cultural heritage.	
National Institute of Zoology under Academy of Science	Branch under the Academy of science with specific focus on biodiversity.	

Vulnerable Groups

A key stakeholder group to which particular attention must be considered during identification are vulnerable groups. Those are groups that, due to their socio-economic characteristics, may experience impacts more severely and/or disproportionally compared to the rest of the community members.

Vulnerable groups are project specific and depend on a range of issues which must be understood such as project location, socio-economic and demographic context, as well as the nature of the development and type of impacts anticipated. Vulnerable groups may be severely affected by the Project by virtue of their physical disability, social or economic standing, and limited education, lack of employment or access to land.

The key vulnerable groups within the context of the Project and their relevance are summarized in the table below.

The vulnerable groups potentially present within the Project area of influence are identified below, together with the measures adopted to facilitate their meaningful participation in the consultation process. It is important to note that the Mahalla level data relating to the presence and characteristics of such groups within Muruntau Mahalla is presented in "Section 15.1.2".

Table 12: List of Vulnerable Groups and Their Relevance

Group	Relevance	Description
Women groups	Could be considered vulnerable as cultural norms could limit their participation in the decision-making process in general that is related to the Project.	Women representatives were engaged as part of the scoping process.
		Stakeholder engagement strategy and plan within the Stakeholder Engagement Plan (SEP) targets women groups.
Disabled groups	Could be considered vulnerable groups mainly due to physical disability which could limit their access to information on the Project as well as participation in the decision-making process in general that is related to the Project.	Stakeholder engagement strategy and plan within the Stakeholder Engagement Plan (SEP) targets disabled group representatives. SEP will emphasize on venue accessibility as applicable.
Ethnic Minorities	Are defined as groups within a community which has different national or cultural traditions from the main population which could include language, religion, tribe, nationality, race or a combination thereof. Such groups are considered vulnerable as they could have difficulties in accessing social protection benefits as well as social development opportunities (e.g. employment) usually as a result of discrimination, economic and social disadvantage and other. Uzbeks make up the vast majority of the country's population (86.2%), with other communities such Tajiks, Kazakhs, Russians, Karakalpak, and Tatars making up the remaining 16.2%. Approximately 85% of the population is native Uzbek speakers, and the language is recognized as the sole official language. In addition, Russian is widely used in governmental and interethnic communication. Tajik, Kazakh, Tatar, and Kyrgyz are only some of the various ethnic languages spoken there. The majority of the population (about 88%) is Muslim, with the vast majority identifying as Sunni. There are 9% Eastern Orthodox Christians and 3% adherents to other faiths in the country.	

	Karakalpak are a Turkic ethnic group who live mostly in Karakalpakstan. They bring a distinct cultural identity, including their own language, to Uzbekistan's already varied population. Karakalpak are not the only people who call the autonomous republic of Karakalpakstan home; various other ethnic groups also call it their home. Despite being the majority ethnic group in Uzbekistan, Uzbeks are a sizable minority in Karakalpakstan, largely residing in cities. Kazakhs are a sizable minority among Uzbeks. They have deep cultural and historical ties to Kazakhstan, with whom they share a same language and bordering provinces like Tashkent and Surkhandarya. Russians are the largest Slavic ethnic group in Uzbekistan and have been present the longest. Tashkent, the country's capital and a major center of Russian influence, is home to a sizable population of Russian speakers. Tajiks represent Uzbekistan's second largest ethnic group. They are predominantly located around the borders, particularly in the provinces of Surkhandarya and Samarkand. The Tajik people have their own unique language and customs. Kyrgyz people in Uzbekistan are primarily concentrated in areas bordering Kyrgyzstan, such as the Fergana Valley. They have maintained their Kyrgyz cultural identity and language. Kyrgyz in Uzbekistan engage in various economic activities, including agriculture, livestock breeding, and handicrafts. Note based on information obtained though Focus Groups Discussions (FGD) with local communities, the majority of the community are primarily Uzbek with a small population of Russians, as well as Kazakh and Karakalpaks. However, all of these groups are part of the community since the Soviet Union era and are well integrated into society and are not subject to any discrimination or economic/social disadvantage. As such these will not be considered as vulnerable groups.	
People living in poverty / underprivileged communities	Could be considered vulnerable as their status could limit their access to information on the Project as well as participation in the decision-making process in general that is related to the Project.	It was ensured that all consultation and engagement activities undertaken as part of the scoping process provided stakeholder materials free of charge (e.g. venue, handouts, etc.). Similarly, the stakeholder engagement strategy within the Stakeholder Engagement Plan (SEP) emphasizes such a requirement as well.
The Aged	Could be considered vulnerable by limitations of access to participate in the Project related community decision-making process.	Practical logistical support will be provided to assist aged participants or their representatives to enable them to attend the disclosure process. Stakeholder engagement strategy and plan within the Stakeholder Engagement Plan (SEP) targets the elder representatives.
The Youth	Could be considered vulnerable due to their young adult, unmarried, non-asset owning status, yet likely to be savvier in 21st century technology than their elders, but may be unable to contribute in Project related community decision-making process, which will affect their generation more than most.	Youth representatives were engaged as part of the scoping process. Stakeholder engagement strategy and plan within the Stakeholder Engagement Plan (SEP) targets youth groups.

Language	Specific groups within local communities might have different languages. This could limit their access to information on the Project as well as participation in the decision-making process in general that is related to the Project.	All consultation and engagement activities undertaken as part of the ESIA or to be identified within the SEP (including materials and presentations) were/are undertaken in accordance with the key languages of the local communities (i.e. Uzbek and Russian as applicable).

6.3 Targeted Consultations

Targeted consultations were undertaken with various stakeholder groups as highlighted below. During such targeted consultations, a handout was provided in advance in local language (mainly in Uzbek language) which entailed information on the Project, its location, components, overall ESIA process, key impacts anticipated during the various Project phases, contact details, and other.

- National governmental entities;
- Regional governmental entities;
- Non-Governmental Organizations (NGOs);
- Infrastructure utilities such as gas companies; and
- Academic and research institutions.

The detailed minutes of meeting of such consultations along with name/position of person met for each entity are provided in Annex I.

Entity	Date	Key Outcomes
National Governmental Entities in Uzbekistan		
State Environmental Expertise Centre – National Committee on Ecology and Climate Change	02 May 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The ESIA methodology was presented to the Ministry, including the proposed approach for assessing key environmental and social risks and impacts. ▪ The Center confirmed that planned or ongoing economic and other activities are subject to State Environmental Expertise Centre to assess potential impacts on the environment and public health, confirm compliance with environmental requirements, and determine the feasibility of Project implementation. ▪ The Center stated that Environmental Expertise is undertaken in accordance with the following: - Law of the Republic of Uzbekistan "On Environmental Expertise, Environmental Impact Assessment and Strategic Environmental Assessment", - Cabinet of Ministers Resolution No. 14 dated 21 January 2014, and - Cabinet of Ministers Resolution No. 541 dated 7 September 2020. ▪ The Center indicated that, based on the proposed Project's capacity, the Project falls under Category 1 of environmental impact, Item 32 (activities involving thermal, photovoltaic, wind power plants and other combustion

		installations with a capacity of 300 MW or more), and therefore requires a comprehensive Environmental Assessment to be reviewed by the Center. ▪ The Center emphasized that implementation of the Project without obtaining a positive State Environmental Expertise conclusion is prohibited under national legislation, including: - Article 22 of the Law of the Republic of Uzbekistan "On Environmental Expertise, Environmental Impact Assessment and Strategic Environmental Assessment" and - Article 25 of the Law of the Republic of Uzbekistan "On Nature Protection". ▪ Sanitary protection zones shall be established in accordance with the requirements of Resolution No. 24 (15 August 2025) of the Committee for Sanitary-Epidemiological Welfare and Public Health under the Ministry of Health of the Republic of Uzbekistan (SanPiN No. 0103-25). ▪ The Center noted that open water bodies are considered protected areas in general and are subject to water protection requirements in accordance with Cabinet of Ministers Resolution No. 981 dated 11 December 2019. ▪ The project proponent is required to prepare a "Draft Environmental Impact Statement" for the construction of the Project and submit it through the electronic platform as follows: eco-service.uz, following which the project documentation will be reviewed, and the relevant Centre's conclusion will be issued.
Navoi Regional Department of Emergency Situations – Ministry of Emergency Situations	26 May 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The ESIA methodology was presented to the Ministry, including the proposed approach for assessing key environmental and social risks and impacts. ▪ The Department stated that the Project area is located within a predominantly desert area. Based on the information available to the Ministry, no vegetation fires or other major fire incidents have been recorded in the vicinity of the Project area. ▪ For past natural hazards, the Department did not provide information on flood pathways, historical flood events, mudflows, droughts, or other hydrometeorological hazards, however, information can be obtained from the Centre of Hydrometeorological Service of the Republic of Uzbekistan, Uzhydromet. ▪ The nearest rescue unit to the proposed Project site is located in the centre of Zarafshan City, at an approximate distance of 65 km from the Project area. As there are no paved roads beyond approximately the first 50 km of this route, access of rescue vehicles to the specified Project coordinates is limited. ▪ Due to the remote location of the Project, the Department recommended considering the establishment of appropriate emergency response and firefighting capacity at the Project site. ▪ The Department advised that the need for a dedicated fire and rescue station should be assessed in accordance with Clause 64 of SHNQ 2.09.17-21 "Design of Master Plans for Industrial Enterprises". ▪ For information on the nearest law enforcement agencies and police units serving the Project area, the Department recommended that the Project should contact the Ministry of Internal Affairs of the Republic of Uzbekistan and its relevant territorial divisions.

		▪ The Department indicated that, as the BESS comprises various buildings and structures, the following regulatory requirements and standards must be taken into account during the design process, including but not limited to: - SHNQ 2.09.17-21 “Fire Safety of Buildings and Structures” - SHNQ 2.09.17-21 “Design of General Plans for Industrial Enterprises” - SHNQ 2.09.02-23 "Production and Administrative Buildings and Structures of Enterprises – Design Requirements" - SHNQ 2.04.09-21 “Fire Automation Systems for Buildings and Structures” - SHNQ 2.04.02-19 “Water Supply – External Networks” - SHNQ 2.04.01-22 “Internal Water Supply and Wastewater Disposal Systems of Buildings” - “Rules for Electrical Installations” - Other applicable national norms and regulations.
Ministry of Mining Industry and Geology	25 May 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The ESIA methodology was presented to the Ministry, including the proposed approach for assessing key environmental and social risks and impacts ▪ The Ministry confirmed that there are no existing facilities belonging to the Ministry of Mining Industry and Geology within the Project area, and no such facilities are planned. ▪ It was further clarified that gas infrastructure does not fall within the authority or jurisdiction of the Ministry. ▪ The Ministry noted that “Navoi Uran,” a state organization engaged in uranium mining, is located in close proximity, however, outside the Project site. It was stated that a joint working group be established, potentially including ecology and engineering specialists from the Developer, to assess any potential interfaces or constraints. To do that, an official request should come from the Developer and the Ministry of Energy. ▪ An official response regarding ongoing and/or planned mining activities within the Project area is pending.
Uztelecom Joint Stock Company, Western Regional Branch – Ministry of Digital Technologies	29 April 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The ESIA methodology was presented to the Ministry, including the proposed approach for assessing key environmental and social risks and impacts ▪ The Ministry confirmed that optical fiber communication cables belonging to “Uzbektelecom” Western Branch of Joint Stock Company (JSC) and “IST Telecom” LLC are located within the general Project area; however, it was confirmed that the cables are located outside the Project site. Exact locations and maps cannot be disclosed at this stage due to security concerns, and a specialist will be present on site once construction commences. ▪ The Ministry stated that relevant Uzbektelecom representatives must be notified prior to commencement of works, and construction activities should be carried out under their supervision. Before excavation works begin, responsible specialists should identify the exact alignment and depth of the communication lines on site.

		▪ Construction and excavation works within the Project area must comply with the "Rules for the Protection of Telecommunication Lines and Facilities" approved under Cabinet of Ministers Resolution No. 210 (15 May 1998), including adherence to all applicable telecommunication infrastructure protection zone requirements during construction and earthworks activities. ▪ A 2 m protection corridor on each side of underground communication cables and overhead communication lines must be maintained. ▪ If relocation of communication lines becomes necessary, the Project should submit a formal written request to Uzbektelecom in accordance with national legislation Part 9 of Article 21 of the Law of the Republic of Uzbekistan "On Telecommunications". All relocation costs must be fully covered by the Project as the initiating party. ▪ Project design documentation should be prepared based on the issued technical conditions and coordinated with Uzbektelecom. Additional technical conditions may be required for any works conducted within the communication line protection zone. The technical conditions are valid for one year from the date of issuance and do not constitute authorization to commence construction or operation activities. ▪ Soil compaction and additional stabilization measures near communication routes are recommended during excavation works. ▪ Any damage caused to telecommunication infrastructure during Project implementation must be fully compensated by the Project or organization carrying out the works. ▪ For additional information and technical requirements, it is necessary to contact JSC "Uzbektelecom" and LLC "IST Telecom" in accordance with the established procedure.
Ministry of Culture	04 May 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The Ministry confirmed that matters related to material cultural heritage objects fall within the principal areas of activity of the Agency of Cultural Heritage, in accordance with the following: - Presidential Decree No. PF-269 of 21 December 2022 "On Measures for the Implementation of Administrative Reforms in New Uzbekistan"; and - Presidential Resolution No. PQ-177 of 1 June 2023 "On Measures to Ensure Effective Organization of Public Administration in the Field of Cultural Heritage within the Framework of Administrative Reforms". ▪ The Ministry directed the E&S Team to contact the Agency of Cultural Heritage directly for information relevant to other relevant development projects.
Agency of Cultural Heritage	24 April 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The authority stated that no existing secondary information relating to archaeological sites or cultural heritage objects are available for the Project area. ▪ However, the authority confirmed that no tangible cultural heritage objects were identified within the Project area. In addition, no cultural heritage sites or protected cultural heritage objects were identified within the Project site or within a 5 km radius. ▪ The authority indicated that no specific cultural heritage risks were identified based on the reviewed Project location information.

		▪ The authority did not specify any requirement for additional cultural heritage surveys within the Project area.
Institute of Anthropology (National Archaeological Centre) – Academy of Sciences	13 May 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The Institute stated that the Project area is located within the Central Kyzylkum mining region and the foothills of the Tomditov and Muruntau Mountains, an area considered to be archaeologically sensitive and where archaeological research has historically been conducted. ▪ Archaeological and ethnographic research has been undertaken in the wider area since 1937, with previous studies identifying archaeological remains associated with the Neolithic period, generally classified as sites belonging to the Kaltaminar Culture. ▪ The Institute confirmed that no officially registered archaeological or cultural heritage sites have been identified within the Project area or within a 5 km radius. However, the Institute emphasized that this does not exclude the possibility of previously unidentified archaeological or cultural heritage remains being present within the Project area. ▪ The Institute noted that several small mountain massifs located within the wider area of the planned Project site, which may contain archaeological remains dating from the Stone Age through to the Late Middle Ages, although this would require confirmation through field investigations. ▪ The Institute advised that archaeological reconnaissance and survey works should be undertaken prior to Project implementation and in coordination with the Institute. Such investigations should be carried out by qualified specialists to determine whether any archaeological or cultural heritage objects are present within the Project footprint. ▪ The Institute indicated that there are no previous or ongoing archaeological or cultural heritage surveys currently being undertaken within or near the Project area. ▪ If cultural heritage assets or archaeological remains are identified during the survey, further investigations may be required. ▪ The Institute stated that there is a potential risk that previously unidentified archaeological or cultural heritage remains could be disturbed during site preparation and construction activities, particularly in the absence of prior archaeological field investigations. It is important to note that an archaeological field survey was undertaken in June 2026 by archaeology and cultural heritage specialists in collaboration with the Institute of Anthropology, covering the full Project where no archaeological or cultural heritage objects were identified as discussed in Section 12 below.
Sanitary-Epidemiological Welfare and Public Health Committee – Ministry of Health	25 May 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The Project description, location, land area, coordinates, main components, and anticipated design, construction, and operation activities were presented to the Sanitary-Epidemiological Welfare and Public Health Committee under the Ministry of Health of the Republic of Uzbekistan. Project maps and a handout were also provided for reference. ▪ The Committee confirmed that it has no objection to the development and implementation of the Project, provided that the Project complies with the requirements of Sanitary Rules, Norms and Hygienic Standards SanQvaN No. 0103-25 “Sanitary Rules, Norms and Hygienic Standards for Sanitary Protection Zones”, as well as other applicable sanitary, hygienic,

		and occupational health and safety requirements during the design, construction, and operation phases. ▪ The Committee stated that the sanitary protection zone for the Project should be determined based on the distance between the BESS equipment and the nearest residential building, in accordance with the requirements of SanQvaN No. 0103-25. The Committee noted that compliance with the applicable sanitary protection zone requirements should be demonstrated during Project design and implementation. ▪ The Committee identified the following electromagnetic field limits as applicable to the Project during design and implementation: - Electric field strength inside residential buildings must not exceed 0.5 kV/m; - Electric field strength within residential areas must not exceed 1 kV/m; - Electric field strength at road crossings must not exceed 10 kV/m; - Electric field strength in non-residential areas must not exceed 20 kV/m; and - Magnetic field strength must not exceed 80 A/m, equivalent to 100 µT. ▪ The Committee emphasized the importance of occupational health and safety management during both construction and operation. In particular, the Committee stated that workplace attestation should be undertaken in accordance with Cabinet of Ministers Resolution No. 263 dated 15 September 2014 "On Further Improvement of Occupational Health and Safety Measures". ▪ The Committee stated that workplace attestation should assess working conditions, the severity and intensity of work processes, occupational injury risks associated with equipment and machinery, exposure to harmful and hazardous production factors, and occupational health risks to workers. ▪ The Committee advised that the results of workplace attestation should be used to inform employees of workplace conditions, identify potential adverse health risks, implement measures to protect workers from harmful and/or hazardous production factors, conduct occupational risk assessments, and provide employees with appropriate personal and collective protective equipment. ▪ The Committee further noted that workplace attestation results should be used to support the identification of occupational diseases where occupational illness is suspected, and to ensure that sanitary, welfare, and medical support is provided to employees in accordance with applicable occupational health and safety requirements, rules, regulations, and instructions.
Cadastre Agency – National Committee for Sustainable Development of Urbanization and the Housing Market	28 April 2026	▪ The Project description, location, coordinates, land area, and main components, including underground transmission line elements where relevant, were presented to the Zarafshan City Branch of the State Cadastres Chamber under the Cadaster Agency. Project maps and a handout were provided to support the discussion. ▪ The authority confirmed that the Project area is located within the territory of the Tomdibuloq Rural Citizens' Assembly, also referred to as Ovul Fuqarolar Yig'ini, in Tomdi District, Navoi Region. The nearest local community to the Project area was identified as Muruntau Mahalla Citizens' Assembly, also located in Tomdi District. ▪ The authority confirmed that the land within the Project area is under the administration of the State Institution "Navoi Regional Pasture Management Administration under the Committee for Veterinary and Livestock Development".

		▪ The authority indicated that the land within the Project area is formally designated as pasture land and is used for livestock grazing purposes. ▪ However, it was also noted that an official response from the Pasture Management Administration confirmed that the designated pasture land within the Project area is not currently allocated under lease for livestock grazing or any other use. ▪ The authority confirmed that land plots located within a 5 km radius of the Project area include lands belonging to Navoi Mining and Metallurgical Company, Diamond House Farm Enterprise, and the Navoi Regional Pasture Management Administration. This information is relevant to the identification of nearby land users and the planning of the Project's socioeconomic baseline surveys. ▪ The authority indicated that information on existing landowners, land users, and any private or communal land uses within or near the Project area should be further confirmed with the Navoi Pasture Management Administration, as the competent entity responsible for the pasture land. ▪ The authority confirmed that there are no existing or historical land disputes or conflicts associated with the Project area. ▪ The authority did not identify any additional issues of concern or additional requirements to be considered at this stage.
Navoi Regional Pasture Management Administration – Committee for Veterinary and Livestock Development	05 May 2026 20 May 2026	▪ The Administration confirmed that the pastureland plots within the Project area belong to the State Institution Navoi Regional Pasture Management Administration pursuant to Presidential Decree No. PF-15 (30 January 2025) "On Measures for Introducing Modern Mechanisms for the Protection, Efficient and Rational Use of Pastures". ▪ The Administration confirmed that the identified pastureland plots have not been allocated for lease for livestock farming or any other purposes. ▪ The Administration confirmed that there are no existing land users within the Project area. ▪ In addition, the Administration confirmed that it has no objection on the return of the land plots to the national reserve land fund of the relevant district Khokimiyat and to the change of land category.
Ministry of Poverty Reduction and Employment – Navoi Regional Department of Poverty Reduction and Employment	1 May 2026	▪ The Project description, location, coordinates, land area, and main components, including underground transmission line elements where relevant, were presented to the Navoi Regional Department of Poverty Reduction and Employment. Project maps and a handout were provided to support the discussion. ▪ The ESIA methodology was presented to the Department, including the proposed approach for assessing labor and working condition risks during the construction and operation phases. The E&S Team explained that the assessment will consider occupational health and safety risks to workers, labor rights risks, working conditions, and worker welfare facilities. ▪ The Department emphasized the importance of ensuring compliance with occupational health and safety requirements during both the construction and operation phases of the Project. Particular attention should be given to labor protection, safe working conditions, electrical safety, construction safety, and protection of workers' rights in accordance with national legislation. ▪ The Department highlighted the importance of assessing and managing labor-related risks, including labor exploitation, discrimination, excessive working hours, inadequate compensation or leave arrangements, child labor, forced labor, confiscation of passports or personal documents, and inadequate worker welfare conditions.

		▪ The Department noted that the Project should ensure adequate labor facilities and welfare provisions for workers, including accommodation where relevant, sanitary facilities, access to drinking water, changing rooms, and other facilities required under applicable occupational health and safety and labor requirements. ▪ The Department identified the following national legal and regulatory requirements as applicable to occupational health and safety: - Labour Code of the Republic of Uzbekistan, Chapter 20, Occupational Health and Safety; - Law of the Republic of Uzbekistan No. ORQ-410 dated 22 September 2016 "On Occupational Health and Safety"; - Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 819 dated 24 December 2025 "On Approval of Certain Regulations in the Field of Occupational Health and Safety"; - Rules of the State Agency for Supervision in the Electric Power Sector No. 374 dated 29 November 2001 "Rules for the Application and Testing of Protective Equipment Used in Electrical Installations"; - Order of the Minister of Labour and Social Protection of the Population of the Republic of Uzbekistan, registered on 7 June 2013 under No. 2466, "On Approval of Occupational Health and Safety Rules for Working with, Repairing and Servicing Electrical Appliances and Office Equipment"; - SHNQ 3.01.02-23 "Safety in Construction", registered by the Ministry of Justice on 14 December 2023 under registration No. 222; and - SHNQ 2.09.02-23 "Production and Administrative Buildings and Structures of Enterprises, Design Requirements", registered by the Ministry of Justice on 2 October 2024 under registration No. 301. ▪ The Department emphasized that, where third-party contractors are engaged during construction, occupational health and safety requirements should be clearly defined and incorporated into the relevant contractor arrangements, including Permit to Work procedures where applicable. The Department also advised that responsibilities between the Project Company, client, and contractor should be clearly defined, including responsibility for implementation, supervision, and compliance with occupational health and safety requirements during construction. ▪ The Department confirmed its readiness to cooperate and provide further explanations and recommendations regarding any additional normative legal documents related to occupational health and safety, where required.
Navoi Regional Main Department of Roads – Committee for Roads – Ministry of Transport	28 April 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The ESIA methodology was presented to the Department, including the proposed approach for assessing key environmental and social risks and impacts. ▪ The Department indicated that Highway A379 "Navoi – Uchquduq", passing through the Project area, has an average daily traffic volume of around 10,000 to 15,000 vehicles along the 0–200 km section. The Department also noted that this section includes a total of eight (8) road structures, comprising seven (7) bridge structures and one (1) overpass, and that the average axle load is 10 tonnes. ▪ The Department stated that, in accordance with Clause 18 of SHNQ 2.05.02-23, buildings and structures located along public international and

		national roads shall be designed at a distance of not less than 57.5 m from the road centreline. ▪ The Department noted that, should access to the Project sites be required, the Project contractor may construct new access roads intersecting with or connecting to the public road network. Such roads should comply with the requirements of Chapter 7 of SHNQ 2.05.02-23, including Clauses 150, 152, and other relevant provisions. ▪ The Department further stated that any new access roads should be equipped with the appropriate road signs and supported by approved design and cost-estimate documentation. ▪ The Department stated that, pursuant to the Rules for Ensuring Traffic Safety during the Transportation of Oversized and Heavy Loads by Road Transport, approved under Annex 2 to Cabinet of Ministers Resolution No. 342 dated 26 December 2011 "On Measures to Ensure and Organise Road Safety on the Roads of the Republic of Uzbekistan", standards have been established regarding the weight and dimensional parameters of vehicles operating on public roads. ▪ The Department explained that where any weight or dimensional parameter of a vehicle exceeds the established limits, whether loaded or unloaded, the vehicle shall be classified as oversized and/or heavy. ▪ The Department confirmed that transportation of oversized and/or heavy cargo by road may only be carried out under a special permit and only in cases where the cargo cannot be divided into smaller parts and transported by other means. ▪ The Department confirmed that where a special permit is required, the application shall be submitted online through the electronic licensing system in accordance with Cabinet of Ministers Resolution No. 86 dated 22 February 2022 "On Approval of the Unified Regulation on Procedures for Issuing Certain Permitting Documents through a Special Electronic System", through https://license.gov.uz.
Khokimiyat of Tomdi District – Navoi Region	12 May 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The Khokimiyat confirmed that the Project site is located within Tomdi District, Navoi Region. ▪ The Khokimiyat confirmed its readiness to provide practical cooperation and support during the implementation of the Project, including assistance regarding additional information on the Project area, location maps, and engagement with local communities. ▪ The Khokimiyat recognized that implementation of the Project will play an important role in the development of renewable energy sources within the district, the establishment of modern energy infrastructure, the creation of new employment opportunities, and the enhancement of the district's investment attractiveness. ▪ The nearest settlement to the Project site was identified as the Muruntau Community area. The Khokimiyat recommended coordinating future stakeholder engagement activities with the Muruntau Community administration, which was done by the E&S Team as presented in Section 6.4.1 below. Regarding local labor availability, recruitment of unemployed residents and finding suitable candidates, the Khokimiyat recommended coordination with Tomdi District Department of Poverty Reduction and Employment. ▪ It is anticipated that the construction phase of the Project will create temporary employment and procurement opportunities for local

		businesses, with additional permanent employment opportunities expected during the operational phase. ▪ The Khokimiyat recommended organizing regular public consultations, meetings, and awareness sessions with local communities and stakeholders, and advised that Project updates, documentation, consultation processes, and announcements should be communicated through: - Mahalla Citizens' Assembly offices - Official information channels and social media platforms of the District Khokimiyat - Public meetings and roundtable discussions. ▪ The Khokimiyat also recommended maintaining regular dialogue with local activists, entrepreneurs, livestock breeders, and land users throughout the Project lifecycle. ▪ To ensure participation during scoping and disclosure sessions, the Khokimiyat recommended organizing open public consultations, roundtable discussions, and information meetings within Mahallas and coordination with local authorities and representatives of Mahallas, ecology, cadaster, youth, and women's groups, including the following institutions: - Tomdi District Khokimiyat - Rural Citizens' Assemblies (OFYs) - District Ecology Department - District Construction and Cadastre Departments - Department for Veterinary and Livestock Development - Youth Affairs Agency and Women's Representatives. ▪ The Khokimiyat recommended that employment vacancies and procurement opportunities be announced through Mahallas, local authorities, official information channels, social media platforms, and employment departments (Department for Poverty Reduction and Employment) and that priority will be given to local residents, particularly youth, women, and unemployed citizens. ▪ The Khokimiyat noted that the Project land belongs to the Navoi Region Pasture Management Department and is classified as pastureland. ▪ The Khokimiyat emphasized on compliance with land, environmental, and urban planning legislation. ▪ They expressed readiness to support stakeholder engagement activities and coordination of meetings with relevant stakeholders, including online meetings via the Zoom platform. ▪ Two requests were raised as follows: - Whether the investment Project could be registered within Tomdi District so that it may be considered a local project and relevant taxes would contribute to the Tomdi District budget. Information regarding regional tax benefits was provided accordingly. - Whether a specialist could be assigned to support the land acquisition process.
Lower Zarafshan Irrigation Systems Basin Administration – Ministry of Water Resources		▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The ESIA methodology was presented to the Ministry, including the proposed approach for assessing key environmental and social risks and impacts.

		▪ The Ministry confirmed that there are no rivers, canals, or other water management facilities under the jurisdiction of the water authorities within the Project area. ▪ The Ministry further confirmed that there are no existing or planned water management facilities, canals, or related infrastructure within the Project area or within a 5 km radius of the site. The local ecologist additionally confirmed that there are no wastewater pipelines within the Project area or the surrounding 5 km radius. ▪ It was noted that Zarafshan is characterized as a desert-like city and is primarily an industrial area. The main water supplier to Zarafshan is Vodovod, which sources water from the Amu Darya River and subsequently distributes water to the mining site and the local water utility entity. ▪ The Ministry noted that the general Tomdi District is specialized in livestock farming and that agricultural crop production is not possible within the district. ▪ The local water utility confirmed that no water supply facilities are located within the Project site area, as the site is situated away from Zarafshan City and the utility infrastructure is concentrated within the city and nearby populated areas.
Family and Women's Affairs Department – Tomdi Khokimiyat	28 April 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The ESIA methodology was presented to the Ministry, including the proposed approach for assessing key environmental and social risks and impacts. ▪ The Department advised that communication of Project-related updates, disclosure materials, and other relevant information to women's groups can be coordinated directly through the Deputy Hokim, who also serves as the Head of the Family and Women's Affairs Department. ▪ To ensure women's participation in scoping and disclosure sessions and in employment and procurement opportunities, coordination should be undertaken through the Deputy Hokim, Head of the Family and Women's Affairs Department. ▪ No additional issues of concern or additional requirements were identified.
Academic and Research Institutions		
Institute of Zoology of the Academy of Sciences	17 June 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The ESIA methodology was presented to the Ministry, including the proposed approach for assessing key environmental and social risks and impacts. ▪ The Zoology Institute confirmed that it has no objection to the implementation of the planned BESS Project. ▪ The Institute noted that, if scientific studies related to fauna and fauna protection are considered necessary during Project implementation, the Institute has the scientific capacity to cooperate on such studies.
Other Stakeholders		
Muruntau 500/220 kV Substation, Technical water supply pipeline	14 May 2026	▪ The authority confirmed that the water pipeline running through the Project Site is operational and belongs to the Muruntau 500/200 kV

		Substation. It currently functions as an active technical water supply pipeline serving the substation. ▪ Regarding any applicable buffer or setback requirements associated with the pipeline, the substation technical staff indicated that they were unable to provide this information and recommended consulting the Design Institute responsible for the original design or the third-party contractor involved in the Project development. ▪ The authority confirmed that there are no additional pipelines within the Project site.
Existing Water Pipeline Contractor and Design Institute	04 June 2026	▪ The third-party contractor responsible for the construction of the water pipeline was contacted to obtain information on the pipeline alignment, technical details, and any applicable buffer requirements. The contractor referred the E&S Team to the Design Institute that prepared the original design for the pipeline. ▪ Following consultation with the Design Institute, it was confirmed that an as-built survey has not been undertaken for the water pipeline. As such, the actual post-construction coordinates, alignment, and dimensions of the pipeline could not be confirmed against the original design information. ▪ The consulted parties did not provide any specific buffer or setback requirements for the water pipeline. In the absence of confirmed as-built information and defined buffer requirements, the actual location, technical details, and applicable protection requirements for the water pipeline remain unverified. ▪ An as-built survey may therefore be required to confirm the pipeline alignment and avoid potential conflicts with Project design or construction activities.
Central Mining Administration of Navoi Mining and Metallurgical Company (NMMC) JSC	15 May 2026	▪ The Administration confirmed that there are no planned mining projects within the immediate Project area. It was noted that the area was previously visited and reviewed in 2024. It was noted that Navoi Uran previously conducted uranium mining activities approximately 2 km from the Project site. ▪ The Administration indicated that the NMMC Plant No. 7 facility is located approximately 2 km from the Project site, while the nearest quarry is located approximately 5 km away. ▪ The Administration confirmed that the Project area is located within a desert zone with very limited vegetation cover, and that no protected areas, restricted zones, or specific land use constraints were identified within the Project area. ▪ No specific geotechnical constraints, groundwater issues, or unsuitable construction conditions were identified. ▪ The Administration stated that blasting activities are conducted approximately 2-3 times per week at the quarry site. However, due to the distance of approximately 5 km between the quarry and the Project area, blasting vibrations are not expected to affect the Project site. It was also noted that vibrations do not reach NMMC's nearby Plant No. 7, which is located closer to the quarry. ▪ Dust emissions generated by heavy machinery and mining activities were identified as the primary environmental impact associated with quarry operations. ▪ The Administration confirmed that the proposed BESS Project is located outside the risk zone associated with nearby mining operations. It is sufficiently far from the mine/quarry operations and is not expected to affect existing mining activities.

		▪ The Administration confirmed that the UZtelecom recently installed telecommunication lines in the nearby area, while no NMMC water pipelines are located within the Project area. It was also noted that an NMMC electrical transmission line may be present on the opposite side of the road from the proposed Project site. No specific road use restrictions or infrastructure constraints affecting the Project were identified. ▪ The main water supplier to Zarafshan is Vodovod. Drilling a dedicated groundwater well for the Project may be more cost-effective than connecting to the existing water supply network, although connection to existing infrastructure may be possible subject to management approval and contractual arrangements. ▪ Wastewater from operations is conveyed through existing pipelines to a wastewater storage/disposal facility located approximately 35 km away. Potential connection to this system may be possible subject to approval. In case the Project generates domestic waste due to onsite personnel, a contract can be concluded with an authorized waste collection company for regular waste removal. ▪ Air quality and noise monitoring is conducted on a weekly and monthly basis in the mining facility, and monitoring results are regularly submitted to the regional environmental authorities and the nearby Muruntau settlement. The primary source of air emissions associated with mining activities is dust generated from quarry operations, blasting activities, and heavy machinery. ▪ The Administration stated readiness to assist the Project by providing updated environmental monitoring analyses upon request and confirmed willingness to support the E&S Team on environmental matters.
Uzbekistan Society for the Protection of Birds	14 July 2026	▪ The Project description and ESIA methodology was presented, including its components, location and anticipated construction and operation activities. ▪ The Society confirmed that the construction of the BESS facility will not result in significant changes to the landscape and natural conditions of the Project area. ▪ The Society noted a number of potential indirect impacts associated with the Project. This includes that the energy storage system may become a source of light during night-time hours and attract insects, and consequently bats and nocturnal insectivorous birds. In addition, glazed surfaces, where provided, may pose a risk of bird collision where windows are illuminated or where glass reflects the surrounding landscape. ▪ The Society further noted that the operation of construction machinery may pose risks to reptile species inhabiting the Project site. In this regard, the Society recommended providing measures to ensure maximum safety of Central Asian tortoises during the movement of construction machinery and vehicles throughout all phases of the works, and organizing seasonal observations at the site of the species composition of birds and bats present and the potential threats to them. ▪ The Society also recommended applying its methodology for reducing the risk of bird collision with glass. ▪ Finally, the Society advised that particular attention should be given to the management of food waste and to avoiding open areas of technical or domestic water in the vicinity of construction camps, as these may attract various animal species to the Project site and create additional risks for them. ▪ The recommendations of the Society were taken into account within the biodiversity assessment as discussed in "Section 11.3.1".

6.4 Focus Group Discussions (FGDs)

6.4.1 Local Communities

Two (2) FGDs were undertaken as part of the stakeholder engagement process. One (1) FGD was held with the Muruntau Community, refer to “Section 2.2” and one (1) FGD was conducted with representatives of the Tomdi Khokimiyat and the Navoi Mining and Metallurgical Company (NMMC). The FGD with the Muruntau Community was an open invitation session that was announced to local communities through Telegram Channels at least five (5) days in advance of the session, refer to Figure 13.

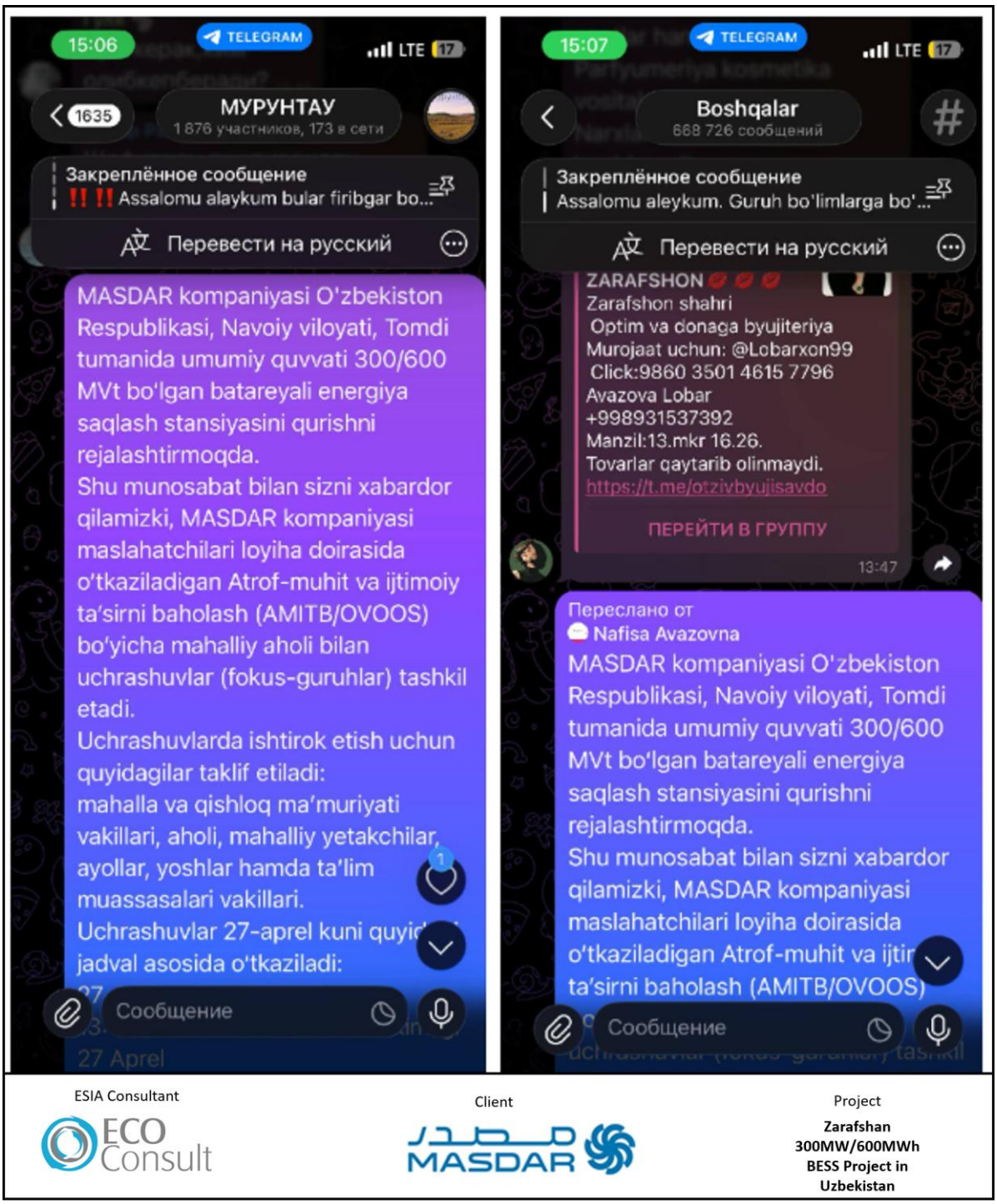


Figure 13: Sample FGD Announcement on Telegram Channel

In addition, key invitations were sent to the following groups in particular:

- Mahalla Committee including Mahalla Chair (for details on setup of the Mahallas please refer to "Section 2.2" earlier)
- Women that include women group representatives.

- Educational workforce (teachers in schools and school principals).

At the beginning of the session, a presentation on the Project was first provided along with a handout on the following key topics.

- Description of the Project location along with maps;
- Description of key Project components along with figures and illustrations;
- Description of the key activities anticipated in each key phase of the Project (planning, construction and operation)
- Description of ESIA study and its key components and requirements;
- Explanation of key anticipated E&S impact under each phase of the Project; and
- Explanation of the methodology and scope of work that will be undertaken for the ESIA.

Upon completion of the above informative session, each group was separated for general discussions as well as discussion on any comments or key issues of concern on the overall Project and/or the ESIA process in particular. Key discussions were undertaken in relation to the following key aspects:

- Economic activities and livelihood strategies
- Community quality of life
- Perceptions towards the Project

The presentation and handouts were provided in Uzbek language, while the delivery of the presentation was in Uzbek and Russian language depending on the audience.

Annex 2 present the handout and presentation that was provided during each of these FGDs as well as the forms used throughout the FGD.

The table below presents an overall summary of the outcomes of these FGDs for each community.

Table 13: Key Outcomes of FGDs

Community	Date	Key Outcomes
Muruntau Community	27 April 2026	▪ The community raised questions regarding employment opportunities for local residents. It was explained that the construction company plans to recruit temporary workers from nearby settlements during the construction phase, and information regarding employment opportunities will be shared through the Mahalla Chairperson once the Project starts. Additionally, the Mahalla Chairperson requested that the Developer give priority to local residents when hiring workers during the construction phase. ▪ Community members inquired about accommodation arrangements for workers. It was clarified that labour camps will be established during the construction phase for foreign workers, and transportation may be arranged for commuting workers. ▪ A question was raised regarding fire safety risks associated with the battery storage system. It was explained that detailed assessments have been conducted and recommendations obtained from the Ministry of Emergency Situations, including requirements for firefighting arrangements and emergency response. Community members commented that firefighting support may potentially be assigned to the nearby gold mining site

		firefighting facility. ▪ A concern was raised regarding the potential risk of explosion associated with the facility. It was clarified that the technology has undergone international testing and that appropriate preventive and mitigation measures have been implemented for emergency situations. ▪ Community members asked about the future disposal of batteries. It was explained that the batteries have an estimated lifecycle of approximately 15 years, after which disposal or recycling arrangements will be developed, through a dedicated recycling facility. ▪ A question was raised regarding potential impacts of the Project on the surrounding community. It was clarified that the facility is not expected to generate significant negative impacts on the community and that the facility will be used to store electricity and does not emit radiation, dust nor noise. ▪ Community members asked whether the facility is intended to support the Zarafshan wind turbines. It was clarified that the technology be connected to the "Muruntau 500 MW" substation to support the national grid. ▪ A question was raised regarding the cooling system of the battery storage facility. It was explained that the BESS includes a built-in cooling system, in addition to liquid cooling systems installed around the battery containers. ▪ Community members asked about the anticipated construction schedule. It was explained that construction is planned to start towards the end of the year. Community members noted that winter conditions in the area can be harsh and suggested that construction activities would be more suitable during the summer or autumn periods. ▪ Questions were raised regarding whether the electricity stored within the BESS would be sold. It was clarified that the electricity will only be stored temporarily and then returned to the substation, functioning similarly to a power bank. ▪ Community members requested additional information materials and communication channels to better understand the Project. It was confirmed that Project handouts, presentations, brochures, and other relevant materials would be shared through the Muruntau Community Telegram group. ▪ A separate conversation was held with women attendees regarding potential opportunities such as education support and employment. One woman specifically mentioned she attended to inquire about job opportunities for herself and her family members. ▪ Project consultation materials, including the Project Information Brochure and a hard-copy map showing the Project location, were provided to the Mahalla Chairperson and displayed inside the Mahalla administration building for public access.
Tomdi Khokimiyat and the Navoi Mining and Metallurgica - Company (NMMC)	30 April 2026	▪ Questions were raised by NMMC whether any market research had been conducted for the Project, whether there is sufficient demand and if customers had been identified. It was clarified that the BESS Project is not intended for commercial electricity sales. The system will primarily support the Muruntau Substation and the connected electricity network and that the Project does not depend on identifying customers or selling electricity in the market. ▪ Questions were raised by NMMC whether the stored electricity would only be used during emergency situations or if it would also improve the reliability of the electricity network. It was explained that the Project will support overall grid stability and reliability and that the system will benefit all users connected to the Muruntau Substation and the national grid. ▪ Questions were raised by NMMC regarding the expected lifespan of the

		batteries, their replacement and disposal, and potential environmental impacts. It was explained that the Project will use lithium-ion batteries installed within dedicated containers equipped with individual cooling systems and fire safety measures. The batteries are expected to operate for approximately 15 years, after which they will be replaced or decommissioned. It was clarified that there are currently no operating large-scale lithium-ion battery recycling facilities in Uzbekistan; therefore, used batteries are expected to be transported to specialized recycling facilities, including facilities located in Kazakhstan. It was further explained that the safety of the BESS technology has been assessed by the Developer and relevant authorities, including the Ministry of Emergency Situations, and that the container layout has been designed to minimize the spread of potential incidents between containers. ▪ Concerns were raised by NMMC raised regarding water availability for the Project, particularly in light of NMMC's planned expansion of its gold production operations and the associated increase in water demand in the area. It was explained that water demand during Project operation is expected to be minimal, with water primarily used for cooling and safety systems. ▪ Representative of the Tomdi District Khokimiyat raised questions regarding the potential economic benefits of the Project for the district and requested that the Project company consider registering its legal address in Tomdi District. It was explained that decisions regarding the legal registration of the Project company are made by the Developer and relevant government authorities. The E&S Team confirmed that the recommendation would be communicated to the Developers for consideration. The representative of the Tomdi District Khokimiyat further noted that Tomdi District benefits from certain tax incentives as a Category 5 development area and encouraged the Project developers to review the relevant regulatory provisions and potential advantages associated with registration in the district. ▪ The representative of the Tomdi Khokimiyat requested that, once land allocation procedures commence, the Project should appoint a dedicated specialist or focal point to coordinate directly with local authorities and provide technical support throughout the process.

Figure 14: FGD with Muruntau Community

In addition to the above, consultations were undertaken on 27 April 2026 at Zarafshan City Khokimiyat with regional stakeholders, including representatives of Zarafshan City Khokimiyat, relevant environmental, cadastral, electricity supply, investment, mahalla, and other technical authorities. The purpose of the meeting was to introduce the Project, present the Project location and key components, explain the ESIA methodology, and discuss stakeholder-specific issues relevant to Project planning and permitting. Project maps and brochures were distributed during the meeting, and the Project site location was demonstrated to the attendees.

Stakeholders raised comments and questions related to environmental permitting, battery disposal, emissions and dust control, greening requirements, vegetation surveys, infrastructure clearances, underground utilities, grid connection, construction traffic, administrative coordination, and land jurisdiction as presented in the table below.

Entity	Comment / Question	Response / Follow-up
All Stakeholders / Introductory Session	The Project was introduced to regional stakeholders, including its location, main	It was explained that the Project will support the existing infrastructure facilities and other users connected to the Muruntau 500 kV substation by

	components, purpose, and ESIA study methodology. Project maps and brochures were distributed, and the Project site location was demonstrated.	supporting more stable electricity supply. It was also noted that official letters had been sent to relevant stakeholders, and that biodiversity, ecology, and social studies were ongoing. The results of these studies will be shared during a public meeting planned for July 2026, where nearby communities and stakeholders will be able to provide opinions to be reflected in the ESIA. Please note that these were shared during the public Hearing that was undertaken on 18 July 2026 as discussed in Section 6.4.1 below.
Tomdi District Environmental Department	Clarification was requested on the separation distance between the BESS facility and nearby infrastructure.	It was noted that the nearest existing facility is a National Electric Grid substation located around 300 m from the proposed Project site. The substation has already obtained environmental approval and is understood to employ around 20 personnel.
	Information was requested on how batteries will be disposed of at the end of their operational life.	It was explained that the Project is expected to have an operational life of around 15 years. At the end of the battery lifecycle, batteries are expected to be sent to a specialized recycling facility, with a suitable facility most likely a currently operating in Kazakhstan.
	Clarification was requested on whether dust control or air pollution monitoring equipment would be required, noting that Government Resolution No. 81 introduced such requirements for Category I and II facilities.	It was explained that dust control equipment is not expected to be required, as the Project will not generate dust emissions during operation. The facility is also not expected to produce significant noise or other emissions under normal operating conditions.
	Clarification was requested on landscaping and greening requirements for the site, noting that construction regulations require a portion of the site area to be allocated for greening.	It was explained that the E&S Team will review the relevant decree and assess the applicable landscaping and greening requirements.
Cadastral Chamber	A request was made to provide the Project's KMZ file for review.	It was confirmed that the KMZ file will be provided, and that it had already been shared with the relevant specialist for review.
Electricity Supply / Regional Electric Networks	Clarification was requested on whether the Project connection will be established using an Underground Transmission Line.	It was explained that the Ministry of Energy will also send an official letter to the relevant electricity supply organization regarding this matter. At the time of the consultation, no information was available regarding the connection type, therefore, it was explained that the grid connection will be either through an OHTL or Underground Transmission Lines.
	It was noted that there is no major infrastructure within the Project area, although a 220 kV transmission line passes nearby and a 5 kV	It was noted that an official request had been submitted to the Regional Electric Networks, and the E&S Team requested that a response be provided once the request has been reviewed.

	line is located adjacent to the Project.	
	It was noted that telecommunications infrastructure may be present in the area, including an underground communications cable.	This information was noted and will be considered during further Project planning and coordination with relevant infrastructure owners.
	The entity stated that it can provide information on safety clearance requirements for network infrastructure. It was noted that a 500 kV transmission line requires a 30 m safety buffer, although the transmission line does not cross the Project site and changes direction nearby.	The E&S Team noted the information and will take applicable safety clearance requirements into account during design and permitting. It was elaborated that consultation were undertaken with the Uztelecom Joint Stock Company, Western Regional Branch – Ministry of Digital Technologies regarding infrastructural matters.
	Clarification was requested on the storage capacity of the BESS and whether it stores electricity for long periods.	It was explained that the BESS will have a storage capacity of around 600 MW and is designed to charge and discharge electricity multiple times per day, typically up to four cycles. It was clarified that the BESS does not store electricity for long periods, such as a month, but continuously receives and releases power.
	Clarification was requested on the expected operational life of the facility.	It was clarified that the expected operational life of the facility is around 15 years.
	Clarification was requested on the benefits that the BESS will provide to the electricity network.	It was explained that the BESS will help stabilize the grid by balancing fluctuations in electricity supply and demand. It will improve grid reliability, support the integration of renewable energy sources such as wind power plants, and provide backup support during grid disturbances or emergency situations.
Mahalla Association	The E&S Team noted that heavy vehicles will access the Project during construction and that the Mahalla Association should be informed and kept updated regarding these activities.	The Mahalla Association acknowledged the need to be informed and kept updated during the construction phase.
Zarafshan City Khokimiyat	It was noted that the Project is administratively located within Tomdi District and that relevant stakeholders in Tomdi District should also be consulted.	It was explained that although the Project is administratively located within Tomdi District, it is situated close to Zarafshan and its infrastructure and deemed it important to consult with the Zarafshan City Khokimiyat. It was also explained that consultations also took place with Tomdi District Khokimiyat and relevant stakeholders.
Family and Women's Affairs Department	Clarification was requested on the purpose of the Project.	The E&S Team provided an overview of the BESS, including its purpose, operation, and role in

		supporting grid stability and renewable energy integration.
Navoi Region Investment Department	It was noted that the Project area falls under the jurisdiction of the Pasture Management Authority in Navoi Region. The entity requested the Project site coordinates, noting that the information had not yet been received and may have been forwarded to the Construction Department.	It was confirmed that the Project map, coordinates, and supporting materials will be sent together with the official letter.
	Clarification was requested on whether the Project had been coordinated with the Ministry of Energy.	It was confirmed that an agreement is in place with the Ministry of Energy. It was also noted that consultations had been undertaken with the Zarafshan City Administration and representatives of Muruntau Mahalla.
Central Mining Administration	The entity participated in the meeting as a relevant regional stakeholder. No specific question or comment was recorded in the minutes.	No specific response was recorded.
EnergoTrade	The entity participated in the meeting as a relevant stakeholder. No specific question or comment was recorded in the minutes.	No specific response was recorded.
Muruntau MFY	The entity was referenced as part of the broader stakeholder engagement process, and consultations with Muruntau Mahalla representatives were noted.	It was noted that consultations had already been conducted with representatives of Muruntau Mahalla.

Figure 15: FGD with Zarafshan City Khokimiyat

Public Hearing Results

In line with the requirements of Resolution No. 541 of the Cabinet of Ministers on the Procedure of the EIA Mechanism (7 September 2020), and as committed during the targeted consultations described above, a formal Public Hearing for the Project was held on 18 July 2026 at the Muruntau Mahalla in Tomdi District, Navoiy Region. The hearing was chaired by the Chairman of the Muruntau Mahalla, with the Mahalla social

worker acting as meeting secretary. The session was convened as an open community event, and the proceedings were formally recorded in a meeting protocol which was subsequently signed and stamped by the attending officials.

The Public Hearing was attended by the following:

- Chairman of the Muruntau Mahalla (meeting chair);
- Social worker of the Muruntau Mahalla (meeting secretary);
- Specialist of the Tomdi District Ecology Department;
- Members of the Muruntau Mahalla Committee;
- Community Members; and
- Deputy Khokim of Tomdi District.

The session was opened by the Mahalla Chairman, who introduced the agenda to the participants. A presentation on the Project was then delivered by the E&S Team. The objectives of the Public Hearing included the following:

- Introducing the Project to stakeholders;
- Present the results, outcomes and conclusions of the ESIA study
- Allow stakeholders to raise any comments or issues of concern in relation to ESIA study to include but not limited to the baseline results, impacts, mitigation, monitoring measures, etc.
- Discuss any questions, inquiries, or issues of concern raised by stakeholders

It was further explained that the Project represents one of the advanced renewable energy technologies being introduced in Uzbekistan. Following the presentation, an open discussion was held with the participants. The table below presents an overall summary of the outcomes of the Public Hearing.

Table 14: Key Outcomes of the Public Hearing

Date	Key Outcomes
18 July 2026	▪ Participants raised questions regarding the land area required for the Project. It was explained that the Project will occupy approximately 10 ha during construction, that the land is currently classified as pasture, and that its land category will be changed and the plot transferred to the National Treasury and then to the Ministry of Energy. ▪ Questions were raised regarding noise generated by the Project. It was explained that noise levels along the Project perimeter are expected to be in the range of 50–60 dB, reducing to 10–20 dB at the distance of the Mahalla (10–12 km), which is considerably below nationally and internationally accepted standards, and that limited noise is anticipated during both construction and operation. ▪ Community members enquired whether animals would leave the area as a result of the Project. It was explained that animals may move away from the area once construction commences, that this is not considered harmful to them. ▪ Questions were raised regarding restrictions on access to the area, including for sheep and other livestock. It was clarified that the Project area will be fully fenced, and that at the current pre-construction stage bricks have been laid around the site to avoid harm to tortoises. It was also explained, that through consultations and site surveys undertaken, it was confirmed that there are no formal or informal physical or economical land use activities within the Project site.

Date	Key Outcomes
	▪ Community members enquired whether waste generated by the Project would cause harm to the surrounding area. It was clarified that the EPC Contractor will enter into contracts with local waste transporters and that waste will be taken to the designated authorized landfill. ▪ Questions were raised regarding the construction programme and workforce requirements. It was explained that construction is planned to commence in autumn 2026, during the fourth quarter of the year, were jobs will be available for applicants from the Muruntau Mahalla. ▪ Community members asked whether local residents would be employed and how workers would be transported to and from the site. It was explained that local employment is anticipated, and that a temporary accommodation camp will be established during construction or bus transport could be arranged for commuting workers where required. ▪ Questions were raised regarding the skills required among the permanent workforce, including whether electrical specialists would be needed. It was explained that many temporary jobs are required for both men and women. ▪ A question was raised regarding the installation of a lightning protection system. It was explained that the BESS technology has been assessed in this regard and that provisions have been made for such events. ▪ Questions were raised regarding the stability of the electricity supply provided by the system and the benefits to the local population. It was explained that the BESS is designed to deliver a stable supply and functions as both a consumer and a supplier of electricity, and that in the event of an outage the system immediately releases energy to the line, thereby improving the reliability of electricity supply for the National Grid. It was explained that the BESS will be directly connected to the National Grid. ▪ Community members enquired whether first aid and emergency medical support would be available at the Project site. It was explained that a medical room, the necessary medicines and qualified first-aid personnel will be provided on site, with transfer to the nearest hospital in the city where required. ▪ Concerns were raised regarding the potential consequences of a battery fire or explosion and the associated environmental risk. It was explained that a separation distance of 3 m is provided between containers so that a fire in one container does not spread to the next, in addition, it was explained that a firefighting system is provided, and that the Project uses lithium iron phosphate (LFP) batteries, considered a safe and modern technology. It was further clarified that all required safety analyses and expert reviews have been undertaken for the Project. ▪ Questions were raised regarding the ability of the system to withstand the ambient temperatures of 46–58 °C experienced in the area. It was explained that the Project is designed for hot climate conditions, that the batteries and associated systems are equipped with cooling systems, and that consultations have been undertaken with the Ministry of Emergency Situations, whose recommendations and requirements have been adopted. ▪ A concern was raised regarding the possibility of children entering the site in the event that a water reservoir is provided. It was clarified that the Project area will be fully fenced and secured, and that the site is located at a sufficient distance from all settlements. In addition, it was explained that a water reservoir will not be a part of the Project. ▪ Community members enquired whether the Developer would provide support to the Mahalla. It was explained that, as with the Developer's other projects, support to the social sphere of the Mahalla can be provided, and that specific proposals received from the Mahalla will be considered.

On the basis of the discussions, the participants of the Public Hearing concluded the following:

- No objections were raised by the participants to the implementation of the electricity storage Project to be constructed within Tomdi District;

- The Tomdi District Inspectorate responsible for control in the field of ecology and environmental protection recommended that water resources and the waste generated be subject to control during the implementation of the proposed environmental protection measures;
- The management of the BESS Project is required to keep under control the implementation of all works specified within the ESIA (OVOS) documentation; and
- Responsibility for monitoring the implementation of the resolutions of the Public Hearing discussions was assigned to the Chairman of the Muruntau Mahalla.

Figure 16: Public Hearing with Muruntau Community

6.5 Future Stakeholder Consultation and Engagement

Future stakeholder engagement and consultations will mainly include the following, each of which is discussed in further detail.

6.5.1 Disclosure of Documents

The below documents will be disclosed on the Developer's website to allow any stakeholder to review the studies and comment on the scope of work undertaken, key issues identified and any other issues of concern they might have.

- Environmental and Social Impact Assessment (ESIA);
- Non-Technical Summary (NTS);
- Stakeholder Engagement Plan (SEP); and
- Executive Summary of the SEP.

In addition, the above documentation will also be made available at key local community platforms to include in particular the following:

- Muruntau Mahalla;
- Tomdi Khokimiyat; and
- Zarafshan Khokimiyat.

The NTS and an Executive Summary of the SEP will be disclosed in English and Uzbek, with the exception of the ESIA and SEP which will be disclosed in English. Disclosure will be undertaken for a period of 30 days.

Disclosure will be announced through notifications and advertisements with Zarafshan and Tomdi Khokimiyat and the applicable Mahallas including the Mahalla Community Organization, and through the Telegram Channels of Muruntau Mahalla, consistent with the communication channels required by local communities as recorded in "Section 6.4" and "Section 15.2.1".

6.5.2 Implementation of Stakeholder Engagement Plan (SEP)

Stakeholder Engagement is an on-going process that involves stakeholder analysis & planning, disclosure & dissemination of information, consultation & participation, grievance mechanism, and on-going reporting to Affected Communities. A Stakeholder Engagement Plan (SEP) is developed and implemented that is scaled to the Project risks and impacts and development stage and tailored to the characteristics and interests of the Affected Communities and key stakeholders.

The SEP for the Project describes the planned stakeholder consultation activities and engagement process and includes the following:

- Define the Project's approach to future stakeholder engagement;
- Identify stakeholders within the area influenced by the Project;
- Profile identified stakeholders to understand their priorities;
- Propose an action plan for future engagement with identified stakeholders; and
- Set out the grievance/project complaints mechanism.

The Developer is committed to implementing the requirements of the SEP throughout the lifetime of the Project. The SEP is provided as a standalone document.

6.5.3 Grievance Mechanism

The Developer implements a grievance mechanism to respond to concerns and complaints from affected stakeholders and communities. The mechanism is available to all Project stakeholders, including local community members, governmental entities, NGOs, media and academic institutions, and addresses grievances related to Project activities as well as grievances relating to the actions or conduct of the Developer, EPC Contractor, subcontractors and suppliers. Grievances raised by workers, to include the personnel of the Developer, the EPC Contractor and its subcontractors, are managed through a separate worker grievance mechanism established under the Labour and Working Conditions Management Plan

(LWCMP). The two mechanisms operate separately and are coordinated by the Project Manager. Key elements of the mechanism are summarized below.

Grievances may be submitted through grievance forms and grievance boxes available at the Project Office, Muruntau Village Local Unit Office and Tomdi District Khokimiyat, through direct contact with the Project's HSSE Manager by telephone or e-mail, or through the Developer's website, or verbally with the Project's HSSE Manager, through Mahalla representatives or during community meetings, in which case the grievance is recorded by the Project's HSSE Manager on behalf of the complainant. A Grievance Disclosure Sheet will be disclosed at key locations to inform local communities how and where to lodge a grievance. All grievances are recorded on a grievance log sheet. Interim submission arrangements apply until the Project Office is established and the Project's HSSE Manager appointed, as identified within the SEP.

Grievances are formally acknowledged within five (5) working days of submission in accordance with the preferred method of communication specified by the complainant. The Project's HSSE Manager analyzes the root cause of the grievance, investigates it and identifies the required corrective actions. A grievance resolution form is submitted within 30 days of receiving the grievance, and is approved and signed off by the Project Manager before the outcome is communicated to the complainant. Where the investigation cannot be completed within this timeframe, the complainant is notified prior to its expiry and a revised timeframe communicated. A formal closure notification is issued to the complainant upon resolution.

Where a complainant does not accept the proposed resolution, the Project's HSSE Manager raises the matter to the Project Manager, and thereafter to the E&S Department at headquarters and to senior management where necessary. If the grievance remains unresolved, the complainant is informed of available external grievance mechanisms including those of the relevant authorities or applicable lenders, to include the Project-affected People's Mechanism (PPM) of the Asian Infrastructure Investment Bank (AIIB) as identified within the SEP. The use of the grievance mechanism does not impede access to judiciary means.

The mechanism is implemented promptly, at no cost and without retribution to the complainant. Complainants have the right to request that their name be kept confidential, and anonymous complaints may be submitted. Where a grievance concerns a member of Project management or any personnel involved in administering the mechanism, it may be submitted directly to the E&S Department at headquarters, and any personnel named within a grievance are excluded from handling it.

Specific requirements apply to grievances related to Gender-Based Violence and Harassment (GBVH) and Sexual Exploitation, Abuse and Harassment (SEAH), in accordance with the World Bank Good Practice Note on Addressing Gender Based Violence in Investment Project Financing involving Major Civil Works (2018). This includes a survivor-centered approach, training of the Project's HSSE Manager and of designated female and male focal points by an authorized GBVH/SEAH Service Provider, prohibition on recording identifiable information on the survivor, limitation of the information collected, referral of survivors to a GBVH/SEAH Service Provider, and actions taken only with the survivor's informed consent. Survivors may report directly to a designated focal point or to the service provider without utilizing the standard grievance channels. Prior to construction, the Developer will identify and document the available medical, psychosocial, legal, protection and shelter services and establish the associated referral pathways.

The Project's HSSE Manager undertakes weekly inspections of the grievance boxes and reviews of the grievance log, and monthly inspections to confirm that summary advertisements of the grievance mechanism are available at local community platforms. The grievance log sheet is submitted monthly, together with Key Performance Indicators covering the number of valid grievances submitted and the number rejected as outside of scope, the number of resolved and unresolved grievances, the number of grievances related to GBVH, the type of grievances submitted, and the average time for resolution.

The full grievance mechanism, including the grievance form, grievance log sheet and grievance resolution form, is presented in the SEP. The full worker grievance procedure is presented in the LWCMP.

7. OVERVIEW OF ENVIRONMENTAL, SOCIAL AND ECONOMIC IMPACTS

The section presents an overview of key positive environmental and social impacts expected from the Project at the strategic level. In addition, the section then moves on to provide a summary of all the Project specific positive and negative impacts, which are discussed and assessed within subsequent sections.

7.1 Governmental Vision for the Energy Sector

The Government of Uzbekistan has taken significant measures to strengthen the national energy system, reduce dependency on fossil fuels, and expand the use of renewable and low-carbon technologies. Recent policy and legislative developments have created a more enabling environment for renewable energy generation, while also beginning to recognize the role of modern grid-supporting technologies such as Battery Energy Storage Systems (BESS).

In August 2024, the Law on the Electric Energy Industry (No. ZRU-939) was enacted to regulate activities within the power sector and establish clear licensing requirements for entities engaged in generation, transmission, distribution, and storage of electricity. Pursuant to this law, the Cabinet of Ministers introduced a new licensing regulation (effective from 14 May 2025) that explicitly lists the “storage of electric energy” as a separate, licensable activity. This represents the first formal recognition of energy storage as an independent component of the national power system and provides the initial regulatory foundation for the development and operation of BESS facilities in Uzbekistan.

In parallel, the Government has continued to promote renewable energy through its broader policy and strategic framework. The Government issued a Decree of the President of the Republic of Uzbekistan dated 11.09.2023 No. PF-158 (About the "Uzbekistan - 2030" Strategy), which sets a target of 25 GW of renewable energy capacity and 40% of electricity production from renewables by 2030[8]. This was followed by a subsequent Presidential Decree on 7 February 2025, which launched the State Programme for implementing the strategy during the 'Year of Environmental Protection and Green Economy.' The 2025 Decree outlines concrete measures to support the energy transition, including the development of large-scale green energy projects, expansion of small and micro-hydropower generation, financial incentives for household solar systems, and the establishment of the National Energy Efficiency Agency (effective from July 2025)[9].

To further support low-carbon development, Law No. LRU-1073 (On Limiting Greenhouse Gas Emissions) was signed on 7 July 2025 and will come into force in January 2026. The law introduces mandatory greenhouse-gas reporting, establishes a national carbon registry, and enables government support for green projects, including those that enhance energy efficiency and facilitate renewable energy integration.

Recent project-level agreements also highlight the Government’s growing commitment to energy storage. In 2024 and 2025, implementation and development agreements were signed with international investors, for the deployment of large-scale solar photovoltaic projects with integrated or standalone BESS components. These projects mark the initial steps toward establishing utility-scale energy storage in Uzbekistan and demonstrate national interest in grid-stabilizing technologies that complement renewable generation.

These collective measures form the emerging policy and regulatory context for Battery Energy Storage Systems in Uzbekistan. While this Project represents one of the first BESS developments in the country, it

[8] Decree of the President of the Republic of Uzbekistan dated 11.09.2023 No. PF-158
[9] Decree of the President of the Republic of Uzbekistan dated 07.02.2025.

is fully aligned with the Government's ongoing efforts to expand renewable energy, improve energy security, and advance toward a more flexible and sustainable power system.

7.2 Energy Security

Recently, most policy makers around the world are grappling with issues related to energy security, energy poverty, and an expected increase in future demand for all energy sources – and Uzbekistan is no exception. Almost certainly, the most spoken words by policy makers and government bodies in the last couple of years revolved around 'energy security'.

Through various governmental strategies and policies discussed above, Uzbekistan has emphasized on the importance of energy security and diversification of energy sources.

In line with the above, the Project in specific will contribute to enhancing energy security by providing fast-response energy storage capacity that supports peak demand, stabilizes grid frequency, and improves renewable energy integration. With a rated power capacity of 300 megawatts (MW) and an energy capacity of 600 megawatt-hours (MWh) (equivalent to a two-hour discharge duration), the Project is expected to deliver approximately 438,000 MWh of stored and discharged energy per year, based on typical operational cycles (2 cycles per day) and efficiency factors.

This stored energy will help offset the use of fossil-fuel-based peaking units and will serve as a flexible, dispatchable energy reserve that enhances grid reliability, reduces losses, and optimizes the utilization of renewable resources across Uzbekistan's national electricity grid.

7.3 Environmental Benefits

The negative environmental impacts from generating electricity through conventional fossil fuel burning at thermal power plants are very well known. This most importantly includes air pollutant emissions such as ozone, Sulphur Dioxide, Nitrogen Dioxide, Particulate Matter, and other gases which are the cause of some serious environmental concerns such as smog, acid rain, health effects, and many others.

Although BESS does not generate electricity directly, it provides a crucial indirect environmental benefit by allowing a higher share of renewable energy to be used on the grid. By storing electricity during periods of low demand and discharging it during peak demand, the Project reduces the need for fossil-fuel-based peaking generation, prevents curtailment of renewable energy, and improves grid efficiency.

7.4 Overview of Project Specific E&S Impacts

Apart from the positive environmental and economic impacts the Project entails, negative E&S impacts will be incurred throughout its overall development process.

The below is based on the outcomes of the detailed assessment process undertaken throughout the subsequent sections of the ESIA.

It is also important to note that the table below presents the worst-case scenario for the impacts. As included in further details within the relevant sections, some impacts have a range of significance (e.g. moderate to major) however, the table below presents the worst-case scenario. The information in the tables includes:

- Key and generic environmental attributes (e.g. air quality, noise);
- Impact (textual description);
- Nature of impact (negative or positive);
- Duration (long-term or short-term);
- Reversibility (reversible or irreversible);
- Magnitude (high, medium, low);
- Sensitivity (high, medium, low);
- Probability (high, medium low)
- Significance (major, moderate, minor, or not significant);
- Management action – this describes whether impact can be mitigated or not. In addition, for positive impacts recommendations have been provided which aim to enhance the impact. Hence, those collectively have been referred to as management measures (mitigation and recommendations); and Residual significance after management actions is implemented (major, moderate, minor, or not significant).

Table 15: Summary of Anticipated Potential Impacts during the Construction Phase

Environmental Attribute	Potential Impact – Construction Phase	Impact Assessment											
		Nature	Duration	Reversibility	Magnitude	Sensitivity	Likelihood	Frequency	Timing	Extent	Significance	Management Action	Residual Significance
Landscape and Visual	Visual and landscape impacts due to presence of typical elements of a construction site such as equipment and machinery (e.g. trucks, excavators, etc.).	Negative	Short-term	Reversible	Medium	Low	High	Frequent	Not relevant	Low	**Minor**	Mitigation available	Not significant
Land Use	Project may potentially be associated with land use impacts on informal land users within the Project site that are related to economic displacements (e.g. grazing). The site is government-owned with no land acquisition required, and there is no formal or informal Project site land use (refer to Section 9.2). No land use impacts anticipated.	No anticipated impacts											
Geology, Hydrology and Hydrogeology	Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.).	Negative	Short-term	Reversible	Medium	Medium	Medium	Frequent	Not relevant	Medium	**Moderate**	Mitigation available	Not significant
	Flood Risks. During the rainy season, flash flood events could occur. Improper siting could potentially cause damage to Project and its components, and this could also entail safety risks to workers. However, based on the analysis undertaken as part of this ESIA (refer to Section 10.2.1), no flood risks are anticipated within the Project site, and hence no impacts from flood risks on the Project or its components, or associated safety risks to workers, are anticipated.	No anticipated impacts										N/A	N/A
	Accidental spills and leakages may occur potentially resulting in localized soil and groundwater contamination.	Negative	Short-term	Reversible	Medium	Medium	Medium	Rare	Not relevant	Low	**Moderate**	Mitigation available	Not significant
	Construction activities could disturb soil, and result in erosion and runoff could result in siltation of surface water (during rain events)	Negative	Medium-term	Reversible	Medium	Medium	Medium	Periodic	During rain events	Medium	**Moderate**	Mitigation available	Not significant
Biodiversity	Direct Impacts on Sensitive Receptors (Natural Habitats and Flora)	Negative	Long-term	Irreversible	Medium	Low-Medium	High	Rare	At start of construction	Low	**Moderate**	Mitigation available	Not significant
	Direct Impacts on Sensitive Receptors (Natural Habitats and Flora) – Non-native Species and Introduced Flora	Negative	Short to long term	Reversible	Medium	Low-Medium	Low to Medium	Periodic	Not relevant	Medium	**Minor-Moderate**	Mitigation available	Not significant
	Direct Mortality on Central Asian Tortoise	Negative	Short-term	Irreversible	Medium	High	High	Periodic	Not relevant	Low	**Moderate**	Mitigation available	Not significant
	Habitat Loss lower sensitivity Nesting Birds (passerines)	Negative	Short-term	Irreversible	Medium	Low	High	Rare	March to July annually	Low	**Minor**	Mitigation available	Not significant
	Direct and Indirect Impacts on Sensitive Receptors (Vertebrates) – Littering, Waste Management	Negative	Short-term	Reversible	Low to Medium	Low to High	Low to Medium	Rare	N/A	Medium	**Minor**	Mitigation available	Not significant
	Direct Mortality and Reduction in Habitat Quality – Mammals	Negative	Short-term	Irreversible	High	Low	High	Rare	N/A	Low	**Minor**	Mitigation available	Not significant
Archaeology and Cultural Heritage	Improper management could potentially disturb or damage potential archaeological remains on the surface as well as some of which could be buried in the ground (if any).	Negative	Short-term	Irreversible	High	Low	Low	Rare	Not relevant	Low	**Minor**	Mitigation available	Not significant
Air Quality and Noise	Construction activities will likely result in an increased level of dust and particulate matter emissions as well as noise emission to surrounding environment which in turn will directly impact ambient air quality. This could entail indirect impacts on workers' health and safety.	Negative	Short-term	Reversible	Medium	Low	Medium	Periodic	Not relevant	Low	**Minor**	Mitigation available	Not significant

Environmental Attribute	Potential Impact – Construction Phase	Impact Assessment											
		Nature	Duration	Reversibility	Magnitude	Sensitivity	Likelihood	Frequency	Timing	Extent	Significance	Management Action	Residual Significance
	Construction and site preparation activities will likely result in increased levels of noise and vibration from machinery and equipment use (e.g. hammers, compressors). These emissions may cause nuisance and potential health impacts to onsite workers and nearby receptors.	Negative	Short-term	Reversible	Medium	Low	High	Periodic	Not relevant	Medium	**Minor**	Mitigation available	Not significant
Infrastructure and Utilities	Waste Utilities. Ensure that waste utilities will be able to handle the waste requirements that are generated from the Project.	Negative	Medium-term	Reversible	Medium	Low	High	Periodic	Not relevant	High	**Minor**	Additional requirements	Not significant
	Road network. Transportation requirements of the Project could affect level of service and capacity of existing highways and road networks.	Negative	Medium-term	Reversible	Medium	Low	High	Frequent	Not relevant	Medium	**Minor**	Mitigation available	Not significant
	Road network. Improper transportation activities could result in traffic related accidents on roads which in turn could affect the health and safety of users on the roads, workers and other.	Negative	Medium-term	Reversible	Low	High	High	Frequent	Not relevant	Low	**Minor**	Mitigation available	Not significant
	Water Resources. Water requirements of the Project could entail constraints on existing users such as local communities or industrial establishments.	Negative	Short-term	Reversible	Low	Medium	Medium	Frequent	Not relevant	Low	**Minor**	Additional requirements	Not significant
Socio-economic	Employment and Procurement. The Project is expected at a minimum to provide job opportunities as well as procurement opportunities for local communities. This, to some extent, could contribute to enhancing the living environment for its inhabitants, elevate their standard of living, and bring social economic prosperity to the local community.	Positive	Not applicable.										
	Employment and Procurement. If: (i) local community engagement is not implemented properly; OR (ii) if priority on all employment and procurement opportunities are not provided to local communities; OR (iii) if expectations are not properly managed and addressed – this could result in distrust and resentment with the Developer and might eventually lead to other potential escalated events (e.g. demonstrations, blockage of access road, etc.).	Negative	Medium-term	Reversible	Medium	Medium	Medium	Rare	Not relevant	Low	**Moderate**	Recommendations	Not significant
Community, Health, Safety and Security	Community Health, Safety and Security. Inappropriate management of security issues (e.g. conduct of security personnel) could result in health and safety issues for local communities.	Negative	Short-term	Irreversible	Medium	Medium	Medium	Rare	Not relevant	Low	**Moderate**	Mitigation available	Not Significant
	Community Health, Safety and Security. Influx of huge number of workers to the area could result in community impacts such as pressure on infrastructure elements, increase in social vices, risk of spread of disease, and other.	Negative	Short-term	Reversible	Medium	Low	Medium	Frequent	Not relevant	Medium	**Minor**	Mitigation available	Not significant
	Community Health, Safety and Security. Trespassing of unauthorized personnel into construction active areas could result in health and safety impacts.	Negative	Short-term	Irreversible	Medium	Medium	Medium	Rare	Not relevant	Low	**Moderate**	Mitigation available	Not significant
Worker, Welfare, Health and Safety	Worker Welfare, Health and Safety. Inappropriate management of the workforce could entail human rights violations (e.g. engaging child workers, confiscation of passports of foreign workers, unacceptable working hours, and others).	Negative	Medium-term	Irreversible	Medium	Medium	Medium	Frequent	Not relevant	Low	**Moderate**	Mitigation available	Not significant
	Worker Welfare, Health and Safety. Generic occupational health and safety risks to workers, as working onsite increases the risk of injury or death due to accidents	Negative	Short-term	Irreversible	Medium	Medium	Medium	Frequent	Not relevant	Low	**Moderate**	Mitigation available	Not significant
	Worker Welfare, Health and Safety. Inappropriate accommodation facilities for workers will entail impacts on worker welfare as well as their overall health and safety.	Negative	Short-term	Reversible	Medium	Medium	Medium	Frequent	Not relevant	Medium	**Moderate**	Mitigation available	Not significant
	Community and Worker Health and Safety. Inappropriate management of the workforce (which could be from the local community) as well as inappropriate conduct of workers within local community areas could entail gender related risk and impacts such as Gender based violence, and harassment (GBVH) or Sexual Exploitation, abuse, and harassment (SEBH)	Negative	Medium-term	Irreversible	Medium	Medium	Medium	Frequent	Not relevant	Low	**Moderate**	Mitigation available	Not significant
Subcontractor and Supplier Management	Improper management of subcontractors and suppliers poses risks of major environmental impacts, occupational health and safety risks, and human rights abuses within suppliers' premises including discrimination, child labor and forced labor	Negative	Short-term	Reversible	Medium	Medium	High	Periodic	Not relevant	Low	**Moderate**	Mitigation available	Not significant

Table 16: Summary of Anticipated Potential Impacts during the Operation Phase

Environmental Attribute	Potential Impact – Operation Phase	Impact Assessment											
		Nature	Duration	Reversibility	Magnitude	Sensitivity	Likelihood	Frequency	Timing	Extent	Significance	Management Action	Residual Significance
Landscape and Visual	Impacts related to interaction of BESS components and substation within the overall landscape and visual character of the area including any potential sensitive visual receptors.	Negative	Long-term	Reversible	Low	Low	High	Frequent	Not relevant	Medium	Not Significant	N/A	N/A
Geology, Hydrology and Hydrogeology	Flood Risks. During the rainy season, flash flood events could occur. Improper siting could potentially cause damage to Project and its components, and this could also entail safety risks to workers. However, based on the analysis undertaken as part of this ESIA (refer to Section 10.2.1), no flood risks are anticipated within the Project site, and hence no impacts from flood risks on the Project or its components, or associated safety risks to workers, are anticipated.	No anticipated impacts										N/A	N/A
	Risk of soil and groundwater contamination during the various operation activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.).	Negative	Long-term	Reversible	Medium	Medium	Medium	Frequent	Not relevant	Medium	**Moderate**	Mitigation available	Not significant
	Accidental spills and leakages may occur potentially resulting in localized soil and groundwater contamination.	Negative	Long-term	Reversible	Medium	Medium	Medium	Rare	Not relevant	Low	**Moderate**	Mitigation available	Not significant
Biodiversity	Direct Impacts on Sensitive Receptors (Natural Habitats and Flora) – Non-native Species and Introduced Flora	Negative	Short to Long Term	Reversible	Medium	Low to Medium	Low to Medium	Periodic	Not Relevant	Medium	**Minor-Moderate**	Mitigation available	Not significant
	Direct Impacts on Sensitive Receptors (Birds) – Poor Waste Management and Collision with Project Infrastructure	Negative	Long Term	Irreversible	Low to High	Low to High	Medium	Rare	N/A	Low	Moderate	Mitigation available	Not significant

Environmental Attribute	Potential Impact – Operation Phase	Impact Assessment											
		Nature	Duration	Reversibility	Magnitude	Sensitivity	Likelihood	Frequency	Timing	Extent	Significance	Management Action	Residual Significance
Air Quality and Noise	Potential environmental contamination could occur if the BESS equipment or components contain Polychlorinated Biphenyls (PCBs) or Ozone Depleting Substances (ODSs), leading to adverse effects air quality, and human health if not properly managed.	Negative	Long term	Reversible	Medium	Medium	Low	Medium	Not relevant	Medium	**Moderate**	Mitigation available	Not significant
Infrastructure and Utilities	Waste Utilities. Ensure that waste utilities will be able to handle the waste requirements that are generated from the Project.	Negative	Long-term	Reversible	Low	Medium	High	Periodic	Not relevant	High	**Minor**	Additional requirements	Not significant
	BESS Disposal. End-of-life or defective BESS may generate hazardous E-waste, with potential impacts if disposed at a landfill	Negative	Long-term	Reversible	Low	Low	High	Rare	Not relevant	Low	**Not significant**	Additional requirements	Not significant
	Water Resources. Water requirements of the Project could entail constraints on existing users such as local communities or industrial establishments.	Negative	Long-term	Reversible	Low	Medium	Medium	Frequent	Not relevant	Low	**Minor**	Additional requirements	Not significant
Socio-economics	Employment and Procurement. The Project is expected at a minimum to provide job opportunities as well as procurement opportunities for local communities. This, to some extent, could contribute to enhancing the living environment for its inhabitants, elevate their standard of living, and bring social economic prosperity to the local community.	Positive	Not applicable										
	Employment and Procurement. If: (i) local community engagement is not implemented properly; OR (ii) if priority on all employment and procurement opportunities are not provided to local communities; OR (iii) if expectations are not properly managed and addressed – this could result distrust and resentment with the Developer and might eventually lead to other potential escalated events (e.g. demonstrations, blockage of access road, etc.).	Negative	Long-term	Reversible	Medium	Medium	Medium	Rare	Not relevant	Low	**Moderate**	Recommendations	Not significant

Environmental Attribute	Potential Impact – Operation Phase	Impact Assessment											
		Nature	Duration	Reversibility	Magnitude	Sensitivity	Likelihood	Frequency	Timing	Extent	Significance	Management Action	Residual Significance
Community, Health, Safety and Security	Community Health, Safety and Security. Operating BESS components will produce noise which could be a source of disturbance and nuisance to noise sensitive receptors.	No anticipated impacts											
	Community Health, Safety and Security. BESS facilities could be associated with some emergency incidents and risks including fire, explosions, etc.	Negative	Long-term	Reversible	Medium	Low	Low	Rare	Not relevant	Medium	**Minor**	Mitigation avaialble	Not significant
	Community Health, Safety and Security. Trespassing of unauthorized personnel into Project area could result in health and safety impacts.	Negative	Long-term	Irreversible	Medium	Medium	Medium	Rare	Not relevant	Low	**Moderate**	Mitigation available	Not significant
	Community Health, Safety and Security. Inappropriate management of security issues (e.g. conduct of security personnel) could result in health and safety issues towards the local communities.	Negative	Long-term	Irreversible	Medium	Medium	Medium	Rare	Not relevant	Low	**Moderate**	Mitigation available	Not significant
	Community Health, Safety and Security. BESS facility and underground transmission line will produce electric and magnetic fields that entail public health and safety concerns on receptors.	This impact has been scoped out.										N/A	N/A
Worker Welfare, Health and Safety	Worker Welfare, Health and Safety. Generic occupational health and safety risks to workers, as working onsite increases the risk of injury or death due to accidents	Negative	Long-term	Irreversible	Medium	Medium	Medium	Frequent	Not relevant	Low	**Moderate**	Mitigation available	Not Significant
	Worker Welfare, Health and Safety. Inappropriate accommodation facilities for workers will entail impacts on worker welfare as well as their overall health and safety.	Negative	Long-term	Reversible	Medium	Medium	Medium	Frequent	Not relevant	Medium	**Moderate**	Mitigation available	Not Significant
	Worker Welfare, Health and Safety. Inappropriate management of the workforce could entail human rights violations (e.g. engaging child workers, confiscation of passports of foreign workers, unacceptable working hours, and others).	Negative	Long-term	Reversible	Medium	Medium	High	Frequent	Not relevant	Low	**Moderate**	Mitigation available	Not significant

Environmental Attribute	Potential Impact – Operation Phase	Impact Assessment											
		Nature	Duration	Reversibility	Magnitude	Sensitivity	Likelihood	Frequency	Timing	Extent	Significance	Management Action	Residual Significance
	Community and Worker Health and Safety –Inappropriate management of the workforce (which could be from the local community) as well as inappropriate conduct of workers within local community areas could entail gender related risk and impacts such as Gender based violence, and harassment (GBVH) or Sexual Exploitation, Abuse, and Harassment (SEAH)	Negative	Long-term	Irreversible	Medium	Medium	Medium	Frequent	Not relevant	Low	**Moderate**	Mitigation available	Not significant
Subcontractor and Supplier Management	Improper management of subcontractors and suppliers poses risks of major environmental impacts, occupational health and safety risks, and human rights abuses within suppliers' premises including discrimination, child labor and forced labor	Negative	Long-term	Reversible	Medium	Medium	High	Periodic	Not relevant	Low	**Moderate**	Mitigation available	Not significant

8. LANDSCAPE AND VISUAL

This section provides an assessment of baseline conditions within the Project site and surroundings in relation to landscape and visual. The section then presents an assessment of potential impacts during the various Project phases. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

8.1 Assessment of Current Conditions

8.1.1 Methodology for Assessment

The baseline assessment of the Project site was based on secondary data review and a field survey, each of which is discussed in further detail below.

A. Secondary Data Review

Prior to the undertaking of any site-related surveys, a full and detailed review of up-to-date high-quality satellite images for the Project area, as well as review of the available topographical report undertaken by the Developer and supporting mapping outputs were undertaken. The objective was to aim to understand site topography and landscape character, and more importantly identify any potential visual receptors within the entire Project footprint and boundary so that it can be inspected during the site survey.

The topographical report included the preparation of Digital Elevation Model (DEM) data, orthophoto mapping, and a topographic map at a scale of 1:1000 with contour intervals of 0.5 m, based on UAV aerial photography. The horizontal reference system used for the survey outputs was WGS 84 UTM, while the vertical datum was the Baltic 1977 Height System.

B. Topographical Survey

A topographical survey was undertaken for the Project area by the Developer in July 2025. The survey was undertaken to identify the site conditions of the Project site. The survey included the establishment of geodetic control points, plan-altitude reference marks, UAV aerial photography, DEM preparation, orthophoto production, and field interpretation of visible site features. The topographical report indicates that the site terrain has variations in height, ranging from slightly hilly to relatively flat.

C. Site Survey

A detailed site survey for the Project area was undertaken in April 2025. The survey aimed to characterize the general topography and landscape characteristics of the Project area as well as any potential visual receptors onsite.

8.1.2 Results and Outcomes

A. Landscape and Topography

In terms of topography, the Project site is characterised by terrain that ranges from slightly hilly to relatively flat with an elevation ranging between 490 and 500 meters above sea level across the Project area. The topographical survey identified variations in height across the site, although the overall site context does not indicate steep or highly irregular landform conditions. The DEM and topographic mapping prepared for the site provide the basis for understanding ground levels, slope conditions, and surface features within the Project footprint.

The topographical survey also identified and digitized visible features within the survey area, including roads, dry creeks, electric poles, underground water lines, temporary lake areas, and slopes. These features indicate that the Project site is located within an open landscape with some existing linear infrastructure and surface features. No major built-up areas, recreational areas, scenic viewpoints, or heritage/tourism receptors were identified in the topographical report within the survey area.

Based on the available information, the Project site does not appear to be located within a landscape of distinct visual or scenic value. The landform is relatively open, and the lack of dense vegetation or built screening means that Project components may be visible from nearby locations. However, the Project is expected to comprise low-rise containerised units and associated infrastructure, which are not expected to create a prominent vertical feature in the wider landscape.

In terms of landscape, the Project site can be categorized as semi-modified landscape with some vegetation cover, refer to Figure 17. The site is located within the Kyzylkum Desert and is characterized by predominantly clayey-wormwood soils, with some areas consisting of clayey-gravelly ground.

The area consists of patches of shrubs or ground cover, as shown in the figure below. In addition, some limited number of Saxaul shrubs were also identified within parts of the Project site, particularly in the western section closer to the A379 highway.

Figure 17: Project Area Landscape

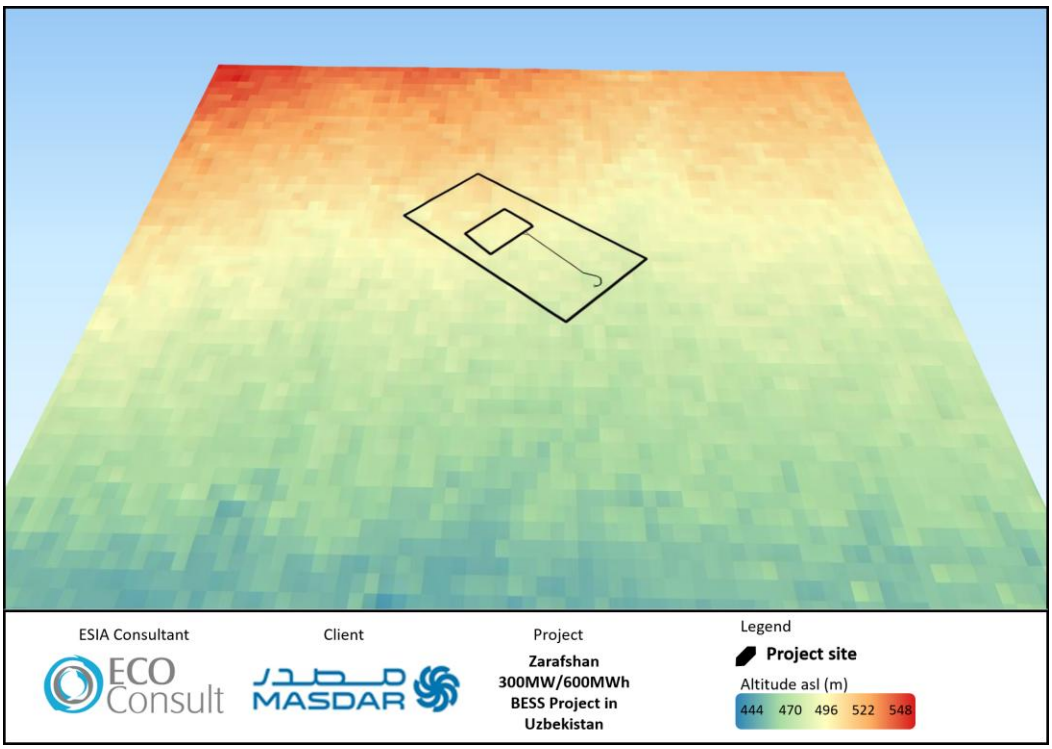


Figure 18: DEM Modelling of the Project Site

B. Visual

The definition of key critical visual receptor was based on the "Guidelines for Landscape and Visual Impact Assessment (GLVIA)" (Landscape Institute, 2013) as defined below.

Critical Receptors definition per GLVIA
Residents at home.
People engaged in outdoor recreation, whose attention/interest is likely to be focused on the landscape or particular views, including from public rights of way.
Communities where views contribute to landscape setting enjoyed by residents.
Visitors to heritage assets or other attractions, where views of the surroundings are an important contributor to the experience.
Travelers on scenic routes

Based on the site visit and desktop review undertaken, no key visual receptors were recorded within the site or surrounding areas. While there are no significant residential developments directly adjacent to the Project site, the following were observed:

- Travelers on the A379 Highway: The Project site is situated adjacent to the A379 highway, which connects the cities of Navoi and Zarafshan and is located near the Muruntau gold mine. The distance between the Project site boundary and the highway is around 50 m. Travelers using this road are considered potential visual receptors; however, their views are expected to be transient and short-term.
- Workers and Users of the Muruntau 500 kV Substation and Access Road: The recently constructed Muruntau 500 kV substation is located to the southwest of the Project site. An access road runs between the substation and the Project site. Associated infrastructure, including workers'

accommodation facilities, toilet units and a dirt road, is located adjacent to the Muruntau substation area. Receptors in this area are expected to mainly include workers and road users, whose sensitivity is considered low given the existing industrial and electrical infrastructure context.

Table 17: Coordinates of Surrounding Receptors

Point	Description	Latitude	Longitude	Distance (m)
1	A379 Highway	41.467302°	64.480161°	Approx. 210
2	Muruntau 500 kV Substation	41.461530°	64.479627°	Approx. 420

Figure 19: Images of Identified Points

8.2 Assessment of Impacts

This section identifies the anticipated impacts on landscape and visual from the Project throughout its various phases. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

8.2.1 Potential Impacts during the Construction Phase

Site preparation activities which are to take place onsite by the EPC Contractor for installation of the BESS facility and the various Project components to include underground transmission cables, storage buildings, internal substation, access roads, etc. are expected to include land clearing activities, leveling, some limited excavation, grading, etc.

Construction activities would create a temporary effect on the visual quality of the site and its surroundings. The visual environment during the construction phase would include the presence of elements typical of a construction site such as equipment and machinery to include excavators, trucks, front end loaders, compactors and others. However, as discussed, their receiving environment is considered of low sensitivity.

The table below provides an overall summary of the impact on landscape and visual during the construction phase. The overall impact is considered to be of minor significance.

Construction Phase		
Type	Negative	N/A
Duration	Short-term	Limited to construction phase which is 18 months
Magnitude	Medium	Given that construction activities will be noticeable
Reversibility	Reversible	With completion of construction activities
Sensitivity	Low	Given existing electrical infrastructure and industrial area
Likelihood	High	Given nature of activities expected
Frequency	Frequent	Will occur for 18 months during construction period
Timing	N/A	Not applicable
Extent	Low	Impacts will occur within the actual footprint of Project.
Significance	**Minor**	

Mitigation Measures

The following identifies the mitigation measures to be applied by the EPC Contractor during the construction phase, and which include:

- To comply with national legislation (No. 290/2014, No. 93/2020 and No. 464/2022) payment will be made, as regulatory requirement, to compensate for the loss of tree species (irrespective of low conservation status) from the Project site, and compensatory planting be performed as discussed in "Section 11.3.1";
- Ensure proper general housekeeping and personnel management measures are implemented which could include:
    - Ensure the construction site is left in an orderly state at the end of each workday.
    - To the greatest extent possible construction machinery, equipment, and vehicles that are not in use should be removed in a timely manner and kept in locations to reduce visual impacts to the area.
    - Ensure proper storage, collection, and disposal of waste streams generated as discussed in detail in 'Section 10'.

Following the implementation of these mitigation measures, the significance of the residual impact is categorized as not significant.

Monitoring and Reporting Requirements

The following identifies the monitoring requirements that must be adhered to by EPC Contractor during the construction phase:

- Inspections of the works should be carried out at all times to ensure the above measures are implemented.

8.2.2 Potential Impact during the Operation Phase

Anticipated impacts from the Project during the operation phase include potential impacts from Project visibility.

The Project is expected to be visible within the immediate vicinity around the Project site only and thus is likely to create visual impacts. The maximum height of the BESS components and substation is expected to be in the range of 2-3 m only. The transmission line will be underground and therefore will have no visibility impacts. Moreover, as discussed earlier, no sensitive receptors were identified within the area.

As discussed earlier, there are no key sensitive visual receptors within the surrounding vicinity which could be affected from visibility of the Project. Visual impacts created from the development of the Project are not considered an issue of concern and will entail a minor addition to the overall landscape and visual character given that the receiving environment is considered of low sensitivity, due to existing wind turbines and electrical infrastructure (substation and transmission/distribution lines), for which its aesthetical value loses its importance.

In addition, a rapid visual assessment of the Project site (specifically the BESS Component) was undertaken through a viewshed analysis using QGIS software. The analysis assessed the visibility of the Project site itself, with an observer height of 3 m, corresponding to the maximum expected BESS Component height, and with a 20 km radius applied around the site (to include the Muruntau Gold Mine, Muruntau Community, and Zarafshan Wind Farm).

The figure below presents the results of the viewshed analysis. As noted below, the Project will be visible from some parts of the Muruntau Gold Mine, however, it will not be visible from the Muruntau Community. In addition, only limited length on the highway will be visible from the Project site. It is important to note that the worst-case scenario of the Project components was taken into account within the viewshed analysis.

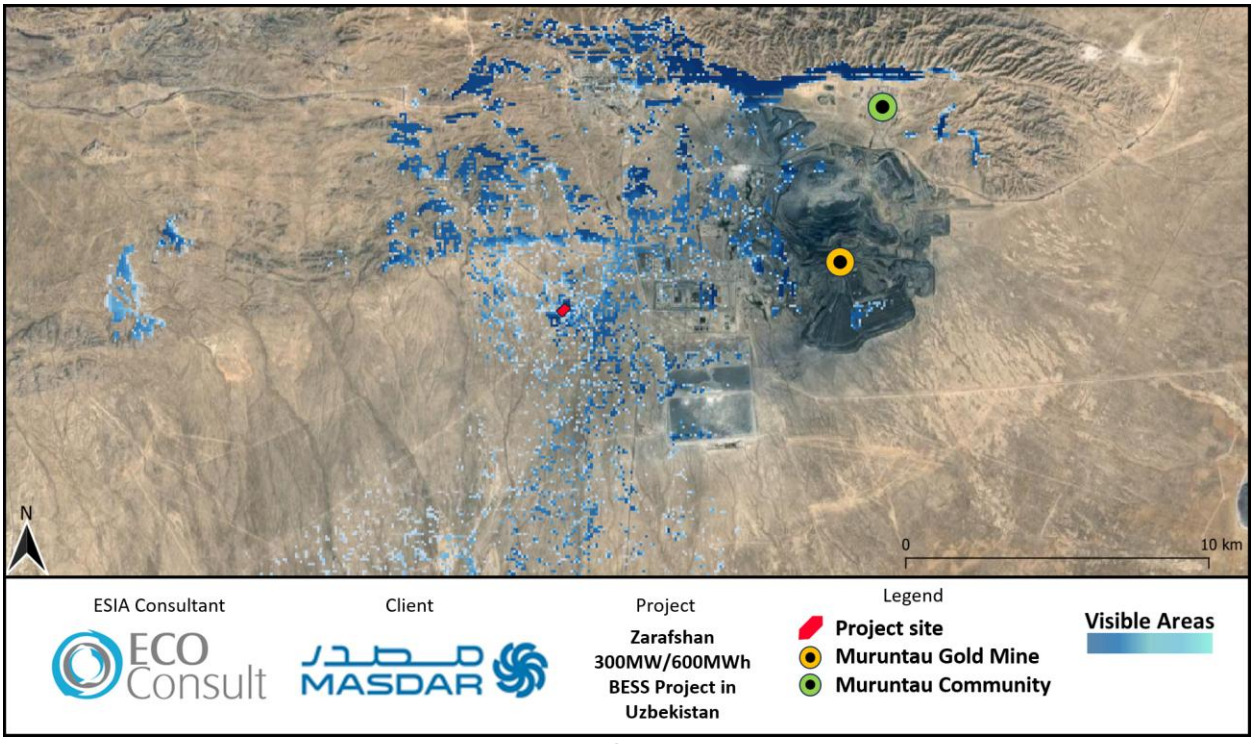


Figure 20: Visual Model from the Project Site at 3m

As seen in the figure above, visual line of sight is obstructed towards the Muruntau Community, indicating that the Project site would not be visible even at the maximum height of 3 m. However, limited partial visibility was recorded along certain segments of the A379 Highway as well as from the Muruntau Gold Mine where minor elevation changes and open terrain provide intermittent views toward the Project site. In addition, as previously discussed, the Project site is located within the vicinity of the existing industrial and electrical infrastructure and therefore the Project will not contribute negatively to the aesthetical value of the area.

The table below provides an overall summary of the impact from visibility during the operation phase. The overall impact assessment will be of no significance.

Operation Phase – Project Visibility		
Type	Negative	N/A
Duration	Long-term	Will be relevant for 15 years for entire operational period
Magnitude	Low	Given the absence of any nearby immediate receptors
Reversibility	Reversible	With decommissioning, impact would no longer be relevant
Sensitivity	Low	Given the existing infrastructure elements within the area and industrial nature of the surrounding area
Likelihood	High	Given nature of activities expected
Frequency	Frequent	Throughout the operation phase
Timing	N/A	Not applicable
Extent	Medium	The Project will be visible from around a 1 km distance.
Significance	**Not Significant**	

Taking the above into account, there are no mitigations to be considered.

9. LAND USE

This section provides an assessment of baseline conditions within the Project site and surroundings in relation to land use. The section then presents an assessment of potential impacts during the various Project phases. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

9.1 Assessment of Baseline Conditions

9.1.1 Methodology for Assessment

Assessment of baseline conditions was based on site visits by the 'E&S Team' to the Project site and surrounding areas in April and May 2026. The site visits aimed to understand in detail any land use activities undertaken onsite. In addition, consultations were undertaken with key stakeholder groups to better understand and characterize the land use activities onsite as discussed further throughout this section.

9.1.2 Land Ownership

As discussed in Section 6.3 above, consultations with the Cadaster Agency indicated that land belongs to the State Institution "Navoiy Regional Territorial Pasture Management Department under the Committee for Veterinary and Livestock Development", with no land disputes or conflicts in the area.

As per classifications, the land is officially designated for livestock farming purposes, however, Pasture Management confirmed that the land is currently not under any lease agreement for this purpose or any other use. Pasture Management also confirmed that there are no formal or informal physical or economical land use activities within the Project site.

9.1.3 Land Use

Based on a site visit undertaken by the E&S Team, no formal land use activities were observed within the Project site. No physical assets, structures, agricultural activities, livestock grazing, or other economic activities were identified within the site boundary. The site is currently unused and remains largely unmodified. To conclude, no physical or economical land use activities were noted onsite nor any evidence which could indicate any such land use activities to include both formal and/or informal activities. In particular the following was noted within the Project site:

- No physical structures were noted onsite (such as human settlements or structures). In addition, no man-made features appearing above ground were noted.
- No evidence of any economic activities to include in particular agriculture activities or grazing activities which are common practices undertaken by local communities. In particular, no ploughing marks were noted within the Project area (which would be indicative of agricultural activities) nor any livestock fecal remains (which could be indicative of grazing activities).
- No nomadic activity was noted within the Project site or evidence of such activities.

Information obtained from local residents and stakeholders indicated that the wider area located west of the road is generally used by herders for livestock grazing. However, during the site visit, no herders, livestock, or visible signs of previous grazing activities were observed within the Project site. Consultation with the local environmental specialist further indicated that the nearest farmer, located around 10 km from the site, does not send his herders to the Project area due to its remote location.

As noted earlier, no active lease agreements are currently in place for the Project site. This indicates that the site is not formally allocated for agricultural, grazing, or other economic land-use activities. On this basis, the Project site is considered to have no identified formal or regular productive land use at the time of the assessment.

Finally, the history of the Project area has been traced through satellite maps (Google Earth) from 2011 to 2023. As indicated in the figure below, the maps do not show any visible and previous physical or economical activities within the Project site.

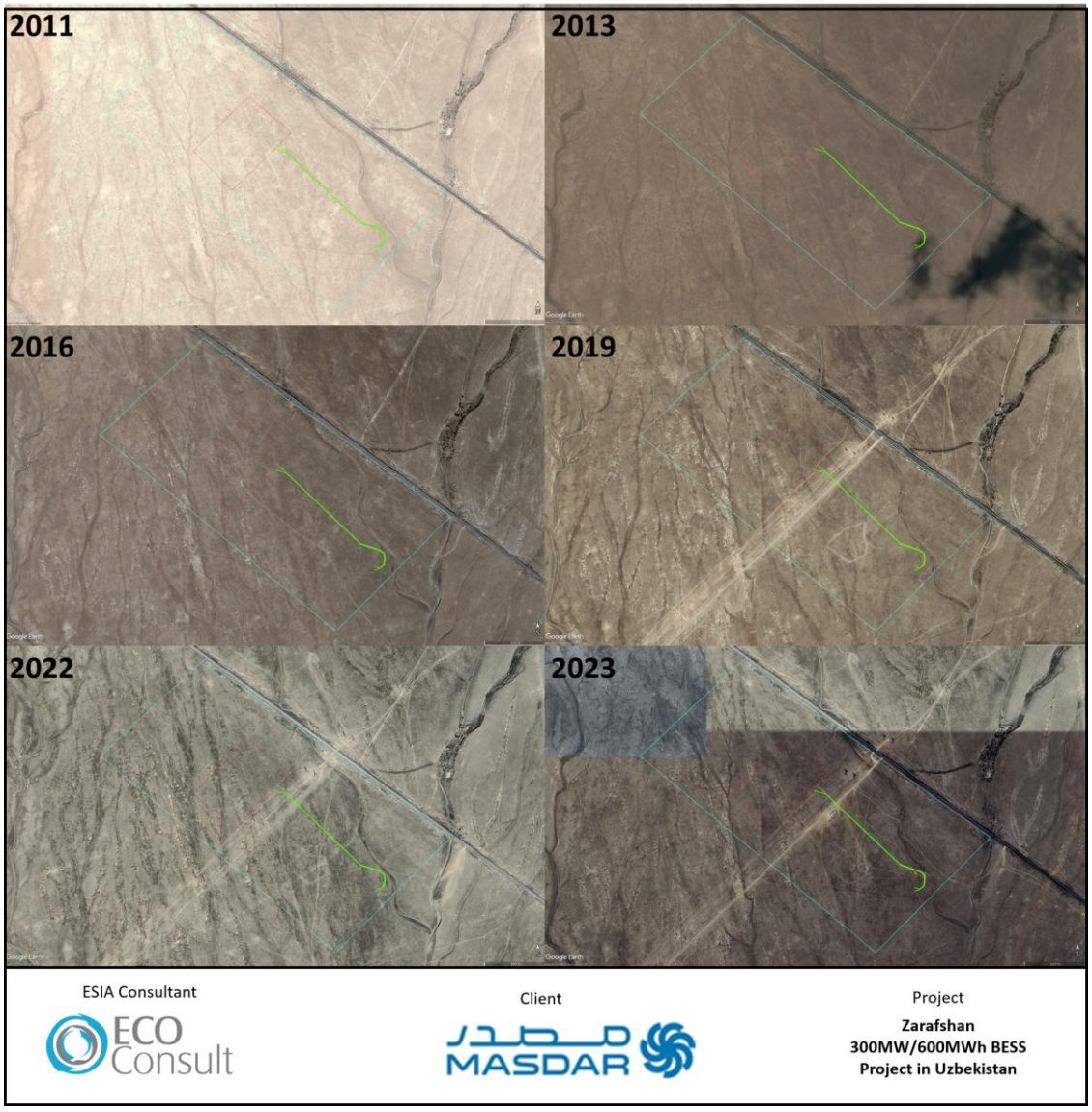


Figure 21: Historical Land Use of the Project Site

However, the following was noted within the surrounding area of the Project within the survey area:

- Infrastructure components were observed within the area, including OHTLs, dirt roads, and a substation. These infrastructure elements are further discussed in “Section 14
- Maintenance Workers Associated with the Water Pipeline: A water pipeline runs along the eastern side of the Project site, with an associated manhole located around 100 m from the BESS Project site boundary. Further details regarding the pipeline are provided in Section 14 below.
- Existing Site Boundary Features: At present, the area allocated for the Project is enclosed by a perimeter fence constructed of lightweight concrete blocks. This is considered an existing site feature that was done by the Developer as part of the Central Tortoise Relocation campaign undertaken in May 2025.

Table 18: Land Use Survey Outcomes

Point	Description	Latitude	Longitude	Distance (m)
1	Existing OHTLs			Approx. 40
2	Manhole of the water pipeline	41.466880°	64.478590°	Approx. 100
3	Perimeter fence consisting of lightweight concrete blocks around the BESS site	41.464010°	64.474120°	0 m

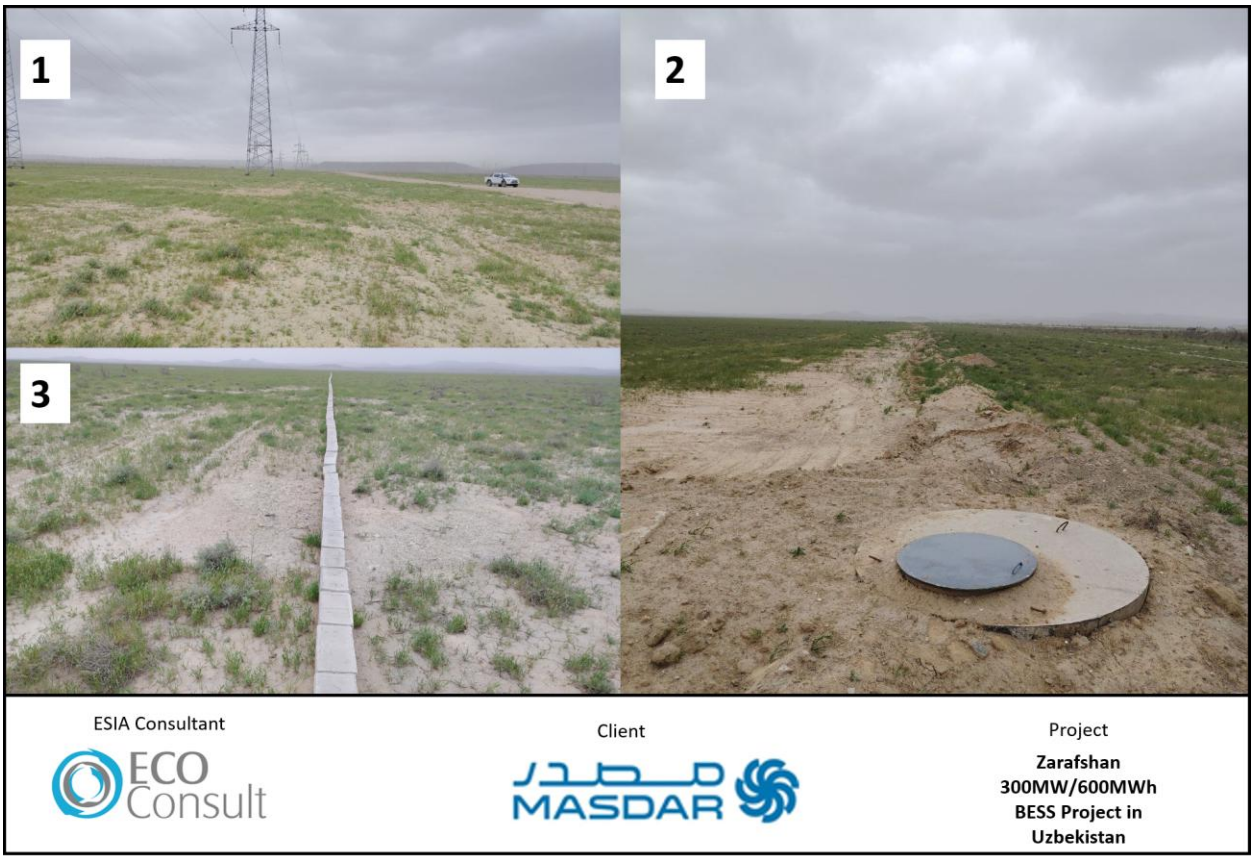


Figure 22: Images of Identified Points

During the site visit, a visible dark staining was observed on the ground surface outside the proposed Project site, possible bitumen spill, near the existing Muruntau 500 kV substation and around 70 m from the Project’s planned Underground Transmission Line route. The staining appeared to originate from or around an outfall and may be associated with previous dumping or discharge during the construction or operation of the nearby Muruntau 500 kV substation. As this observation is outside the BESS footprint, it is considered a pre-existing land condition not associated with the Project. However, given its proximity to

the planned Underground Transmission Line, the area should be avoided during construction where possible.

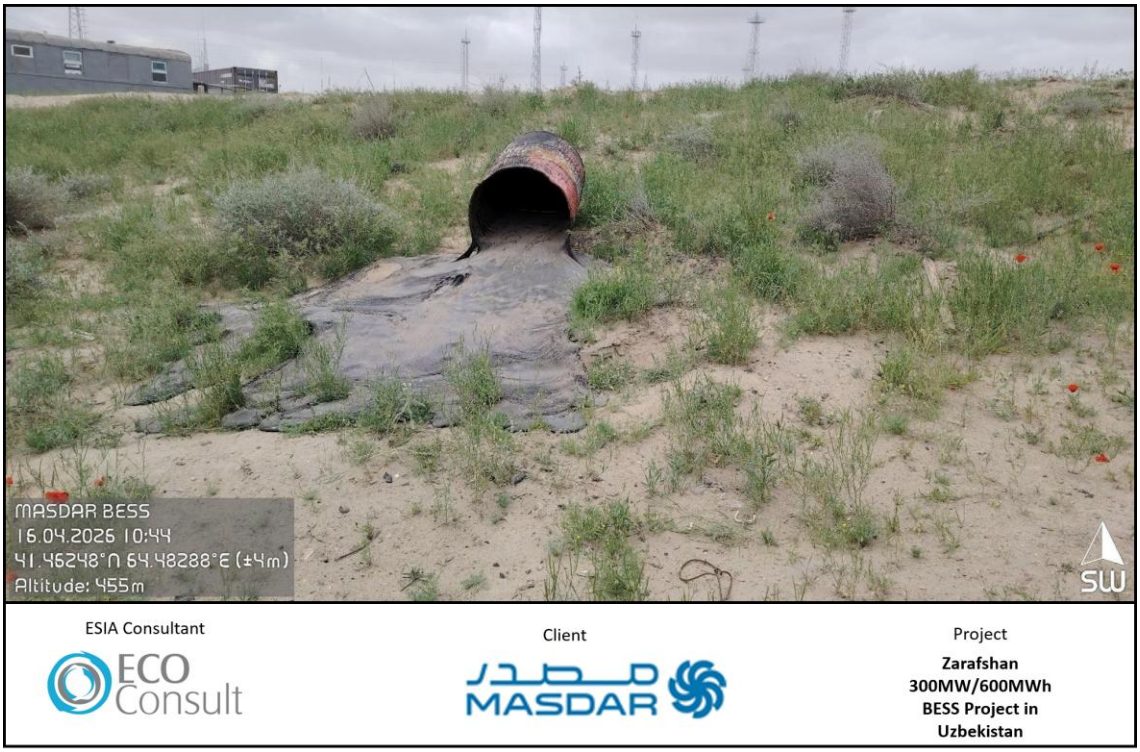


Figure 23: Bitumen Spill Observation

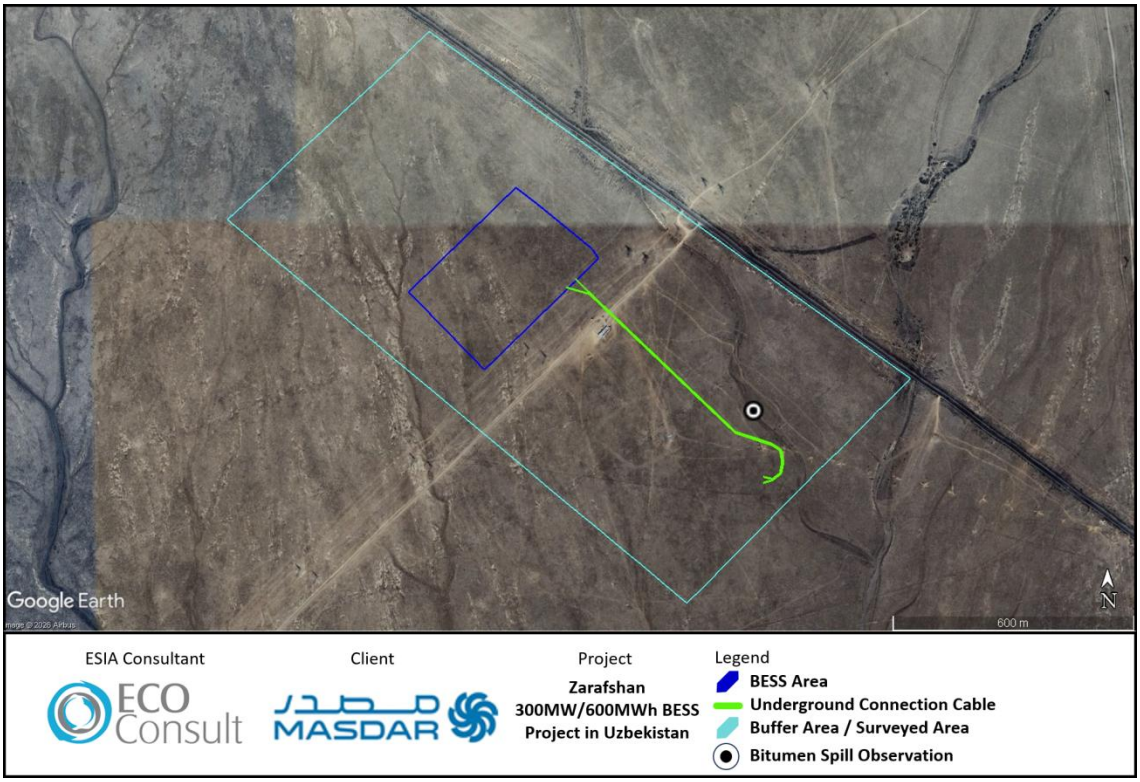


Figure 24: Bitumen Spill Observation Location

9.2 Assessment of Impacts

As discussed earlier, the Project is located on state-owned land and a formal land allocation process is required prior to Project development. However, no formal or informal land users were identified within the Project area and therefore no physical or economic displacement is anticipated. Accordingly,, there are no anticipated impacts on land use associated with physical and/or economical displacement from the Project footprint.

The land is currently designated as pastureland and a land category change and transfer process is required prior to construction. This process includes the return of the land plots to the reserve of Tomdi District Khokimiyat, the change of the land category, and the transfer of the land to the balance of the Ministry of Energy. As discussed in "Section 6.3", the Navoi Regional Pasture Management Administration raised no objection to the return of the plots and to the change of land category. The land has been returned to the reserve of Tomdi District Khokimiyat, and a formal submission requesting the change of land category was forwarded to the Cabinet of Ministers on 25 June 2026. The Cabinet of Ministers decision on the transfer of the land to the balance of the Ministry of Energy is pending. It is important to note that, as the land is state-owned, is not allocated under any lease agreement and has no formal or informal land users, no compensation obligations arise from the land category change and transfer process.

The Project site is officially designated for livestock farming purposes. However, the land classification does not reflect actual land use. As confirmed by the Navoi Regional Pasture Management Administration, the site is not under any lease agreement for livestock farming or any other purpose, and there are no formal or informal physical or economic land use activities within the Project site. While grazing is undertaken by herders within the wider area located west of the road as discussed in "Section 9.1.3", no grazing or other economic activities were identified within the Project site, and access to the wider grazing areas is not affected by the Project.

The screening of potential ESS2 risks was based on the following evidence:

- Consultation with the Cadastre Agency on 28 April 2026, which confirmed land ownership and the absence of land disputes or conflicts within the area;
- Consultation with the Navoi Regional Pasture Management Administration on 5 and 20 May 2026, which confirmed the absence of lease agreements and the absence of formal or informal land users within the Project site;
- Field verification undertaken during the site visits in April and May 2026, which identified no physical assets, structures, agricultural activities, livestock grazing or nomadic activity, and no ploughing marks or livestock fecal remains within the Project site;
- Review of historical land use through satellite imagery covering the period 2011 to 2023, which identified no previous physical or economic activities within the Project site;
- Information obtained from local residents and stakeholders, and consultation with the local environmental specialist, which confirmed that the nearest farmer located around 10 km from the site does not send herders to the Project area; and
- Stakeholder engagement activities undertaken with local communities, including the FGD held with the Muruntau Community on 27 April 2026 and the Public Hearing held on 18 July 2026, during which questions regarding access to the area for sheep and other livestock were raised and addressed, and no objections to the Project were raised.

On the basis of the above, no physical displacement, economic displacement, restrictions on land use or access, or livelihood impacts are anticipated, and no livelihood restoration measures are required. Accordingly, AIIB ESS2 is not triggered for the Project.

Based on the above, there are no anticipated impacts on land use and there are no further requirements to be considered for the ESIA study.

10. GEOLOGY, HYDROLOGY AND HYDROGEOLOGY

This section provides an assessment of baseline conditions within the Project site and surroundings in relation to geology, hydrology and hydrogeology. The section then presents an assessment of potential impacts during the various Project phases. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

10.1 Assessment of Baseline Conditions

Baseline assessment was based on secondary data review and Project-specific technical studies, including the geotechnical interpretative report, topographical report and hydrological study prepared for the Project area by the Developer (through technical consultant). Regional contextual information was also reviewed from the Zarafshan Wind Farm ESIA, located around 10 km north of the Project site, where relevant to the wider geological, hydrological and hydrogeological setting.

The baseline assessment entailed collecting and reviewing information on the following:

- Geological conditions within the Project site, including geological formations, soil types, geomorphology and geotechnical ground conditions;
- Topographical conditions, including site elevation, slope, terrain irregularities, drainage features and surface features;
- Hydrological conditions, including rainfall, catchments, runoff generation, flood pathways, surface water features and drainage conditions; and
- Hydrogeological conditions, including groundwater occurrence, groundwater resources, regional aquifers and potential groundwater sensitivity.

10.1.1 Geology and Geomorphology

Regionally, Uzbekistan is located within the Turan Platform, which forms part of the broader geological framework of Central Asia. The regional basement comprises sedimentary, metamorphic and igneous rocks associated with the Late Paleozoic Uralo-Mongolian orogenic belt. This basement is overlain by Mesozoic and Cenozoic platform sediments, with more recent Quaternary and Neogene deposits contributing to the present surface geology and geomorphology of the area. The regional geological setting is influenced by the Kazakh and Karakum-Tajik microcontinents, separated by the Turkestanian paleo-oceanic structure, and by later tectonic and depositional processes that shaped the Kyzylkum region.

Based on the Project-specific geotechnical interpretative report, the surface geology of the Project site is comprised of Upper Pliocene and Eopleistocene aged geological units. The Pliocene deposits that dominate the Project site are mainly composed of alternating claystone, mudstone and underlying sandstone units. The geotechnical boreholes and trial pits identified the following main geological units within the Project site: dense to very dense yellowish-brown silty sand with gravel; moderately to highly weathered, extremely weak to weak greyish-brown sandstone; and slightly to highly weathered, extremely weak to very weak dark-brown claystone.

Figure 25 below present the geological setting of the Project site and the locations of the boreholes, trial pits and geophysical investigation points undertaken as part of the Project-specific geotechnical investigation.

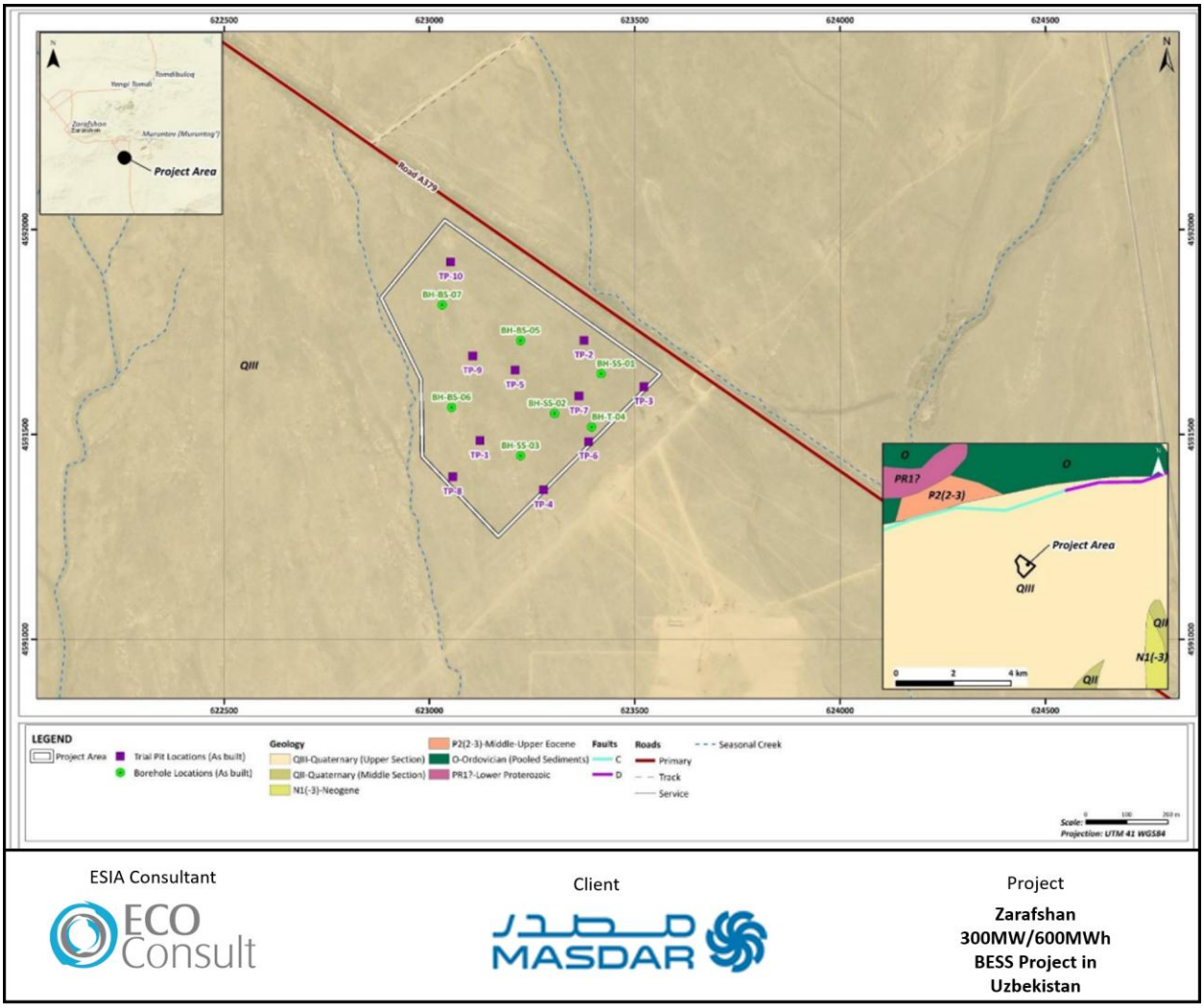


Figure 25: Geological Map and Ground Investigation Locations of the Project site

The Project-specific topographical and geotechnical data indicate that the Project site is generally located within a slightly hilly to relatively flat landform. The elevations within the Project site range from around 505 m to 492 m. In terms of topography, it also confirms that the terrain has variations in height, ranging from slightly hilly to relatively flat, and that the site was surveyed using UAV aerial photography, Digital Elevation Model (DEM) data and 1:1000 scale mapping with 0.5 m contour intervals.

Figure 26 below presents the Project site topography and elevation range based on the Project-specific topographical survey and DEM outputs.

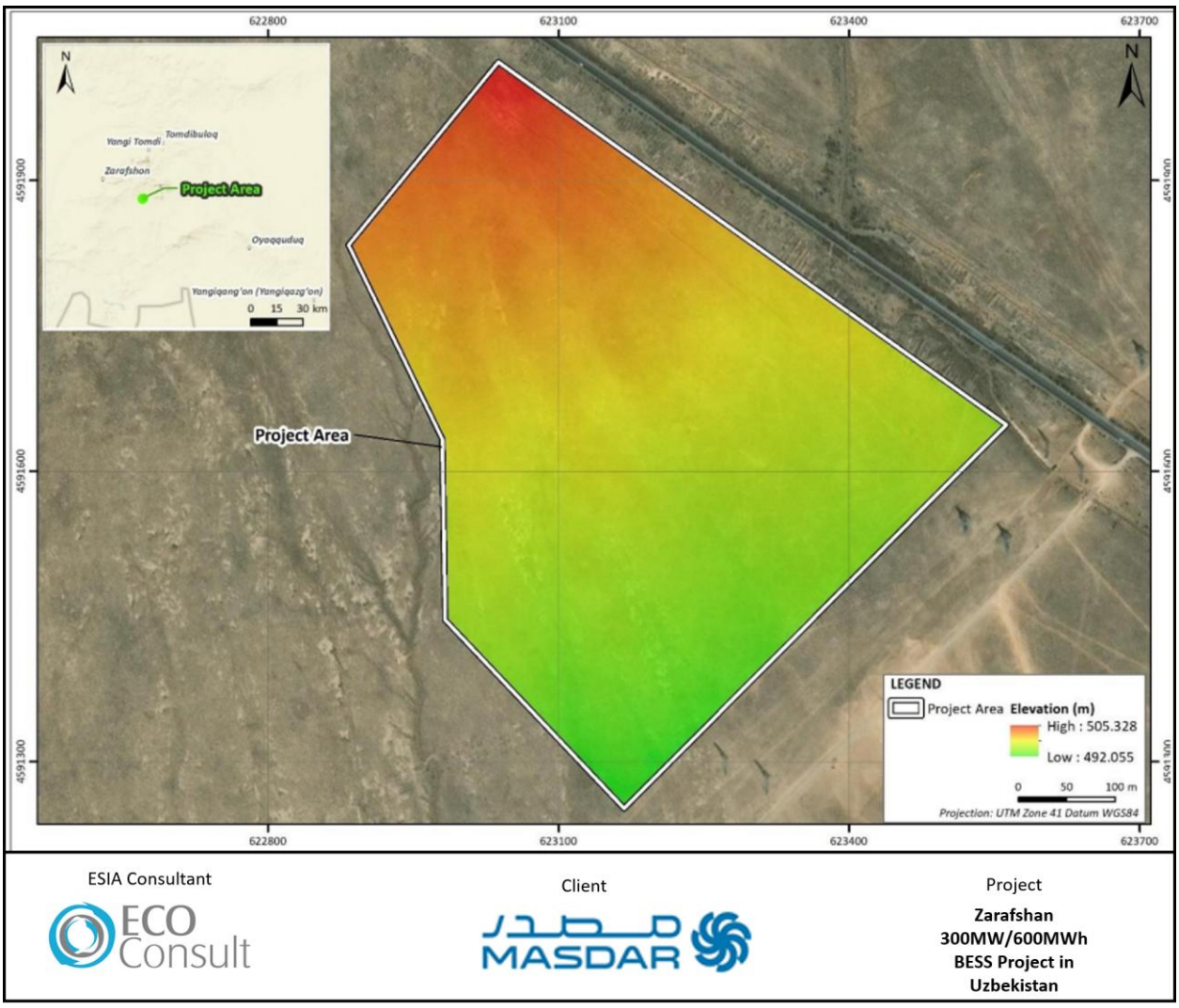


Figure 26: Elevation Map of the Project Site

The topographical report also identified and digitised surface features within the survey area, including roads, dry creeks, electric poles, underground water lines, temporary lake areas and slopes. The results indicate that the Project site is located within an open, arid landscape with localised drainage features rather than permanent surface water bodies.

Soil and Geological Hazards

The geotechnical site investigation included seven (7) boreholes with a total drilling depth of 120 m, ten (10) trial pits with a maximum excavation depth of 3.10 m, 15 Vertical Electrical Sounding (VES) tests, 15 Thermal Resistivity Tests (TRT), Standard Penetration Tests (SPT), laboratory testing and geophysical interpretation.

The geotechnical report indicates that the soil structure within the Project site is generally non-plastic silty sand with gravel. The idealised soil profile prepared for the Project site identifies very dense sand from 0.00 m to 30.00 m, with boreholes predominantly identifying medium dense to very dense silty sands, followed by highly to completely weathered sandstone.

A three-layer resistivity model was identified. The superficial layer, extending generally between 0 m and 4 m depth, shows relatively high resistivity values of around 190 ohm-m and is interpreted as topsoil, gravelly silty sand and sandstone units. A second layer has lower resistivity values of around 50 ohm-m, while a deeper layer below, around 8 m, has lower resistivity values of around 22 Ωm. Results indicate that groundwater anomalies were not observed in the resistivity results.

No significant geohazards were identified in relation to weak soil deposits, bearing capacity or settlement problems, liquefaction susceptibility, slope instability or excavability. Excavation up to 4.00 m below natural ground level can generally be undertaken using typical excavation equipment, and the Project site is considered to fall within an “easy digging” class for soil layers.

Liquefaction risk is not expected for the Project site due to the absence of saturated loose silty sand deposits. Groundwater was not observed during drilling or trial pit excavation, and drained conditions were adopted for geotechnical calculations.

The Project site is located within a seismically active country. Based on OSR-2011, using a 475-year return period and a 90 percent probability of non-exceedance in 50 years, the Project site lies within Zone 6 as shown in Figure 27 below, with a PGA value between 51 cm/s² and 100 cm/s². For the purpose of the Project geotechnical study, a PGA value of 100 cm/s² was adopted. It is important to note that possible seismic activity affecting the Project site should consider earthquake potential greater than magnitude 6.0.

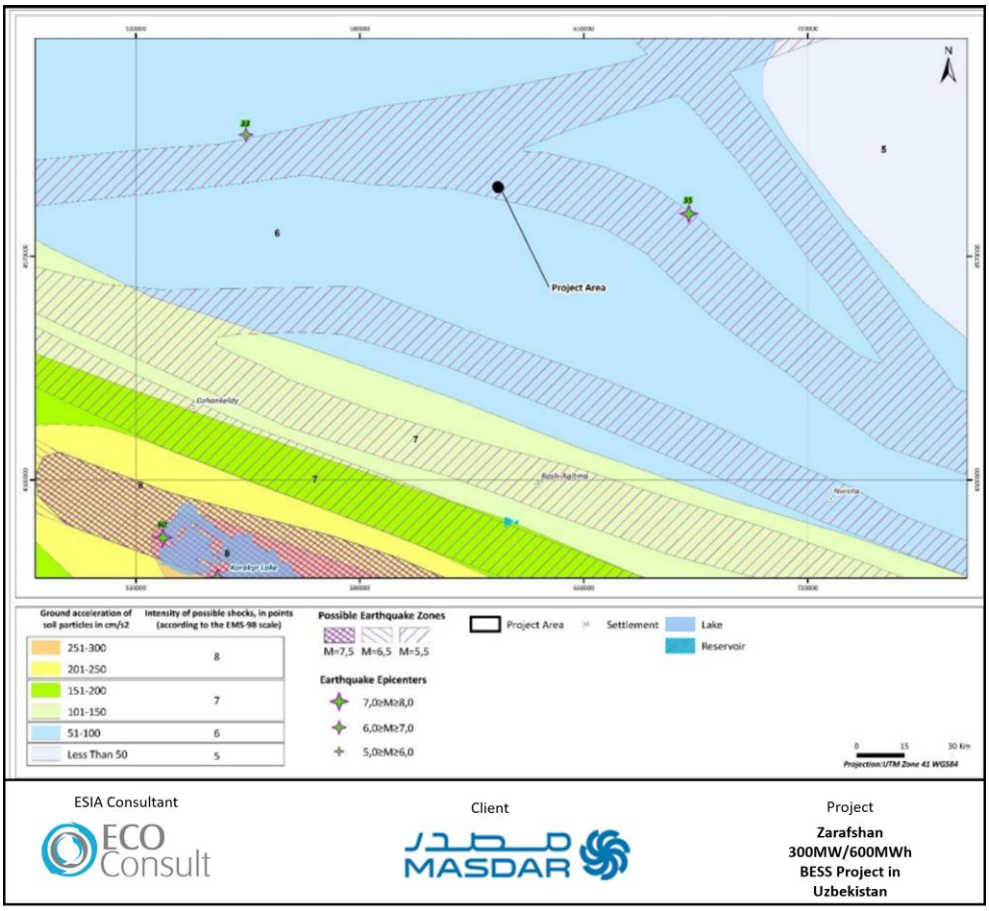


Figure 27: Project Site in Relation to Earthquake Zones and Adjacent Earthquakes with M>5

The maximum frost depth for the Project site is taken as 78 cm for a 50-year design period. It is recommended that footings be placed deeper than this depth where relevant, so that heaving effects can be neglected.

Soil chemical testing indicates that sulfate content falls within S1 to S2 exposure classes, indicating moderate to severe sulfate exposure conditions for buried concrete structures. This does not represent a significant environmental constraint, but it will need to be considered in detailed design through the use of appropriate sulfate-resistant cement and concrete protection measures.

10.1.2 Hydrology

The Project is located in the Zarafshan region of Uzbekistan, within an arid to semi-arid climatic setting. Zarafshan region typically receives limited annual precipitation, generally ranging between 150 mm and 250 mm per year, with most rainfall occurring in spring and autumn. Summer months are mostly dry, while rainfall events can be short and intense, contributing to surface runoff, mudflows or erosion in some areas, particularly upstream mountainous basins.

Rainfall records from 1983 to 2023 were reviewed using CHRS Rainsphere data. Statistical analysis of annual maximum precipitation was undertaken using Gumbel and SQRT-ET Max methods, with the more conservative design rainfall values adopted. The adopted design rainfall values are summarised below.

Table 19: Adopted Design Rainfall Values for Different Return Periods

Return Period	Adopted Design Rainfall
2 years	12 mm
5 years	17 mm
10 years	21 mm
25 years	25 mm
50 years	28 mm
100 years	32 mm
200 years	36 mm
500 years	42 mm

A climate change sensitivity was included in the hydrological study by applying a 20 percent increase to the design rainfall values, reflecting projections for potential intensification of extreme rainfall events in Central Asia.

There are no natural flooding events that have been recorded in recent years in the area near the Project vicinity. However, the wider site area is crossed by natural drainage channels that are predominantly oriented north-south. These channels are concentrated mainly in the central and eastern parts of the study area, with smaller tributaries distributed across the broader site.

Two (2) principal catchments were identified, referred to as C1 and C2. Catchment C1 is the main catchment affecting the site, as its drainage channels cross into the Project boundary and influence the central and upper areas of the site. Catchment C2 was considered in the assessment as a precautionary measure, although the hydrological study states that it does not currently discharge directly into the plant footprint. The study reports peak discharges for the critical 100-year return period, including climate change allowance, of around 2.4 m^3/s for Catchment C1 and 10.4 m^3/s for Catchment C2.

Figure 28 below presents the catchments identified in the hydrological study, including Catchments C1 and C2 and their relationship to the Project boundary.

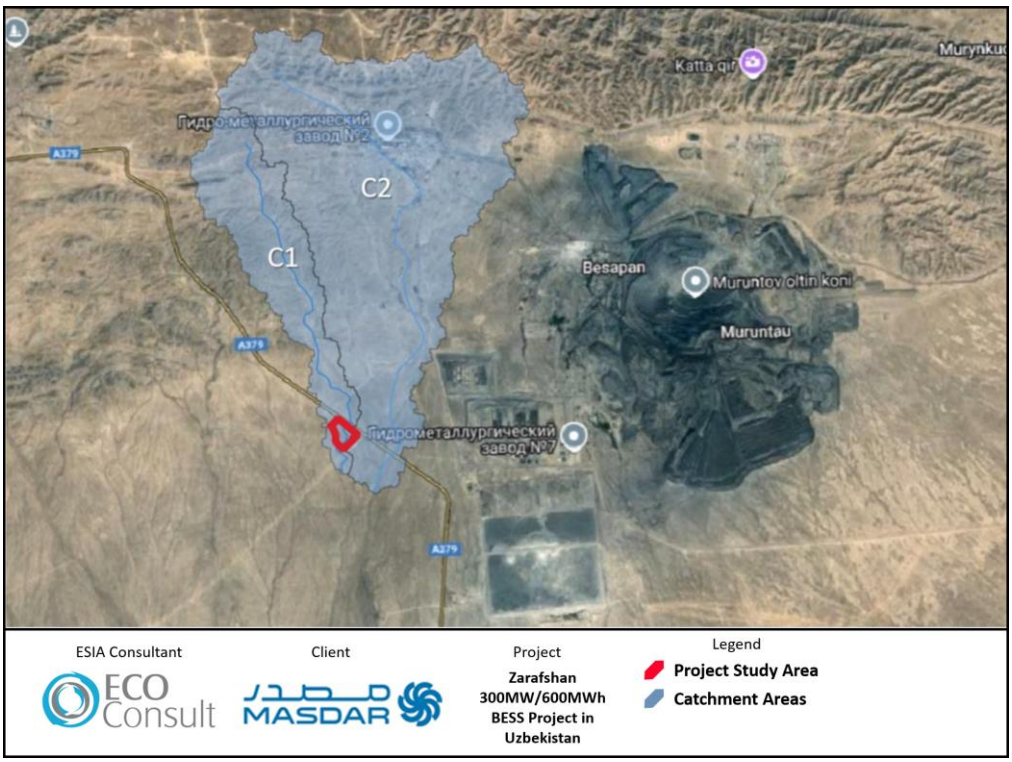


Figure 28: Catchment Layout for the Project Area

The hydrological and hydraulic modelling indicates that inflow from C1, and potentially from C2 under conservative assumptions, may result in rapid water accumulation near the site, but not inside the plant itself. The A379 Highway embankment and associated access infrastructure act as partial barriers to natural drainage and may promote localised ponding, particularly in the south-western portion of the facility. Otherwise, the plant remains mostly dry, except for local depressions around the area. Flow velocities are generally within acceptable limits for the terrain type.

Figure 29 and Figure 30 below present the hydraulic modelling outputs, including flood depth and velocity distribution, and identify any localised ponding or critical drainage areas shown in the hydrological study for the 100-Year Return Period with Climate Change.

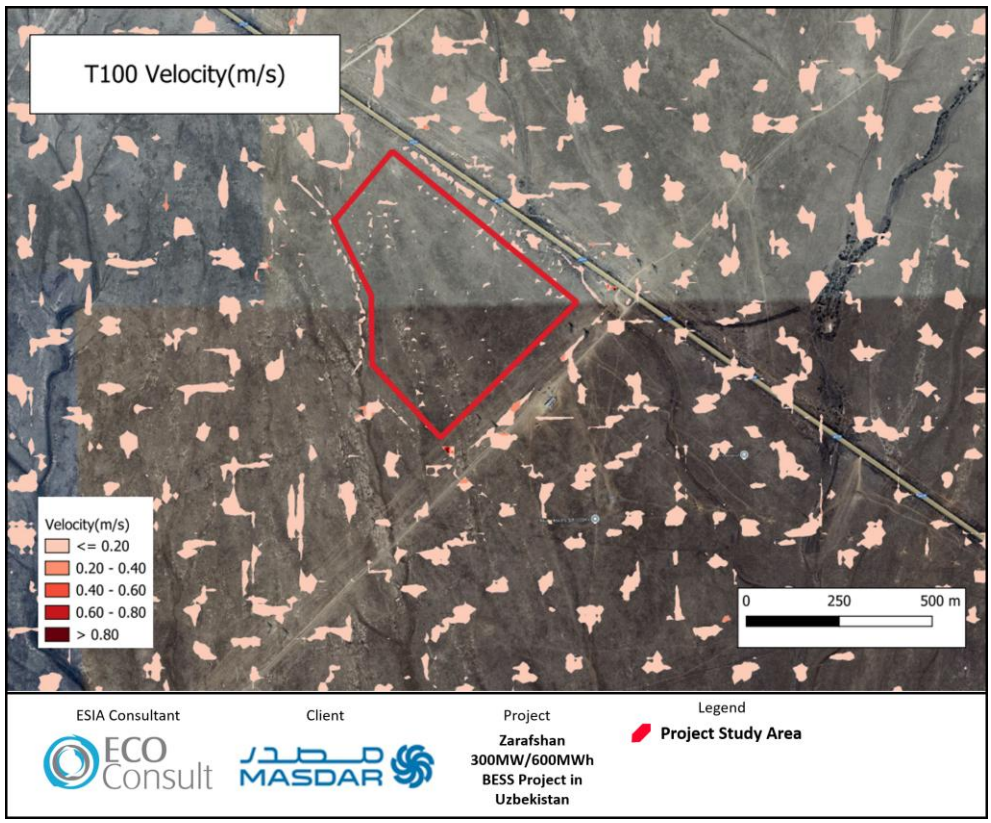


Figure 29: Flow Velocity Mapping for the Project Area

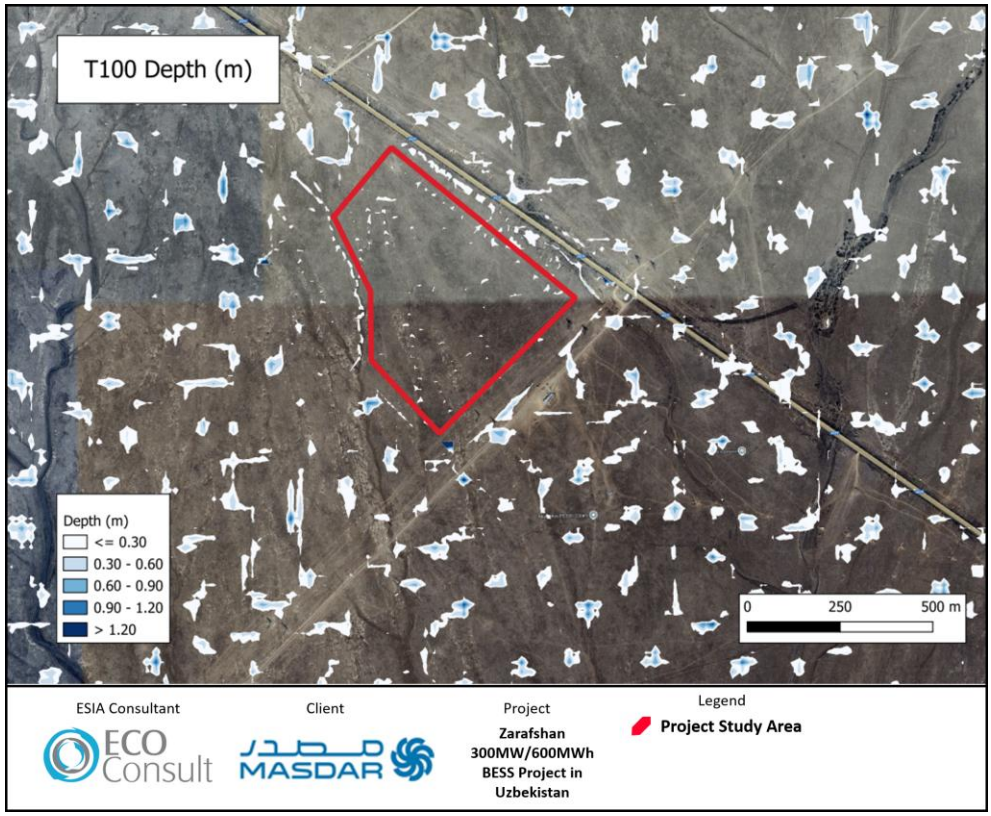


Figure 30: Flood Depth Mapping for the Project Area

Based on hydrological and hydraulic analyses, no additional flood protection or mitigation structures are considered necessary. The hydrological study concludes that construction of dikes, retention basins or other flood-control structures is not justified, and that routine site grading and maintenance of drainage paths are sufficient for runoff management.

10.1.3 Hydrogeology

Project-specific investigations did not encounter groundwater during borehole drilling or trial pit excavation. The maximum borehole depth was 30 m below ground level, and trial pits extended to a maximum depth of 3.10 m. Drained conditions were therefore adopted for geotechnical calculations, and that groundwater anomalies were not identified in the VES results.

Regional contextual information from the Zarafshan Wind Farm ESIA indicates that groundwater resources in the broader Zarafshan area may have mixed salinity, and that the regional groundwater flow direction is generally from southeast to northwest toward the Mulala depression. It also identifies regional aquifer units in the wider Project area, including Quaternary deposits, Upper Pliocene sediments, Lower Pliocene deposits, and Senonian and Paleocene sediments. This information is considered regional context only and has not been confirmed by Project-specific groundwater monitoring at the Project site.

The Zarafshan Wind Farm ESIA also notes that water resources in the wider Navoi and Tamdy region are limited, with larger settlements supplied by municipal pipelines and smaller communities relying on borehole water or transported potable water. This regional context indicates that groundwater and potable water resources should be treated as sensitive resources, even where groundwater is not encountered within the Project's investigation depth.

10.2 Assessment of impacts

This section identifies and assesses the anticipated impacts from the Project activities on geology, hydrology and hydrogeology during the construction and operation phase. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

10.2.1 Potential Impacts from Flood Risks on the Project Site

It is important to assess potential flood risks on the Project site, as extreme rainfall events could temporarily affect Project components, access, construction areas, drainage patterns and operation of electrical infrastructure. A standalone hydrological assessment was undertaken to assess average and extreme rainfall, define catchments affecting the plant area, assess land use and soil types, and undertake hydraulic modelling, including the generation of flood depth and velocity maps. The assessment included rainfall analysis, catchment definition, runoff modelling using HEC-HMS, and hydraulic modelling using HEC-RAS for the 10-year, 25-year, 50-year and 100-year return periods.

The hydrological study indicates that, in the area near the Zarafshan plant, no natural flooding events have been recorded in recent years. However, the wider plant area is traversed by multiple natural drainage channels, predominantly oriented in a north-south direction. The densest concentration of these channels is located within the central and eastern portions of the area, with smaller tributaries also distributed

across the wider site. These channels converge towards lower elevation points outside the plant boundary, as shown in Figure 31 below.

Figure 31 blow presents the natural drainage channels identified within and around the plant area, based on the hydrological study.

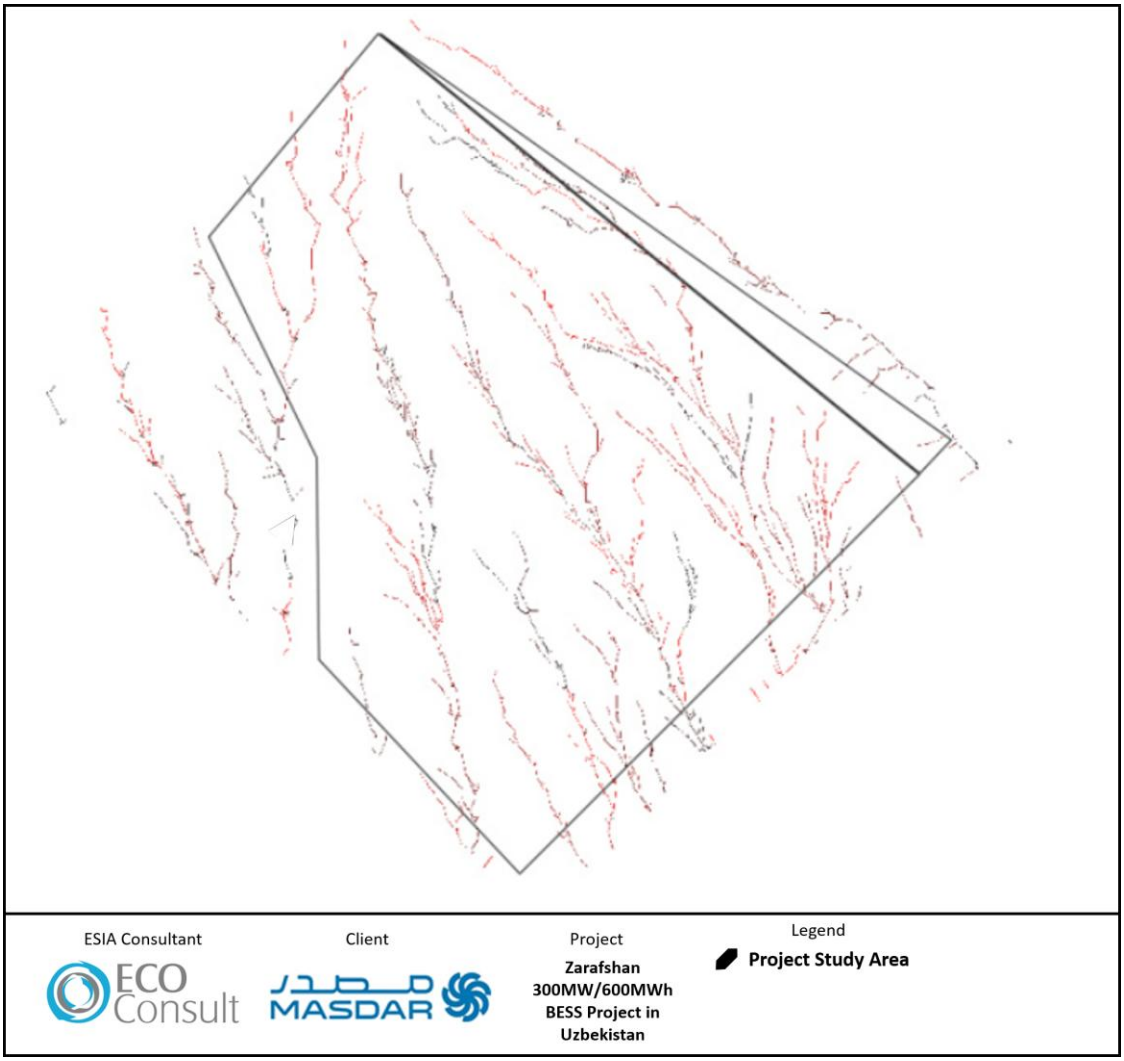


Figure 31: Natural Drainage Features within and around the Project Are

The hydrological assessment identified the main catchments affecting the plant area and assessed their hydrological characteristics, including area, channel length, slope, time of concentration and runoff response. The assessment also reviewed land cover and hydrological soil groups using GIS tools and global datasets. The hydraulic model was then used to assess flow depths and velocities under the modelled storm events.

The modelling results indicate that the main hydrological issues are associated with the western and northeastern areas of the wider plant area. In the northeastern sector, the main issue is related to direct inflow from Basin C1 as presented in Figure 28 above, which drains a relatively large surface area and can concentrate runoff towards this part of the site. The hydrological study also notes that road infrastructure, including the A379 road and internal tracks, can act as physical barriers to natural drainage patterns. These embankments may obstruct free water movement, creating local stagnation and allowing water to spread laterally towards the plant interior during storm events.

The terrain is described as rugged and undulating with limited vegetation cover. Local topographic highs, irregular slopes, low-lying benches and depressions can impede drainage and promote localised water retention. As a result, certain areas may be prone to temporary ponding during storm events. Flow velocities across most of the plant area are generally low; however, the hydrological study identifies one critical area in the eastern part of the site where velocities may reach up to 1 m/s. The study notes that, in sandy to gravelly terrain with little to no vegetation, the typical safe velocity range is around 0.2 m/s to 0.6 m/s, and values above this range may lead to local surface erosion and potential instability.

Based on the results and drainage proposal, inflow from C1, and potentially from C2 under conservative assumptions, may result in rapid water accumulation near the plant, but not inside the plant itself. The A379 road embankment and associated access infrastructure can locally impede natural drainage and favour ponding, particularly in the south-western portion of the facility. Otherwise, the plant remains mostly dry, except for local depressions around the area. The hydrological study also concludes that almost the entire plant remains within acceptable flow velocity limits for the terrain type.

Taking the above into account, the potential impacts from flood risk on the Project site are considered to be localised and related mainly to temporary ponding, local runoff concentration, and potential erosion in areas where flow velocities exceed the typical safe range for the terrain. These risks are most relevant during intense rainfall events and during construction, when grading, stockpiling, temporary access arrangements and soil disturbance could obstruct or alter existing drainage pathways.

During operation, the risk is expected to be lower, provided that final site grading maintains drainage pathways and avoids the creation of new ponding areas around BESS containers, MV stations, foundations, access roads and electrical infrastructure. The hydrological study concludes that no additional flood protection or mitigation structures are required for the plant area, and that the construction of dikes, retention basins or other flood-control structures is not justified. Routine site grading and maintenance of drainage paths are considered sufficient to manage runoff under the dry climatic conditions of the region.

Therefore, taking the above into account, based on the analysis undertaken, no flood risks are anticipated within the Project site and hence there are no impacts anticipated from flood risks on the Project.

10.2.2 Potential Impacts from Improper Management of Waste Streams during Construction and Operation

Given the generic nature of the impacts on soil and groundwater for both phases of the Project (construction and operation) these have been identified collectively throughout this section. Generally, this includes potential impacts from improper housekeeping practices (e.g. improper management of waste streams, improper storage of construction material and of hazardous material, etc.).

Improper housekeeping practices during construction and operation (such as illegal disposal of waste to land) could contaminate and pollute soil which in turn could pollute groundwater resources. This could also indirectly affect flora/fauna and the general health and safety of workers (from being exposed to such waste streams). Generally, such impacts can be adequately controlled through the implementation of general best practice housekeeping measures as highlighted throughout this section, and which are expected to be implemented by the EPC Contractor throughout construction phase and Project Operator during the operation phase.

Construction Phase			**Operation Phase**		
Type	Negative	Such impacts are controlled through	Type	Negative	Such impacts are controlled through
Duration	Short-term		Duration	Long -term	

Magnitude	Medium	implementation of general best practice.	Magnitude	Medium	implementation of general best practice.
Reversibility	Reversible		Reversibility	Reversible	
Sensitivity	Medium		Sensitivity	Medium	
Likelihood	Medium		Likelihood	Medium	
Frequency	Frequent		Frequency	Frequent	
Timing	Not relevant		Timing	Not relevant	
Extent	Medium		Extent	Medium	
Significance	**Moderate**		**Significance**	**Moderate**	

Following the implementation of the mitigation measures highlighted throughout this section, the residual significance can be reduced to not significant.

(i) Solid Waste Generation

Solid waste is expected to be generated from construction and operational activities. Solid waste generated will likely include construction waste (such as debris) and municipal solid waste (during construction and operation such as cardboard, plastic, food waste, etc.).

Municipal solid waste and construction waste generated will likely be collected and stored onsite and then disposed to the closest approved disposal facility through licensed waste contractors. As discussed in "Section 14.1.2", municipal solid waste management in the area is undertaken by the State Unitary Enterprise "Toza Hudud", and the nearest approved municipal waste disposal facility, together with its location, accepted waste streams and permitting status, will be confirmed prior to the commencement of construction.

Note: expected waste quantities, the landfill that will be used for the Project and impacts on landfills is discussed separately under "Section 14".

Mitigation Measures

The following identifies the mitigation measures to be applied by all involved entities to include the EPC Contractor during the construction phase and the Project Operator during the operational phase unless stated otherwise:

- Coordinate with State Unitary Enterprise or hire a competent private contractor for the collection of solid waste from the site to the approved disposal facility (as discussed in further details below);
- Prevent fly-dumping of any solid waste to the land;
- Establish a solid waste management area onsite that is of hard surface, properly secured, with appropriate labelling and signage. In addition, area should be equipped with required containers for municipal and construction waste taking into account recycling measures as discussed in further points below;
- Distribute appropriate number of properly contained litter bins and containers properly marked as "Municipal Waste";
- EPC Contractor - during construction, distribute a sufficient number of properly contained containers clearly marked as "Construction Waste" for the dumping and disposal of construction waste.
- EPC Contractor– during construction, it is recommended that recycling measures are implemented. It is recommended that recycling is undertaken in the following approach: (i) separation and disposal of recyclables in a separate container (cardboard, paper, glass, metal, etc.); and (ii) separation and

disposal of non-recyclable materials in a separate container (e.g. food waste). Each container must be clearly marked. In addition, EPC Contractor must seek ways to reduce construction waste by reusing materials (for example through recycling concrete for road base coarse);

- Implement proper housekeeping practices on the construction site at all times; and
- Maintain records and manifests that indicate volume of waste generated onsite, collected by contractor, and disposed of at the disposal site. The numbers within the records are to be consistent to ensure no illegal dumping at the site or other areas.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by all involved entities to include the EPC Contractor during the construction phase and the Project Operator during the operational phase unless stated otherwise:

- Inspection of waste management practices onsite.
- Review of records and manifests for volume of waste generated to ensure consistency.
- Regular environmental reporting on implementation of waste management practices onsite.

(ii) Wastewater Generation

Wastewater is mainly expected to include black water (sewage water from toilets and sanitation facilities), as well as grey water (from sinks, showers, etc.) generated from workers during the construction and operation phase. Wastewater quantities are expected to be minimal. It is expected that wastewater will be collected and stored in fully contained septic tanks and then collected and transported by transportation tankers to be disposed of at the closest Wastewater Treatment Plant (WWTP).

Note: expected wastewater quantities, the WWTP that will be used for the Project and impacts on WWTP is discussed separately under "Section 14".

Mitigation Measures

The following identifies the mitigation measures to be applied by all involved entities to include the EPC Contractor during the construction phase and the Project Operator during the operational phase unless stated otherwise:

- Coordinate with State Unitary Enterprise to hire a private contractor for the collection of wastewater from the site to the closest WWTP.
- Prohibit uncontrolled or unauthorized discharge of wastewater to the land.
- Maintain records and manifests documenting the volume of wastewater generated onsite, collected by contractor, and disposed of at WWTP. The numbers within the records are to be consistent to ensure no illegal discharge at the site or other areas.
- EPC Contractor only - ensure that constructed septic tanks during construction and those to be used during operation are well contained and impermeable to prevent leakage of wastewater into soil.
- Ensure that septic tanks are emptied and collected by wastewater contractor at appropriate intervals to avoid overflowing.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by all involved entities to include the EPC Contractor during the construction phase and the Project Operator during the operational phase unless stated otherwise:

- Inspection of wastewater management practices onsite.
- Review of records and manifests for volume of wastewater generated to ensure consistency.
- Regular environmental reporting on implementation of the wastewater management practices discussed above.

(iii) Hazardous Waste Generation

Hazardous waste is expected to be generated throughout both the construction and operation phase, and this could include consumed oil, chemicals, paint cans, etc. Hazardous waste generated will likely be collected and stored onsite and then disposed of at the approved hazardous waste disposal facilities. In addition, damaged or defective battery components generated during the operation phase, as well as the batteries at the end of their operational life, are considered hazardous waste. Battery waste management is discussed separately in "Section 14.2.2".

Note: expected hazardous waste quantities, the hazardous waste landfill that will be used for the Project and impacts on the landfill is discussed separately under "Section 14".

Mitigation Measures

The following identifies the mitigation measures to be applied by all involved entities to include the EPC Contractor during the construction phase and the Project Operator during the operational phase unless stated otherwise:

- Coordinate and hire private contractors for the collection of hazardous waste from the site to the approved hazardous waste disposal facilities.
- Ensure that hazardous waste is disposed in a dedicated area that is enclosed; roofed and of hard surface; with proper signage and suitable containers as per hazardous waste classifications and that they are labelled for each type of hazardous waste.
- Ensure hazardous waste storage area is equipped with spill kit, fire extinguisher and anti-spillage trays and a hazardous waste inventory is available.
- Prohibit uncontrolled disposal of hazardous waste to the land.
- Potentially contaminated water (e.g. runoff from paved areas) must be drained into appropriate facilities (such as sumps and pits). Contaminated drainage must be disposed of as hazardous waste.
- Ensure that containers are emptied and collected by the contractor at appropriate intervals to prevent overflowing.
- Maintain records and manifests that indicate volume of hazardous waste generated onsite, collected by contractor, and disposed of at the hazardous waste disposal facilities. The numbers within the records are to be consistent to ensure no illegal discharge at the site or other areas.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by all involved entities to include the EPC Contractor during the construction phase and the Project Operator during the operational phase unless stated otherwise:

- Inspection of hazardous waste management practices onsite.
- Review of records and manifests for volume of hazardous waste generated to ensure consistency.
- Regular environmental reporting on implementation of hazardous waste management practices onsite.

(iv) Hazardous Material

The nature of construction and operational activities entail the use of various hazardous materials such as oil, chemicals, and fuel for the various equipment and machinery. Improper management of hazardous material entails a risk of leakage into the surrounding environment either from storage areas or throughout the use of equipment and machinery.

Mitigation Measures

The following identifies the mitigation measures to be applied by all involved entities to include the EPC Contractor during the construction phase and the Project Operator during the operational phase unless stated otherwise:

- Ensure that hazardous materials are stored in proper areas and in a location where they cannot reach the land in case of accidental spillage. This includes storage facilities that are of hard impermeable surface, with a hard roof, flame-proof, accessible to authorized personnel only, locked when not in use, and prevents incompatible materials from coming in contact with one another.
- Maintain a register of all hazardous materials used and accompanying Material Safety Data Sheet (MSDS) must present at all times. Spilled material should be tracked and accounted for.
- Incorporate dripping pans at machinery, equipment, and areas that are prone to contamination by leakage of hazardous materials (such as oil, fuel, etc.).
- Regular maintenance of all equipment and machinery used onsite. Maintenance activities and other activities that pose a risk for hazardous material spillage (such as refueling) must take place at a suitable location (hard surface) with appropriate measures for trapping spilled material.
- Ensure that sufficient spill response equipment and absorbent materials are available at hazardous materials storage areas at all times to effectively contain and clean up any spills.
- If spillage on soil occurs, spills must be immediately contained, cleaned up, and contaminated soil disposed as hazardous waste.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by all involved entities to include the EPC Contractor during the construction phase and the Project Operator during the operational phase unless stated otherwise:

- Inspection for storage of hazardous materials to include inspections for potential spillages or leakages.
- Report any spills and the measures taken to minimize the impact and prevent them from occurring again.

10.2.3 Potential Impacts from Accidental Spills and Leakages during Construction and Operation

Accidental spills and leakages may occur during both the construction and operational phases of the Project, potentially resulting in localized soil and groundwater contamination. These may arise from the improper handling, storage, or transportation of hazardous substances such as fuel, lubricating oils, hydraulic fluids, and cooling agents used for batteries and power conversion systems.

During operation, accidental leaks or failures of the battery modules, particularly in the event of damaged containment systems or compromised thermal management units, may lead to the release of electrolyte or other chemical substances (e.g., lithium salts, organic solvents, or fluorinated compounds) to the surrounding environment. Although the probability of such events is low under normal operating conditions, they may cause localized contamination if not properly managed.

Such incidents could result in a range of potential environmental and health impacts if not adequately managed. Spillage of oil, electrolyte, or coolant fluids may infiltrate the soil and contaminate subsurface layers, potentially reaching groundwater resources and leading to localized soil and groundwater contamination. In addition, during rainfall events or surface runoff, spilled materials may be transported through drainage channels and migrate to nearby surface water bodies, causing degradation of water quality and possible ecological effects on aquatic habitats.

Accidental spillages may also pose occupational health and safety risks to workers involved in handling or cleaning contaminated materials, particularly in the absence of appropriate personal protective equipment (PPE) or spill response procedures. Furthermore, given the chemical composition of certain battery chemistries (such as lithium-ion), accidental damage, overheating, or exposure to moisture could lead to thermal runaway, fire, or explosion, resulting in the release of toxic gases and combustion by-products that could adversely affect onsite personnel and the surrounding environment.

As discussed in Section 9.1.3 above, a bitumen spill observation was identified during the land use site visit in the vicinity of the Muruntau 500 kV Substation, outside the proposed BESS area but close to the wider Project works area. As shown in Figure 32 below, the observed spill is located around 70 m from the planned Underground Transmission Line route and appears to be associated with previous construction or maintenance activities in the substation area. While the spill was not observed within the BESS footprint, it indicates the potential presence of localised historical contamination in the surrounding area. If disturbed during construction, such material could result in localised soil contamination, generation of contaminated spoil, or transfer of bituminous material to nearby soils through vehicle movement, excavation or grading works.

Given the nature of bitumen as a petroleum-based material, the risk is expected to be localised and mainly limited to direct soil contact or disturbance of affected material. However, the observation should be addressed through pre-construction verification and appropriate construction management controls, particularly where works are undertaken near the substation and Underground Transmission Line corridor.

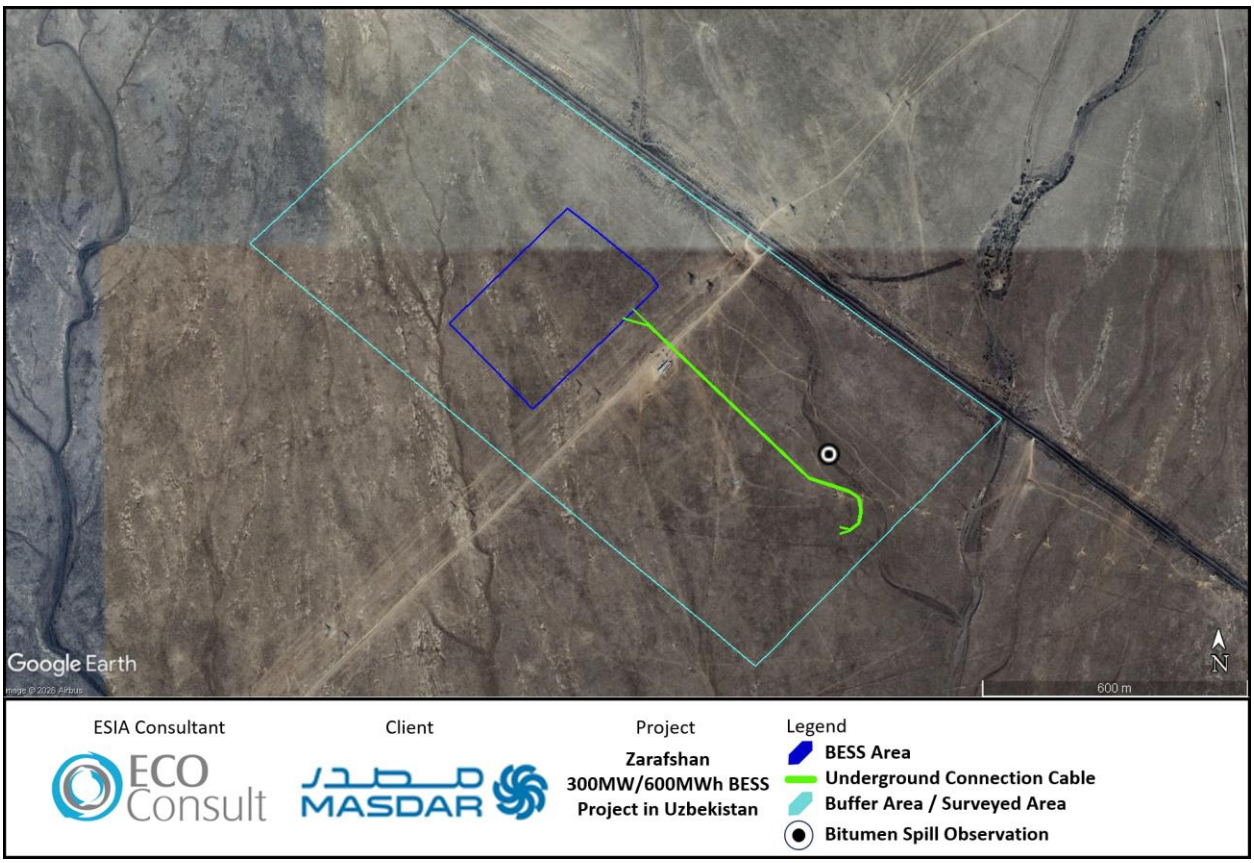


Figure 32: Bitumen Spill Observation Location

Construction Phase			Operation Phase		
Type	Negative	Such impacts are controlled through implementation of general best practice.	Type	Negative	Such impacts are controlled through implementation of general best practice.
Duration	Short-term		Duration	Long -term	
Magnitude	Medium		Magnitude	Medium	
Reversibility	Reversible		Reversibility	Reversible	
Sensitivity	Medium		Sensitivity	Medium	
Likelihood	Medium		Likelihood	Medium	
Frequency	Rare		Frequency	Rare	
Timing	Not relevant		Timing	Accidental	
Extent	Low		Extent	Low	
Significance	**Moderate**		**Significance**	**Moderate**	

Following the implementation of the mitigation measures highlighted below, the residual significance of the potential impacts from accidental spills and leakages can be reduced to not significant.

Mitigation Measures

The following mitigation measures shall be applied by the EPC Contractor during the construction phase and by the Project Operator during the operational phase unless stated otherwise:

- Ensure that all fuels, oils, lubricants, and chemicals are stored in properly designed storage facilities constructed of hard, impermeable surfaces, with roof cover and secondary containment (bunded areas) capable of holding at least 110% of the largest container.

- Maintain an updated Material Safety Data Sheet (MSDS) register onsite for all hazardous materials, accessible to all staff.
- Prohibit any refueling or oil handling activities outside designated, hard-surfaced, and contained areas.
- Equip all relevant areas (storage, refueling, battery rooms, and maintenance zones) with spill kits and ensure that personnel are trained in their use.
- In case of accidental spillage, contain the spill immediately, recover the leaked material using non-reactive absorbents, and dispose of contaminated soil and absorbents as hazardous waste.
- Maintain emergency spill response procedures as part of the Project's HSSE MS.
- Conduct regular inspection and maintenance of all equipment, storage containers, and transfer systems to identify early signs of leaks or deterioration.
- Ensure that BESS units are housed in sealed containers or enclosures with integrated drip trays or containment sumps to prevent leakage from reaching the ground.
- Maintain a Battery Management System (BMS) capable of real-time monitoring of temperature, voltage, and leakage current to detect early signs of failure or electrolyte loss.
- Develop and implement a BESS Fire and Spill Response Procedure that includes isolation, cooling, and safe removal of damaged battery modules.
- Collect and dispose of any spilled electrolyte, contaminated absorbents, or damaged battery cells as hazardous waste through a Ministry of Ecology, Environmental Protection and Climate Change-approved contractor.
- Prevent the washing of spilled material or firewater runoff into soil or stormwater drains.
- Conduct specialized emergency response training for the O&M team focusing on chemical spill containment, first aid, and safe handling of battery incidents.
- Prior to construction, the EPC Contractor will undertake a pre-construction walkover of the Underground Transmission Line route to confirm whether any visible spills, stained soils, bitumen residues or other signs of contamination are present.
- The observed bitumen spill area will be avoided where practicable. If work is required within or near the affected area, the EPC Contractor will undertake a targeted inspection and, where needed, testing before disturbance.
- Any bitumen-contaminated soil or material encountered during construction will be segregated, prevented from reuse as backfill, and removed by an approved contractor to a suitable licensed facility. Workers will be instructed to stop work and notify the HSE/E&S team if stained soil, oily material, bitumen residues or unusual odours are encountered.

Monitoring and Reporting Requirements

The following monitoring and reporting activities shall be implemented by the EPC Contractor and Project Operator:

- Regular inspection of hazardous material and BESS storage areas to identify potential leakages, corrosion, or containment failures.

- Spill incident logging including date, material type, estimated quantity, source, corrective action taken, and disposal details.
- Verification of spill kit availability and adequacy across all key locations (at least one per battery cluster, refueling area, and chemical store).
- Review of maintenance and inspection records to ensure early detection of leaks from tanks, hoses, and BESS cooling systems.
- Quarterly environmental reporting summarizing spill incidents, response actions, and recommendations for prevention.
- Immediate notification to the HSE Manager and relevant authorities (if required) in the event of a significant spill or chemical release.

10.2.4 Potential Impacts from Erosion and Runoff during the Construction Phase

Site preparation activities which are to take place onsite by the EPC Contractor for installation of the various Project components to include, batteries, PCS, cables, etc. are expected to include land clearing activities, some limited excavation, grading, etc.

The nature of construction activities discussed above could disturb soil, exposing it to increased erosion during rainfall events. If onsite erosion and runoff are not controlled, they can result in siltation of surface water. Generally, such impacts can be adequately controlled through the implementation of general best practice housekeeping measures as highlighted throughout this section, and which are expected to be implemented throughout construction phase.

Construction Phase		
Nature	Negative	Such impacts are controlled through implementation of general best practice.
Duration	Medium-term	
Magnitude	Medium	
Reversibility	Reversible	
Sensitivity	Medium	
Likelihood	Medium	
Frequency	Periodic	
Timing	During rain events	
Extent	Medium	
Significance	**Moderate**	

Following the implementation of the mitigation measures highlighted throughout this section, the residual significance can be reduced to not significant.

Mitigation Measures

The following identifies the mitigation measures to be applied by all involved entities to include the EPC Contractor during the construction phase:

- Drainage system design will consider channels and diversion drains to be constructed and maintained to divert surface runoff around while maintaining the natural drainage characteristics where practicable

- Drainage infrastructure will be constructed during dry periods to reduce erosion risk and the potential for sediment movement downstream.
- To extent possible, minimize activities during wet conditions. When activities must occur in wet conditions, control storm water by using measures identified below to impede storm water flow and prevent erosion.
    - Apply the principle of 'keeping clean water clean' by avoiding disturbance to natural drainage features, minimizing any works in or around artificial drainage features, and diverting clean surface water flow around excavations, construction areas and temporary storage areas; and
    - Collect drainage water from works areas within the site that might carry silt or sediment, and nutrients, to direct it to appropriate control measures, such as stilling ponds and/or sediment traps that will need to be monitored and regularly cleaned as necessary
- Place clear markers indicating stockpiling area of excavated materials to restrict equipment and personnel movement, thus limiting the physical disturbance to land and soils in adjacent areas.
- Install as needed interceptor or cut-off drains in advance of any main construction work commencing. Interceptor or cut-off drains are installed up gradient of any works areas to collect surface flow runoff and prevent it reaching excavations and construction areas of the site where it might otherwise have come into contact with exposed surfaces and picked up silt and sediment.
- Install erosion and sediment control barriers around work sites as needed during site preparation and construction to prevent silt runoff where applicable.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by all involved entities to include the EPC Contractor during the construction phase:

- Inspection for erosion and runoff control to include inspections for implementation of mitigation measures.

11. BIODIVERSITY

This section provides an assessment of baseline conditions within the Project site and surroundings in relation to biodiversity. The section then presents an assessment of potential impacts during the various Project phases. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

11.1 Assessment of Baseline Conditions

11.1.1 General

A. Survey Objectives

The purpose of desktop and field surveys is to provide detailed data that can be used to determine the specific impacts of the proposed project and the mitigation required for the project, by confirming the habitats and habitat condition on and immediately adjacent to site, along with the presence of species of conservation importance e.g. those that are internationally or nationally threatened, endemic (range restricted) or invasive or those that are present in internationally significant numbers.

B. Desk Study Methodology

An IBAT Data Search, including proximity report, was undertaken in January 2026 to identify species of global conservation concern (IUCN Critically Endangered, Endangered and Vulnerable) that may be present within the 50 km IBAT search area. Information pertaining to protected areas within 10 km of the proposed Project area was also included in the report. Based on the scale of the Project and likely potential impacts, 10 km was considered an appropriate distance, beyond which impacts would not be detectable.

11.1.2 Habitat and Flora

A. Desk Study Methodology

The background information used for compiling checklists of likely flora (along with rare and endangered species) within or adjacent to site is based on data from field expeditions conducted by the Institute of Botany, as well as herbarium collections stored in the National Herbarium of Uzbekistan (TASH), the Herbarium of Samarkand State University (SAM), the Herbarium of the Komarov Botanical Institute of the Russian Academy of Sciences in St. Petersburg (LE), and the Herbarium of Moscow State University (MW).

In preparing the floristic list, fundamental identification manuals and syntheses on the vascular plants of Central Asia, Uzbekistan, and Kazakhstan were used, including *"Plant Identification Guide of Central Asia"* (1968–2015), *Flora of the USSR* (1934–1964), *Flora of Uzbekistan* (1941–1962), and *Flora of Kazakhstan* (1956–1966). In addition, taxonomic monographs, electronic databases, and revisions of specific systematic groups were consulted (Tzvelev, 1983; Egorova, 1999; Pimenov & Klyuykov, 2002; Lazkov, 2006; Sennikov, 2017; Klyuykov, Tojibaev & Lyskova, 2018; Akhani et al., 2007; Al-Shehbaz et al., 2014; Clayton et al., 2006; Degtjareva et al., 2013; Downie et al., 2010; www.e-monocot.org; Hörandl & Emadzade, 2012; www.ildis.com; Khassanov & Rakhimova, 2012; Lammers, 2007; Lazkov, 2016; López-Vinyallonga et al., 2009, 2011; Podlech & Zarre, 2013; Salmaki et al., 2012; The Global Compositae Checklist, 2009; Hill, 2017; The Gymnosperm Database, 2017; The World Umbellifer Database, 1999; Wiegleb et al., 2017).

The most important 20th-century publications dedicated to the vegetation diversity of Navoiy Region include E. P. Korovin's work *"Plant Formations of the Nurata Valley"* (1923), K. Z. Zakirov's two-volume monographs *"Flora and Vegetation of the Zarafshan River Basin"* (1955, 1961), and I. I. Granitov's *"Vegetation Cover of Southwestern Kyzylkum"* (1964, 1967). Other key works include P. K. Zakirov's

"Vegetation Cover of the Nuratau Mountains" (1969) and *"Botanical Geography of the Low Mountains of Kyzylkum and the Nuratau Range"* (1971), as well as R. V. Kamelin's study *"Towards the Knowledge of the Flora of the Nuratau Mountains"* (1973).

In recent years, botanical research in this region has intensified again due to desertification issues. New data has been obtained on flora and vegetation, including the condition of natural pastures, rare and endemic species, and forage plants. Several new floristic records have been reported from Navoiy Region, and species new to science have been described from the area.

Among recent studies that provide information on plant diversity in Navoiy Region are: *"A Brief Review and Analysis of Endemism in the Kyzylkum Desert Flora"* (Khasanov et al., 2011), *"Flora of Bukantau"* (Serekeyeva, 2012), *"Biological Characteristics and Population Status of Species of the Genus Tulipa L. in Kyzylkum"* (Abdurayimov, 2017), *"Forage Plants of Kyzylkum and Their Utilization Prospects"* (Shomurodov, 2018), and *"Population Structure of Rare and Endangered Plant Species in the Inselberg Low Mountains of Kyzylkum"* (Shomurodov et al., 2018). The main sources of information are listed in the bibliography.

Despite the fact that a large amount of primary data has been accumulated over a long period of floristic research in Navoiy Region, a complete floristic checklist of this large administrative region of Uzbekistan had not been compiled until recently.

In the present publication, a comprehensive checklist of the flora of Navoiy Region is provided for the first time. It includes 1,561 plant species belonging to 534 genera and 90 families (both native and naturalized alien taxa). Non-native taxa in the list are marked with an asterisk (*), and their status is determined based on available sources (Nikitin, 1983; IUCN/ISSG, 2014; CABI, 2017; Sennikov et al., 2018). For each species, the scientific, Russian, and Uzbek names are provided, along with information on life form, ecology, distribution within the region, economic importance, and conservation status (for species included in national or international Red Lists). The conservation status is indicated using the following abbreviations: KK RUz – species included in the Red Book of Uzbekistan (2019), IUCN RL – species included in the IUCN Red List.

Information on the economic use of species is based on publications such as *Plant Resources of the USSR* (1984–1996), *Forage Plants of Meadows and Pastures of the USSR* (Larin, 1956), *Wild Medicinal Plants of the USSR* (Gamerman & Grom, 1976), *Weed Flora of the USSR* (Nikitin, 1983), *Rangelands of the Arid and Semi-Arid Zones in Uzbekistan* (Gintzburger et al., 2003), and *Wild Medicinal Plants of Uzbekistan* (Kurmirov & Belolipov, 2012), among others.

Families in the checklist are arranged according to the modern plant classification system: the division Pteridophyta follows the system of the Pteridophyte Phylogeny Group (Christenhusz et al., 2011), Gymnosperms follow Christenhusz et al. (2011), and Angiosperms are arranged according to the APG IV system (2016). The circumscription of families and genera corresponds to the modern phylogenetic system of the plant kingdom. Families, genera, and species are numbered consecutively. Genera within families and species within genera are arranged alphabetically.[10]

B. Plant Identification

Plant species identification was based on "Определитель растений Средней Азии" – A Guide to the Plants of Central Asia, "Флора Узбекистана" – The Flora of Uzbekistan, and "The Flora Cadastre of Uzbekistan: Navoi Region".

[10] Кадастр флоры Узбекистана: Навоийская область. К. Ш. Тожибаев, Н. Ю. Бешко, Х. Ф. Шомуродов. Ташкент–2019.

Latin names are standardized according to international taxonomic databases such as the International Plant Names Index (www.ipni.org), The Plant List (www.theplantlist.org), and World Flora Online (www.worldfloraonline.org). Russian names are taken from *Plant Identification Guide of Central Asia* (1968–2015) and *Flora of Uzbekistan* (1941–1962), while Uzbek names are based on *Plant Identification Guide of Central Asia* (1968–2015), *Flora of Uzbekistan* (1941–1962), *Dictionary of Local and Scientific Names of Useful and Harmful Plants of Central Asia* (Sakhobiddinov, 1953), and *Botanical Atlas-Dictionary* (Nabiev, 1969). Author citations of taxa follow R. K. Brummitt & C. E. Powell's *Authors of Plant Names* (1992) and the International Plant Names Index (www.ipni.org).

C. Habitat and Botanical Survey Methodology

A single site visit was undertaken on 16th April 2026 which entailed a site walkover and detailed quadrat sampling survey. A site map showing transect routes and quadrat sampling locations is shown in *Figure 31* below. During the survey, all habitat types were mapped and classified in accordance with the criteria set out in the PS6 Guidance Note. All habitats identified within the study area were further classified according to the EUNIS and Corine Habitat classification systems. Specific effort was made to identify species listed in both the International Red List and the Red Data Book of the Republic of Uzbekistan, ensuring that species of conservation concern were properly recorded and documented.

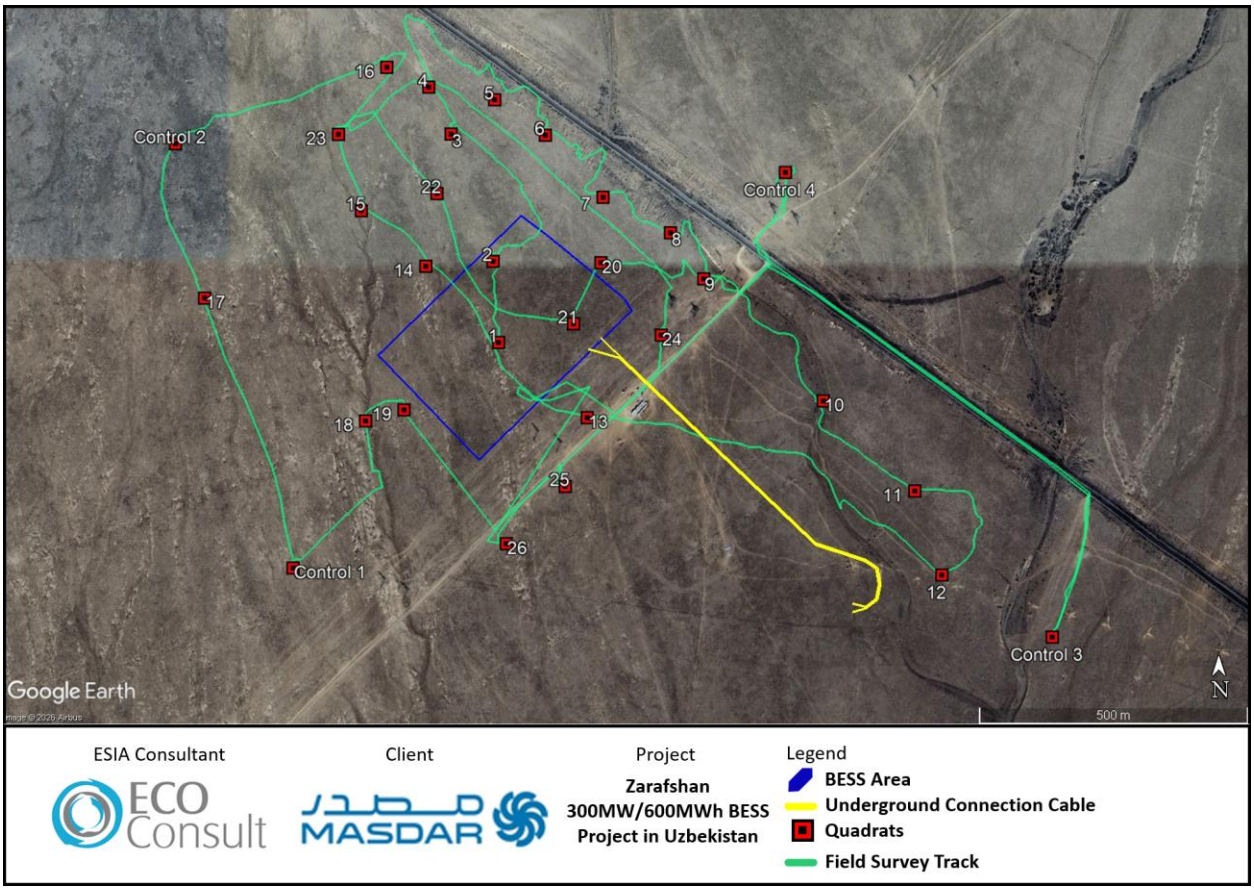


Figure 33: Transect Routes and Quadrat Locations

Species abundance was verified using the DAFOR scale and condition assessment was completed considering plant species composition, vegetation cover, proportion of perennial species, presence of native weeds and alien species, and visible signs of anthropogenic disturbance. In addition, land use was also recorded, in particular those activities that have the potential to significantly modify the habitats present on the site (e.g. grazing, vehicle tracks, previous development or other anthropogenic activities).

Considering physical and climactic conditions, along with vegetation cover in each quadrat the parameters used to calculate habitat condition scores and variations between habitats are shown in the table below.

Table 20: Calculation of Habitat Condition Scores

Parameter	Unit	Approach	Score 1 (Very Poor)	Score 2 (Poor)	Score 3 (Moderate)	Score 4 (Good)	Score 5 (Very Good)
Plant Species Richness	% of expected number of species per habitat*	Observation	<20	21-35	36-50	51-65	>65
Vegetation Cover**	% (full number) per habitat type	Estimation based on Observation (quadrat)*	<5	5–25	25–50	50–75	>75
Abundance of native weeds and alien species	% of native weed/alien cover within the vegetation present (*i.e.* a % of plants coverage excluding bare ground)	Estimation based on Observation (quadrat)*	>25	11-25	4-10	1-3	0
Total Number of Perennial Species as a Proportion of the Total Species Present ***	% of perennial species as a proportion of the total number of species present within the quadrat	Estimation based on Observation (quadrat)*	<10	10-25	26-45	46-65	>65
Visible damage from human activities, as vehicles, geological exploration, fire, evidence of domestic livestock (grazing,	% (full number)	Estimation based on Observation (quadrat)*	>75	51-74	26-50	1-25	0

paths, manure, clearings), etc.							

***** The following parameters are used for expected species by habitat types:

Loamy piedmont semidesert – 20 species

** Where vegetation cover is ≤10% the presence or absence of native weedy (synanthropic) species and introduced (alien) or invasive alien species shall not be used in the habitat condition scoring, and a score of 0 shall be assigned for these parameters.

This adjustment is applied because in loamy piedmont semidesert environments, very low vegetation cover often reflects natural ecological constraints (aridity, soil crusting, shallow soils) rather than degradation. In such conditions, the occurrence of weedy or alien species is not ecologically reliable as an indicator of habitat condition and may lead to overestimation of habitat quality if included in the scoring system.

*** https://www.fao.org/fileadmin/templates/nr/kagera/Documents/LADA_manuals/part2_c.pdf

Table 21: Vegetation Cover Explanation

Dominating	Perennials build over 75% of vegetation cover
Predomination	Perennials build 50-75% of vegetation cover
A lot	Perennials build 25-50% of vegetation cover
Little	Perennials are present but not important, build less than 25% of vegetation cover
None	Perennials absent or nearly absent (occasional and build less than 1% of vegetation cover)

The following text explains the methodology and reasoning for each parameter displayed in Table 21 above

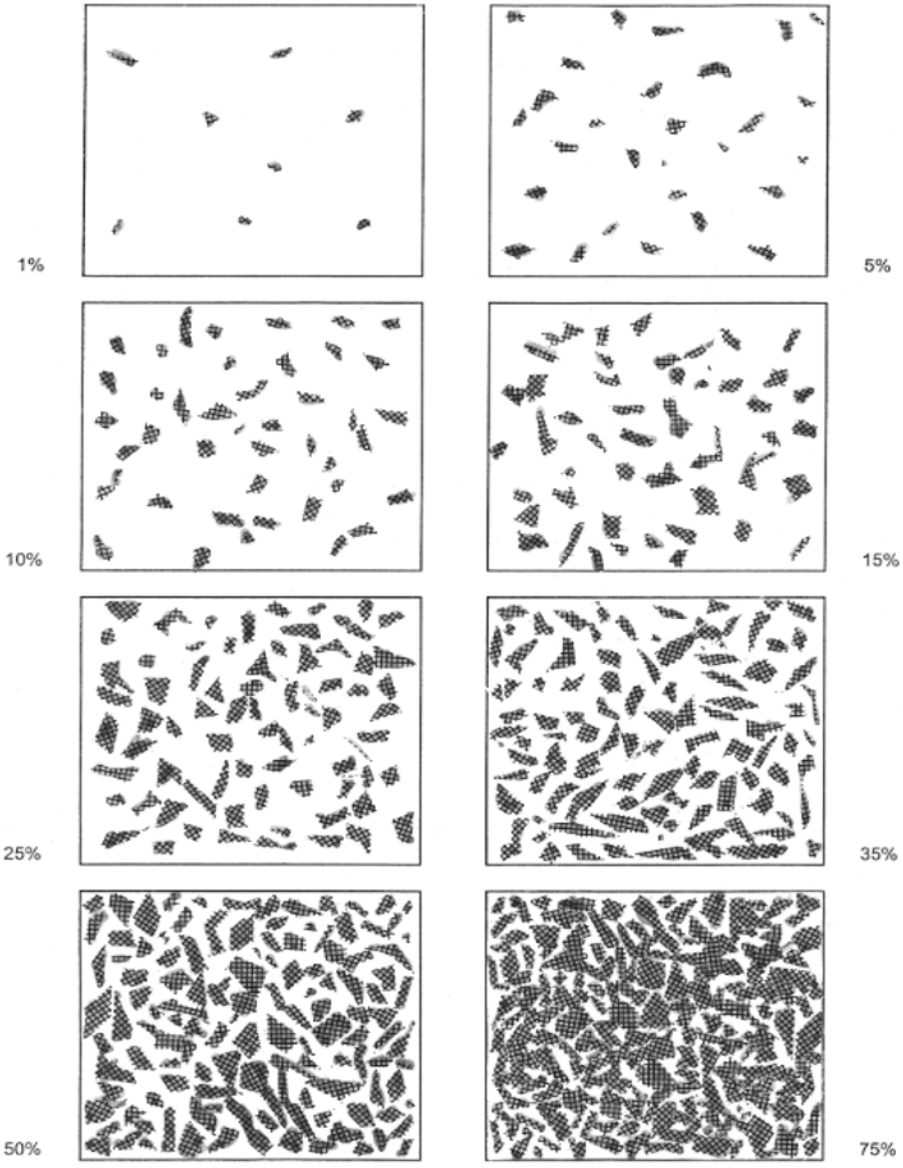
- Vegetation cover is calculated as overall % of plant-covered area in the total area of the quadrat. This includes a canopy of all species (including annuals) (e.g. if viewed from above). It doesn't matter if it's 1-2 species or 20 or 1-2 individual plants or 20.
- For Plant species richness, a baseline of maximum expected number of species for the habitat type is used (e.g., 20 for loamy semi piedmont desert)
- Plant species richness is then calculated as the number of species recorded in the quadrat as a % of the maximum number of species expected (relative to the habitat type)
- Native weed (synanthropic) species, or apophytes, are weedy plant species that are native in origin and benefits from human activity. These species are highly adapted to modified habitats such as croplands, fallow lands, settlements, wastelands, dumps, roadsides, tramped areas, overgrazed pastures and other disturbed areas. For example, native poisonous or spiny plants that are not eaten by livestock and dominate on overgrazed pastures.
- Native weed species and invasive species is the number of different species recorded, not number of individual plants recorded.

Species abundance estimation is based on the Braun-Blanquet cover-abundance scale (1965) widely used in geobotanical and ecological studies as rapid visual assessment technique, but robust and highly repeatable, minimizing among-observer differences. The scale is divided into following 6 ranges:

- + – occasional and less than 1% cover of the sample plot area;
- 1 – abundant with low cover, or less abundant but with higher cover, 1–5% of the sample plot area;

- 2 – abundant with >5–25% of the sample plot area, irrespective of the number of individuals;
- 3 – >25–50% cover of the sample plot area, irrespective of the number of individuals;
- 4 – >50–75% cover of the sample plot area, irrespective of the number of individuals;
- 5 – >75% cover of the sample plot area, irrespective of the number of individuals.

Guide for estimation of percentage of vegetation cover and percentage of damage from vehicles, fire and livestock within quadrat:



Once determined the Habitat Condition Score is calculated by dividing the Quadrat Score by the Maximum Score (e.g. Quadrat Score of 10 = Habitat Condition Score of 0.5 (10 / 20), Quadrat Score of 15 = Habitat Condition Score of 0.75 (15 / 20). Habitat Condition Rating and corresponding Habitat Condition Scores are shown in the Table 22 below.

Table 22: Habitat Condition Rating and Corresponding Habitat Condition Scores

Habitat	Condition Rating	Condition Score
	Very Poor	0.15 - 0.24
	Poor	0.25 – 0.46
	Moderate	0.47 – 0.64
	Good	0.65 – 0.82
	Very good	0.83 - 1

For the purposes of implementation of International Finance Corporation (IFC) Performance Standard 6 (PS6), all habitats are divided into modified, natural, and critical:

1) Natural habitats are areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition.

2) Modified habitats are areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area's primary ecological functions and species composition.

3) Critical habitats are a subset of modified or natural habitats.

The quarantine and invasive status of each identified plant species was verified using both international and national sources. Specifically, each species was cross-checked and analyzed through the CABI Digital Library https://www.cabidigitallibrary.org/ (CABI Compendium), the EPPO Global Database https://gd.eppo.int/ (European and Mediterranean Plant Protection Organization), and the official website of the State Plant Quarantine Inspection under the Ministry of Agriculture of the Republic of Uzbekistan https://karantin.uz/ . These sources provide information on invasive potential, quarantine categorization, and distribution characteristics. This approach played a critical role in identifying species that pose ecological risks, exhibit aggressive spread under local climatic conditions, or are potentially harmful non-native introductions. The method served as a valuable framework for evaluating the environmental impact of recorded non-native and invasive taxa.

11.1.3 Terrestrial Ecology

A. Fauna Description

(i) Desk Study – Literature Search

The first information about the fauna of the Navoi region, and in particular the Kyzylkum desert, was obtained in the late 19th – early 20th centuries, when the expeditions of N.A. Severtsov in 1888 and N.A. Zarudny in 1912 passed through these territories. The results of the research of the latter author were the work "Birds of the Kyzylkum Desert" (1912). In the 30-40s of the last century, comprehensive studies of the fauna were carried out by employees and students of the Tashkent State University under the leadership of T.Z. Zakhidov. As a result, the work "Biocenoses of the Kyzylkum Desert" was published (1967). From 1957 to the present, employees of the Uzbek Anti-Plague Service have been working in this territory, monitoring the number of small mammals involved in natural foci of plague. Along with their main work, they conducted population censuses and faunistic observations of all objects of the fauna. Many of the results obtained were included in the monograph "Birds of Uzbekistan" (1987-1995).

B. Field Survey Methods

Fauna surveys were completed in one combined survey on 16th April 2026 at the Project area and within up to a 3 km buffer of this.

(i) Reptiles and Amphibians

A 1km transect was used to record species composition and distribution across all habitats on site, with particular attention paid to species included on the IUCN Red List of Uzbekistan Red Date Book. Based on the available background information a primary species of concern at the Project site was considered to be the Central Asian Tortoise. To determine population density for Central Asian Tortoise the following formula was used:

$$D=n/2LB$$

where n – number of animal individuals recorded on the transect; L – length of the transect (1 km); B – width of the limited strip on both sides of the transect axis (20 meters).

The abundance of the reptiles in habitats was estimated using the following population density scale for 1 ha (Kuzyakin, 1962): 0.1 – 0.9 – rare, 1.0 – 9.9 – common, 10.0 and higher – abundant.

To analyze the availability /non-availability as well as to determine the degree of activity, a Nasedal hygro-thermometer with an elongated sensor was used to determine the temperature and humidity of the air and an infrared remote electronic thermometer to determine the temperature of the substrate DT-8380.

(ii) Birds

Point count methodology consistent with Bibby *et al* 1998 was followed, recording for 30 minute duration at a single survey location. The survey location was selected to provide coverage of the Project's area of influence and was considered sufficient for the purposes of the assessment.. Direct species observations, along with field signs (nests, fledglings, feathers, claw prints, feeding signs, pellets and excretions, and identifiable bone parts) were used to determine species presence along with areas of suitable habitats such as mud flats and rocky outcrops. Species and fields signs were recorded using GPS and digital camera.

MacQueen's Bustard survey

Survey for MacQueen's Bustard was completed following Vantage Point (VP) methods used in the Koshkin studies near Bukhara (https://link.springer.com/article/10.1007/s10336-015-1320-4). One VP was used with 1 km viewsheds to survey the proposed project site and wider survey area.

Where bustards were identified they were recorded in full, mapped and a GPS location was taken (in some cases GPS can be approximate if there is risk of causing disturbance to lekking or nesting birds).

Raptor Nest Search

The raptor nest search was undertaken within a search area of up to 3 km from the edge of the project site boundary as well as within the site itself. Surveys took the form of driven transects to all areas that could potentially support nesting raptors as well as areas where VP survey data has recorded potential nesting activity (e.g. displaying, carrying nesting material / food).

Typical nesting substrates for most species include cliffs or bluffs, saxaul bushes, karst sinkholes or caves, OHTL poles, or abandoned buildings or other human structures. All of these types of substrates are very rare within, or absent from this area, hence raptor nesting activity is expected to be extremely limited.

Where suitable features or nests were identified they were recorded in full, mapped and a GPS location taken (GPS can be approximate if there is risk of causing disturbance to nesting birds). Where active nests are identified effort to confirm nesting (e.g. to record eggs/chicks) is to be kept to a minimum to reduce disturbance to actively nesting raptors. Ideally from a safe distance (200 – 500m away) and the nests observed using binoculars and telescope.

(iii) Mammals

Walking Transects (WT) up to 2km in length were carried out in pre-planned sites. The width of the transects for tracks, signs, and burrows was 5 m; for active medium-sized mammals this distance increased to 200-500 m, depending on the landscape (Novikov, 1949, Sutherland, 2006). All signs of mammals were recorded in full including scat, footprints, direct observations, burrows or other signs and mapped / GPS coordinates taken. The surveyor ensured that all areas of representative habitats are surveyed.

The start and end time of the transect, biotope, and presence/absence and type of anthropogenic impact were recorded on survey forms/field journal and where possible photographs were taken. Binoculars were used to survey the area during the walking transects and at all points where stops were made.

Surveys were performed with dedicated survey transects in each different habitat to create a clear habitat-species correlation. Individual transects were used where necessary to avoid crossing different habitats.

The mammal survey also included a bat roost search. The search identified and assessed any potential bat roost sites within or immediately adjacent to the project site (up to 500m). All structures and features having potential to support roosting bats (buildings, trees, lampposts, caves etc.) were identified and assessed with a detailed visual daytime inspection of potential roost sites for evidence of roosting completed.

11.1.4 Critical Habitat screening/assessment

The CHA has been completed in line with International Finance Corporation (IFC) Performance Standard 6 (PS 6) and the corresponding Guidance Note 6 (GN 6) to identify if the Project area or parts thereof are considered as Critical Habitat. Standards for the International Finance Corporation (IFC) are detailed below. The lenders for this project also include the Asian Infrastructure Investment Bank (AIIB) which has standards that are aligned with IFC and as such the below sections describe the IFC Standards only.

This CHA aims to:

- Identify Critical Habitat qualifying species or habitats and priority biodiversity values associated with the Project,
- Outline the implications of the CHA for the Project, and
- Highlight future actions for the Project where applicable, as well as outline details that will need to be included in a Biodiversity Management Plan (BMP).

International Finance Corporation Performance Standard 6 (PS 6)

In accordance with IFC PS 6, habitats are divided into modified habitats, natural habitats, and critical habitats. Critical Habitats (CH) are a subset of either modified or natural habitats supporting high biodiversity value, including:

- Habitat of significant importance to critically endangered and/or endangered species (International Union for Conservation of Nature and Natural Resources (IUCN) Red List).

- Habitat of significant importance to endemic and/or restricted-range species.
- Habitat supporting globally significant concentrations of migratory species and/or congregatory species.
- Highly threatened and/or unique ecosystems.
- Areas associated with key evolutionary processes.

Since habitat destruction is recognized as a major threat to the maintenance of biodiversity and to assess likely significance of impacts, IFC PS 6 requires the following depending on habitat status:

- Modified Habitat: exercise care to minimize any conversion or degradation of such habitat, depending on scale of project, identify opportunities to enhance habitat and protect and conserve biodiversity as part of operations.
- Natural Habitat: developer will not significantly convert or degrade such habitat unless no financial/technical feasible alternatives exist, or overall benefits outweigh cost (including those to biodiversity), and conversion or degradation is suitably mitigated. Mitigation must achieve no net loss of biodiversity where feasible or offset losses through creation of ecologically comparable areas that is managed for biodiversity or compensation of direct users of biodiversity.
- Critical Habitat: in areas of CH, the Developer will not implement project activities unless there are no measurable adverse impacts on the ability of the critical habitat to support established populations of species described or on the functions of the critical habitat; no reduction in population of a recognized critically endangered or endangered species and lesser impacts mitigated as per natural habitats. The project must achieve net gains for the biodiversity value for which the Critical Habitat was designated.

The CHA comprises several steps in order to ensure the process is robust:

Initial Screening – which involves making stakeholder consultation and an initial review of published and grey literature e.g. Important Bird Areas (IBAs), IUCN Red List of Threatened Species, Integrated Biodiversity Assessment Tool (IBAT), World Database of Key Biodiversity Areas, and Global Biodiversity Information Facility (GBIF), as well as a range of in-country texts and research papers.

Establishment of baseline - which includes field data collection and verification of available information e.g. Habitat and Flora Survey, Mammal (and bat) Survey, Bird Survey, Reptile and Amphibian Survey.

This assessment is based on existing literature and limited primary data in addition to global and regional datasets, including Integrated Biodiversity Assessment Tool (IBAT). All species returned on the IBAT Search that are classified as Critically Endangered (CR), Endangered (EN) or Vulnerable (VU) in the IUCN Red List were screened, as well as all species mapped by IUCN which could be considered range restricted.

As appropriate, areas containing important concentrations of a nationally or regionally listed CR or EN species were also considered, providing the national/regional red lists are produced in accordance with IUCN standards and guidance. However, the Uzbekistan Red Data Book (RDB) does not and as such a species with an in-country rating of CR and EN do not correspond to a similar IUCN rating. In-country RDB status is determined through a range of criteria, including IUCN criteria, but the in-country conservation status is also weighted based on the prevalence of species within Uzbekistan.

Critical habitat determination -

a) Identification of appropriate scale for assessment.

b) Determination of Ecologically Appropriate Area of Analysis.

c) Assessment against Critical Habitat criteria.

Scale of Assessment

A Critical Habitat Assessment is usually carried out at a landscape scale, using Ecologically Appropriate Areas of Analysis (EAAA) for determining the presence or absence of Critical Habitat qualifying features under PS6 Criteria 1 – 5. EAAA should consider large-scale ecological processes where appropriate, and can therefore be much larger than the project concession or lease area itself. The principles of determination of EAAA only apply to terrestrial areas and cannot be applied to airspace above a site unless it is associated directly with the utilization of a terrestrial habitat.

The CHA methodology described in IFC's Guidance Note 6 heavily draws on the IUCN's Key Biodiversity Area (KBA) Standard, which focuses on geographic areas of land and water that are amenable to site-based conservation. It is for this reason that, for birds, the CHA methodology can be readily applied to terrestrial and water areas, such as stopover points and breeding grounds where concentrations of birds are dependent on the conservation of the habitat at these areas. Considering the airspace in a CHA is more challenging. Birds utilizing important terrestrial areas will naturally also use the airspace above and around it. Under certain circumstances, this airspace should be considered as part of the habitat and part of the EAAA of a CHA.

Using this approach, a CHA would not be conducted with respect to the airspace where there is no associated important terrestrial area used by birds (or concentrations of them) and no intersection with the project footprint, which will often be the case for long-distance migrants using high altitude airspace between continents or countries. In this scenario, it would be difficult or impossible to delineate the airspace EAAA at this large scale, recalling that "critical habitat boundaries should be equivalent in scale to areas mapped for practical site-based conservation management activities" (PS6 GN59). Without an EAAA, the Critical Habitats thresholds cannot be applied. It is also important to note that the location of a project within a recognized bird migratory corridor (flyway) does not automatically generate high collision risk, not trigger CH determination, because most bird migration activity occurs in a diffuse "broad front" pattern, and recognized bird migration corridors are as ubiquitous as bird migration activity itself, and collectively covers most terrestrial land areas. The migratory/congregatory species criterion described in the CHA sections of IFC PS6 is intended to trigger CH determination only in areas that host continentally significant concentrations of migratory activity. In many cases, these sites have already been designated as IBAs based on the KBA criteria and thresholds.

That said when taking this into consideration, and being mindful of the precautionary principles, those species which are included on the IUCN Red List (CR, EN and VU only) that have been shown to or could potentially migrate through the Project AoI are included in this assessment where appropriate.

Determination of Ecologically Appropriate Area of Analysis

IFC PS6 requires identification of EAAA to determine the presence of CH for each species with regular occurrence in the Project's Area of Influence (AoI), or ecosystem, covered by the relevant criteria, requirements or standards. The boundaries of an EAAA are determined by taking into account the distribution of species or ecosystems (within and sometimes extending beyond the project's AoI) and the ecological patterns, processes, features, and functions that are necessary for maintaining them. This approach ensures that all important biodiversity within the project footprint and linked surrounding habitats are taken into consideration. In essence any CH assessment must encompass all direct and

indirect impacts within a broad landscape unit which is large enough to include features and functions relevant to the species being considered.

This is clear in many species with specific habitat requirements and a specific range. Some species, however, have broader habitat requirements that do not have a range that could be clearly defined and considered equivalent in scale to areas mapped for practical site-based conservation management activities. For these species it can be more appropriate to consider that the EAAA covers the area of proposed infrastructure through the suitable region along with a buffer area.

Assessment Against Critical Habitat Criteria

The CH determination refers to the evaluation of the area in question with respect to each of the five CH criteria defined in IFC PS 6 GN. Each criterion is described in detail in paragraphs GN70–GN83 of IFC PS 6 GN as summarized in the below. Definitions and quantitative thresholds for each criterion follow those set out in the IFC guidance as this is considered the most appropriate at the time of writing.

Critical Habitat Criteria as defined by IFC PS 6

Critical Habitat Criteria as defined by IFC PS 6	PS 6 Criterion Number
Critically Endangered (CR) and/or Endangered (EN) species	1
Endemic or restricted-range species	2
Migratory or congregatory species	3
Highly threatened and/or unique ecosystems	4
Key evolutionary processes	5

PS 6 Criterion 1: Critically Endangered (CR) and/or Endangered (EN) Species

Species or areas supporting species threatened with global extinction and listed as Critically Endangered (CR) and Endangered (EN) on the IUCN Red List or local equivalent trigger CH under these criteria. The principal thresholds for triggering CH are:

- The EAAA contains “globally important concentrations” of an IUCN CR or EN species, defined as at least 0.5% of the global population AND over 5 reproductive units.
- Areas that support globally important or significant concentrations of an IUCN Red-listed Vulnerable (VU) species, or of multiple IUCN VU species, the loss of which would result in the change of the IUCN Red List status to EN or CR and meet the thresholds above.
- As appropriate, areas containing important concentrations of a nationally or regionally listed EN or CR species providing the national/regional red lists are produced in accordance with IUCN standards and guidance.

PS 6 Criterion 2: Endemic and/or Restricted-Range Species and Supporting Habitats

IFC GN6 - Paragraph 74 (2019) defines “endemic” as synonymous with “restricted range” species, and for terrestrial vertebrate and plant species, this criterion refers to species with a global range size of ≤ 50,000 km2. In order to trigger CH under these criteria, the EAAA must contain ≥10% of the global population of such a species AND at least 10 reproductive units.

PS 6 Criterion 3: Migratory or Congregatory Species and Supporting Habitats

Migratory species are defined as any species of which a significant proportion of its members cyclically and predictably move from one geographical area to another (including within the same ecosystem). Congregatory species are defined as species whose individuals gather in large groups on a cyclical or otherwise regular and/or predictable basis. Examples of Congregatory species are:

- Species that form colonies.
- Species that form colonies for breeding purposes and/or where large numbers of individuals of a species gather at the same time for non-breeding purposes (for example, foraging and roosting).
- Species that utilize a bottleneck site where significant numbers of individuals of a species occur in a concentrated period of time (for example, for migration).
- Species with large but clumped distributions where a large number of individuals may be concentrated in a single or a few sites while the rest of the species is largely dispersed (for example, wildebeest distributions).
- Source populations where certain sites hold populations of species that make an inordinate contribution to recruitment of the species elsewhere (especially important for marine species) (IFC PS 6 GN76-77).

Thresholds for these criteria as per IFC PS 6 GN78 are the following:

- Areas known to sustain, on a cyclical or otherwise regular basis, ≥ 1 percent of the global population of a migratory or congregatory species at any point of the species' lifecycle.
- Areas that predictably support ≥10 percent of the global population of a species during periods of environmental stress.

PS 6 Criterion 4: Highly Threatened or Unique Ecosystems

As per IFC PS 6 GN79, it is necessary to use the Red List of Ecosystems where formal IUCN assessments have been performed. Where formal IUCN assessments have not been performed, assessments may be made using systematic methods at the national/regional level, carried out by governmental bodies, recognized academic institutions and/or other relevant qualified organizations (including internationally recognized Non-Governmental Organizations (NGOs)).

Thresholds for these criteria as per IFC PS 6 GN80 are the following:

- Areas representing ≥5 percent of the global extent of an ecosystem type meeting the criteria for IUCN status of CR or EN.
- Other areas, not yet assessed by IUCN, but determined to be of high priority for conservation by regional or national systematic conservation planning.

PS 6 Criterion 5: Key Evolutionary Processes

According to the GN81 of IFC PS 6, the structural attributes of a region, such as its topography, geology, soil, temperature, and vegetation, and combinations of these variables, can influence the evolutionary processes that give rise to regional configurations of species and ecological properties. In some cases, spatial features that are unique or idiosyncratic of the landscape have been associated with genetically unique populations or subpopulations of plant and animal species. Physical or spatial features have been described as surrogates or spatial catalysts for evolutionary and ecological processes, and such features are often associated with species diversification. By conserving species diversity within a landscape, the processes that drive speciation, as well as the genetic diversity within species, ensure the evolutionary flexibility in a system, which is especially important in a rapidly changing climate.

It should be noted that the IFC PS 6 GN provides qualitative guidance for assessing the projects against these criteria rather than quantitative thresholds, unlike PS 6 Criteria 1-4.

Priority Biodiversity Values

Priority Biodiversity Values (PBV) (refer to significant biodiversity values in IFC PS6) may include species of conservation concern (for example, species that are threatened, legally protected, or otherwise identified as important by stakeholders) and ecological features in the landscape that are important to stakeholders, which are typically subject to the "no net loss" (NNL) mitigation standard under IFC PS6. Such receptors include; Natural and Threatened Habitats, species qualifying as Vulnerable under IUCN or any other national/regional criteria, Priority Biodiversity Values such as Key Biodiversity Areas and Important Bird Areas, and Ecological structures and functions that are vital to maintaining population viability of priority biodiversity values.

11.2 Results

11.2.1 Desk study - Protected Areas

No protected sites or designated areas are present within 10km of the proposed Project area. The nearest designated area is the Mount Aktau IBA which is situated approximately 20km north of the Project location. This site is designated for it breeding populations of Egyptian Vulture and Lesser Kestrel, along with resident Cinereous Vultures. Given the designated species, the reason for designation and the distance from proposed works, it is considered that the Mount Aktau IBA is outside the Projects area of influence.

11.2.2 Habitats and Flora

The proposed Project area is located within the territory of the "Sharq" MFY, near the city of Zarafshan in Tomdi District, Navoi Region.

The eastern part of the proposed Project site is bordered by a gravel-covered access road, which also provides access to the "Muruntau 500" substation located adjacent to the site. The northern boundary of the project area is adjacent to the A379 highway which runs north-west to south-east.

The majority of the Project area is considered natural habitat with sections located close to the road and areas adjacent to the "Muruntau 500" substation considered modified habitat. Modified habitat is present due to the significant construction and land disturbance activities that took place during the development of the substation and the installation of associated power transmission lines. As a result, the natural

ecological structure and vegetation cover in these sections have been altered by previous anthropogenic impacts.

The habitat types within the proposed Project area were classified using the EUNIS habitat classification system in accordance with IFC PS6 requirements. The site comprises a mosaic of natural, semi-natural, and anthropogenically influenced habitat types.

The majority of the project area is classified as **E1.1 / E1.3 semi-desert vegetation communities**, characterized by sparse xerophytic plant assemblages dominated by ephemeral and ephemeroid species, along with scattered perennial shrubs typical of Central Asian arid ecosystems.

Peripheral zones of the site exhibit features of **E5.4 recently abandoned or disturbed land**, reflecting historical agricultural activities, soil modification, and partial vegetation recovery following land abandonment. These areas are characterized by a higher proportion of ruderal and disturbance-tolerant species.

In addition, localized anthropogenic habitats are present within and adjacent to the site, including **J4 transport infrastructure** associated with the A379 highway and **J3 industrial infrastructure** related to the nearby "Muruntau 500" substation and associated transmission line corridor.

Overall, the site represents a heterogeneous landscape dominated by natural semi-desert vegetation, with localized modified and artificial habitat patches reflecting historical and ongoing anthropogenic influence.

A total of 40 plant species were identified within the proposed Project area, including both annual and perennial species, among which 1 species was a tree. The distribution of identified plant species by families is as follows: *Poaceae* (7), *Asteraceae* (6), *Brassicaceae* (4), *Amaranthaceae* (3), *Apiaceae* (3), *Papaveraceae* (3), *Liliaceae* (2), *Polygonaceae* (2), and one species each from the families *Fabaceae*, *Caryophyllaceae*, *Boraginaceae, Euphorbiaceae, Amaryllidaceae, Colchicaceae, Euphorbiaceae, Iridaceae, Ixioliraceae, Berberidaceae, Caryophyllaceae* and *Lamiaceae*.

The area is mainly covered with annual plants such as *Eremopyrum bonaepartis* (Spreng.) Nevski,(*Eremopyrum distans*) (K.Koch) Nevski., *Eremopyrum orientale* (L.) Jaub. & Spach., *Chorispora tenella* (Pall.) DC., *Carex stenophylla* Wahlenb, *Hypecoum pendulum* L, *Strigosella turkestanica (Litv.) Botsch*. At the time of survey the vegetation was in the peak annual growing phase so all species present are likely to have been apparent.

The abundance of native weeds and alien species was assessed based on the cover of native ruderal/weedy species within the total vegetation cover. No alien species were recorded. Native weedy/ruderal species were represented mainly by *Alhagi pseudalhagi, Bromus scoparius, Ceratocarpus arenarius, Chorispora tenella, Lepidium perfoliatum, Poa bulbosa, Roemeria hybrida, Roemeria pavonina, Alyssum simplex* and *Strigosella turkestanica.*

Based on the habitat condition scoring results, **3 quadrats were classified as Poor**, **19 quadrats as Moderate**, and **8 quadrats as Good**. These results indicate that most of the surveyed habitats are in moderate ecological condition. While some areas still support relatively well-preserved vegetation cover and species composition, many quadrats show signs of partial disturbance, likely associated with grazing, proximity to the road, soil surface disturbance, or other anthropogenic pressures.

The **Poor** condition quadrats represent areas where habitat quality is low, with reduced vegetation cover, lower species richness, or clear signs of disturbance. The **Moderate** condition quadrats indicate habitats where natural vegetation is still present but not in optimal condition. The **Good** condition quadrats

represent areas where vegetation structure, species composition, and natural habitat features are comparatively better preserved.

Black saxaul (*Haloxylon ammodendron*) was recorded at the lowest abundance of the flora species observed during the baseline surveys, with a total of 33 individuals recorded across five (5) quadrats.

The finding of the survey was the occurrence of *Tulipa lehmanniana* Merckl. (IUCN NT), which was recorded in **12 quadrats,** all of which are located along the northern edge of the proposed Project area, outside of the project footprint. Of the quadrats containing *Tulipa lehmanniana*, **six** (**6) quadrats were assessed as Good** and **six** (**6) quadrats as Moderate**. This suggests that *Tulipa lehmanniana* is mainly associated with relatively well-preserved or moderately preserved natural habitats within the surveyed area. The absence of this species from Poor condition quadrats may indicate that the species is sensitive to heavily disturbed or degraded habitats. The location of quadrat locations along with colour coded condition scoring results (Red – Poor, Orange – Moderate, Green – Good) are shown below in *Figure 32.*

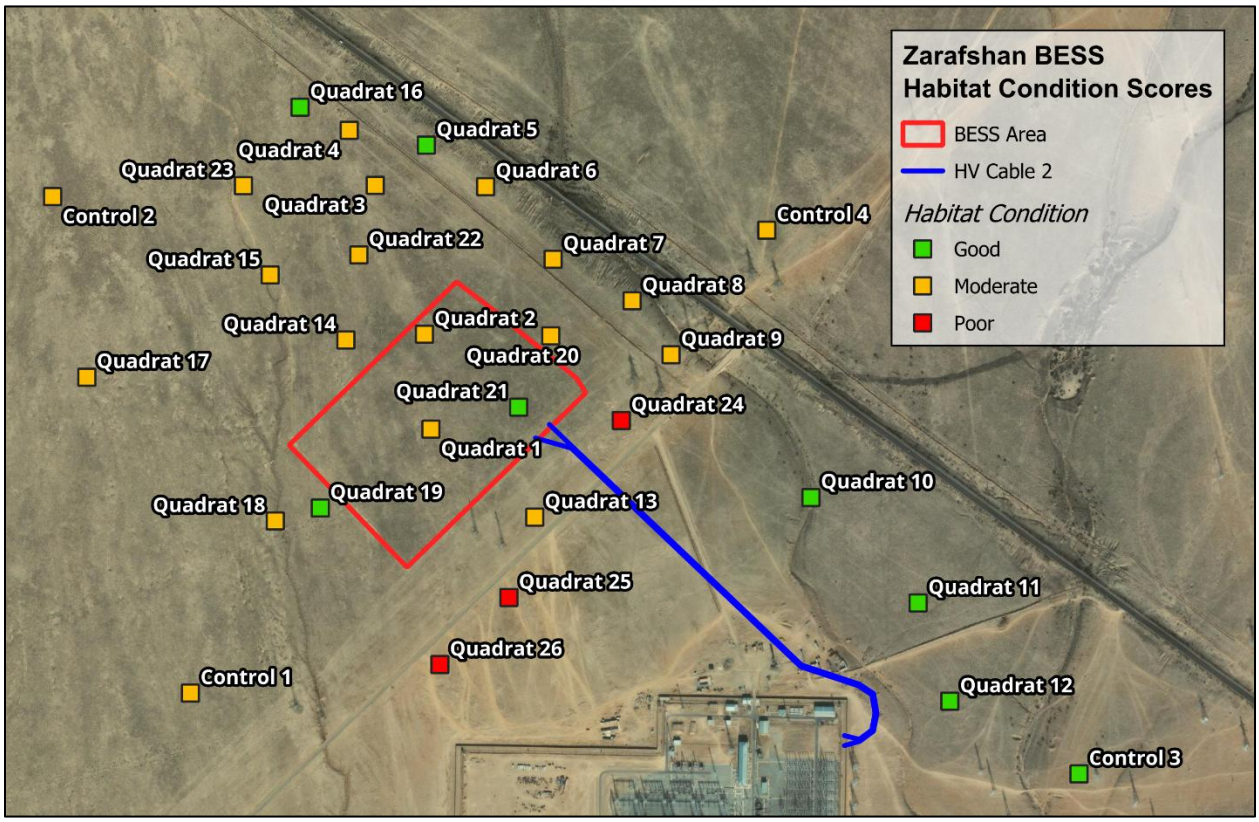


Figure 34: Distribution of quadrats and condition scores through the study area and in relation to the Project boundary/cable route.

Overall, the habitat condition assessment shows that the Project area still retains natural vegetation features, although some parts are affected by anthropogenic disturbance. The presence of *Tulipa lehmanniana* in Good and Moderate condition quadrats highlights the ecological importance of these areas. Therefore, quadrats where *Tulipa lehmanniana* was recorded, together with their surrounding natural habitats, should be considered sensitive areas during Project planning. Where feasible, these areas should be avoided, or potential impacts should be minimised through appropriate mitigation measures.

Currently, the area is predominantly covered by annual plant species, except for a section near the A379 highway, where vegetation is partly characterized by the presence of Black Saxaul cover. The main component of the vegetation consists of annual and short-lived perennial species. No alien/non-native

plant species have been recorded to date; however, due to ongoing anthropogenic pressure, there remains a potential risk of their future introduction.

The project area is situated within a semi-arid climatic zone, and its soils are mainly composed of non-leached grey soils (sierozems).

Within the 150-meter buffer zone between the project area and the A379 highway, the presence of the species *Tulipa lehmanniana* (Merckl.), listed in both the Red Data Book of the Republic of Uzbekistan and assessed by the IUCN Red List (most recently in 2022 as Near Threatened under criteria A3c; B2b(ii,iii,v)), was recorded.

A total of 30 sampling points were surveyed during the geobotanical study, including 26 points within the project area and 4 control points. *Tulipa lehmanniana* populations were identified in 12 of these sampling locations (points 4, 5, 6, 7, 8, 9, 10, 11, 12, 16, as well as control points 3 and 4). Overall, a relatively well-developed population of *Tulipa lehmanniana* was observed within the 150-meter zone extending from the A379 highway toward the project area, indicating that this species has a notable and locally significant distribution within the study site.

The DAFOR scale was used to assess the abundance and frequency of plant species occurring within the Project area as presented in Annex 3.

A total of 40 plant species were identified within the project area. Among these, 22 species (55%) are annuals, 1 species (2.5%) of tree, 1 species (2.5%) of shrub and 16 species (40%) are perennials. Other than *Tulipa lehmanniana* all are LC according to IUCN and UzRDB.

According to the DAFOR scale, which assesses species abundance and frequency, the distribution of species is as follows:

1. Dominant (D): 8 species — 20%
2. Abundant (A): 2 species — 5%
3. Frequent (F): 10 species — 25%
4. Occasional (O): 7 species — 17.5%
5. Rare (R): 13 species — 32.5%

11.2.3 Fauna

(i) Desk Study

The results of the IBAT data search included the species in the table below with IUCN Red List status of Critically Endangered (CR), Endangered (EN) and Vulnerable (VU). No species that are considered to be endemic (range restricted) were included in the results.

Species		IUCN Status
Common Name	***Scientific Name***	
Sociable Lapwing	*Vanellus gregarius*	CR
Southern Even-fingered Gecko	*Alsophylax laevis*	CR
White-headed Duck	*Oxyura leucocephala*	EN
Great Bustard	*Otis tarda*	EN

Great Knot	*Calidris tenuirostris*	EN
Pallas's Fish-eagle	*Haliaeetus leucoryphus*	EN
Egyptian Vulture	*Neophron percnopterus*	EN
Steppe Eagle	*Aquila nipalensis*	EN
Saker Falcon	*Falco cherrug*	EN
Goitered Gazelle	*Gazella subgutturosa*	VU
Marbled Polecat	*Vormela peregusna*	VU
Lesser White-fronted Goose	*Anser erythropus*	VU
Common Pochard	*Aythya ferina*	VU
Yellow-eyed Pigeon	*Columba eversmanni*	VU
European Turtle-dove	*Streptopelia turtur*	VU
Curlew Sandpiper	*Calidris ferruginea*	VU
Broad-billed Sandpiper	*Calidris falcinellus*	VU
Grey Plover	*Pluvialis squatarola*	VU
Greater Spotted Eagle	*Clanga clanga*	VU
Eastern Imperial Eagle	*Aquila heliaca*	VU
MacQueen's Bustard	*Chlamydotis macqueenii*	VU

Based on the analysis of literary, archival and fund materials (text in Section 11.1.3 A(i) above) and the author's observations, the list of vertebrate animals in the project area (10 km radius from project site) includes 192 species (full list is included in Appendix 2 of the Fauna survey report). Of these, one species is an amphibian, 14 are reptile, 153 are birds and 24 are mammals. Of the species identified in the literature search the species shown in the table below are of conservation concern.

Species		**IUCN Status**	**Uzbek Red Data Book**
Common Name	**Scientific Name**		
Central Asian Tortoise	*Testudo horsfieldi*	VU	VU
Caspian Monitor	*Varanus griseus*	LC	VU:D
Eastern boa	*Eryx tataricus*	LC	NT
Pallid Harrier	*Circus macrourus*	NT	NT
Golden Eagle	*Aquila chrysaetos*	LC	VU:R
Eastern Imperial Eagle	*Aquila heliaca*	VU	VU:D
Steppe Eagle	*Aquila nipalensis*	EN	VU:D
Greater Spotted Eagle	*Aquila clanga*	VU	VU:R
Booted Eagle	*Hieraaetus pennatus*	LC	VU:D
Cinereous Vulture	*Aegypius monachus*	NT	NT
Griffon Vulture	*Gyps fulvus*	LC	VU:D
Egyptian Vulture	*Neophron percnopterus*	EN	VU:D
Short-toed Snake Eagle	*Circaetus gallicus*	LC	VU:D
Saker Falcon	*Falco cherrug*	EN	EN
Lesser Kestrel	*Falco naumanni*	LC	NT
Brandt's Hedgehog	*Hemiechinus hypomelas*	LC	NT
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	LC	VU:D
European Free- tailed Bat	*Tadarida teniotis*	LC	VU:R

(ii) Reptiles and Amphibians

Four species of reptile were identified during the site walkover survey, the Steppe agama (*Trapelus sanguinolentus*) (2no), the Sunwatcher toad-headed agama (*Phrynocephalus helioscopus*) (1no), the Rapid

Racerunner (*Eremias velox*) (4no) and the Central Asian Tortoise (6no). Of the species recorded only the Central Asian Tortoise are of conservation concern (IUCN VU, UzRDB VU).

Previous attempts to translocate and exclude tortoises from the Project area were completed in 2025, however the block wall used to exclude animals from the site was found to be in poor condition, with gaps and missing blocks in multiple places. As a result, several adult tortoises and burrows were found during the study. Central Asian Tortoise were found at a density of 0.6 individuals/hectare which is considered Rare under criteria set by Kuzyakin, 1962.

Figure 35: Tortoise within the Project Site

*(iii) **Birds***

A total of ten bird species were observed during the survey, Table 23 below shows the species and number of birds observed. Of the species seen within the survey area two are species of conservation concern (Egyptian Vulture and Steppe Eagle – both IUCN EN).

Table 23: Bird Species List

Species	Number	Flight Height	Flight Direction
Egyptian Vulture	1	40	N
Steppe Eagle	1	60	N
Steppe Eagle	1	50	N
Long-legged Buzzard	1	70	NE
Long-legged Buzzard	1	0	On ground
Eurasian Sparrowhawk	1	70	N
Demoiselle Crane	90	160	NE
Isabelline Wheatear	6	0	On ground
Desert Wheatear	1	0	On ground
Jackdaw	12	0	On powerline
Crested Lark	10	0	On ground
Black-bellied Sandgrouse	12	60	W

Given the location of the site and its proximity to roads and other major infrastructure, habitats present and observed behaviour, no stopover sites or nesting areas for birds of conservation concern such as MacQueen's Bustard (IUCN VU) or Sociable Plover (IUCN CR) are considered likely to be on site. All observations of birds of conservation concern were birds in transit over the site, either on migration or as roaming behaviour.

(iv) Mammals

Habitats on site are of low suitability for a diverse range of mammal species and considered unsuitable for sensitive species such as Goitered Gazelle (IUCN VU) due to its proximity to other major infrastructure such as roads and the industrial gold mining area. In total six species were identified during the survey, all are categorized as Least Concern. Table 24 below lists the species encountered. No habitat suitable for roosting bats was identified within the surveyed area and the Project area represents poor quality foraging habitat for bats.

Table 24: Mammal Species List

Species	IUCN/UzRDB Status	Observation type
Tolai Hare (*Lepus tolai*)	LC/-	Prints
Yellow Ground Squirrel (*Spermophilus fulvus*)	LC/-	Direct observation
Small Five-toed Jerboa (*Allactaga elater*)	LC/-	3 x Burrows
Severtzov's Jerboa (*Allactaga severtzovi*)	LC/-	1 x Burrow
Libyan Gerbil (*Meriones libycus*)	LC/-	1-2 Colonies
Red Fox (*Vulpes vulpes*)	LC/-	Prints

11.2.4 Critical Habitat assessment

For IFC Critical Habitat Criterion 1, 2 and 3, the table below presents information on species of international or, where appropriate, elevated national conservation concern that are present or potentially present within the AoI as well as other species present or potentially present in significant numbers within the AoI. All other species have been considered and if not included in the tables below have been screened

out from further assessment. In the table below EAAA for each of the species is discussed where EAAA are relevant.

Criterion 4 and 5 are not considered relevant in the context of the proposed project since no ecosystems meeting the criteria for Priority/Threatened Ecosystems or those associated with Key Evolutionary Processes are present within Project AoI.

Species Name	IUCN Status	National Status	Status	Status PS 6 Criterion		
				1	2	3
Southern Even-fingered Gecko *Alsophylax laevis*	CR	VU	Site is outside species EAAA based on altitude and habitat types.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	Not applicable.
The Southern Even Fingered Gecko has been found during previous studies in the Kyzylkum region and has been known to exist in high population densities within Uzbekistan. The two recognised populations of this species are found split between Uzbekistan in the north and Turkmenistan in the south. The global population of this species is unknown however it is reported to be in decline, with a loss of over 90% since 1986. Previous studies have found that this species favours flat clay substrates at altitudes of less than 250 m, none of this habitat is present on site and the altitude above sea level is all aove 450 m. The site is outside of the projected geographic range (IUCN) and a significant distance from any known records (RDB, iNaturalist and GBIF), therefore it is considered that the site is outside the EAAA for this species. IUCN red list - https://www.iucnredlist.org/species/164598/1060504 iNaturalist - https://www.inaturalist.org/taxa/93717-Alsophylax-laevis#map-tab GBIF - https://www.gbif.org/taxon/5TY8L						
Central Asian Tortoise *Testudo horsfieldii*	VU	VU	Several adult tortoises and burrows were found during the study at a density of 0.6 individuals/hectare, which is considered rare. Additionally, the site has been subject to translocation of the	EAAA is the project AOI and a buffer of 3 km (which is a reasonable distance from which the AoI could support a species of mobile reptile). Global population size has not been quantified. The tortoise surveys indicated that density of this species on site can be classified as rare. Very unlikely that the site supports globally or nationally important concentrations. Proposed impacts	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	Not applicable.

Species Name	IUCN Status	National Status	Status	Status PS 6 Criterion		
				1	2	3
			species, previously in 2025 and again in 2026.	unlikely to cause significant change in population and resulting change in global conservation status to EN or CR. Criteria 1 thresholds are not met.		
Sociable Lapwing *Vanellus gregarius*	CR	VU	This species does not breed in Uzbekistan however is possibly present during autumn and spring migration, using the airspace of the Project AoI. No known stop-over sites present within or near the AoI.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
White-headed Duck *Oxyura leucocephala*	EN	EN	Breeding, passage and wintering species in Uzbekistan. No known stop-over sites present within or near the AoI.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
Great Bustard *Otis tarda*	EN	CR	This species does not breed in Uzbekistan however is possibly present during autumn and spring migration, using the airspace of	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites.

Species Name	IUCN Status	National Status	Status	Status PS 6 Criterion		
				1	2	3
			the Project AoI. No known stop-over sites present within or near the AoI.	habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.		Criterion 3 thresholds are not met.
Great Knot *Calidris tenuirostris*	EN	-	This species does not breed or winter in Uzbekistan however possibly present during autumn and spring migration, using the airspace of the Project AoI. No known stop-over sites present within or near the AoI.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
Pallas's Fish-eagle *Haliaeetus leucoryphus*	EN	EN	Considered to be a rare and infrequent passage bird, possible use of the airspace of the Project AoI. No known stop-over sites present within or near the AoI.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
Egyptian Vulture *Neophron percnopterus*	EN	VU	Widely distributed breeding species and this species will also migrate through the country. Listed as part of the designation for the	Global population of 18,600 to 54,000 individuals meaning 93 individuals required to meet criteria. A reasonable EAAA population with overlap of the project AoI will	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.

Species Name	IUCN Status	National Status	Status	Status PS 6 Criterion		
				1	2	3
			Mount Aktau IBA (20km to the north) and the RDB lists Central Kyzylkum and Foothills of Zarafshan as nesting sites with a combined total of 13 pairs. A reasonable EAAA incorporating these areas and typical home ranges of the species of 240km^2([11]) would overlap with the project AoI.	therefore not meet equal or breach thresholds in any season. Criteria 1 thresholds are not met.		
Steppe Eagle *Aquila nipalensis*	EN	NT	A migratory species through Uzbekistan and this species breeds within the Ustyurt Plateau with a breeding population of up to 15 pairs. Species has previously over-wintered within the Amu Darya river corridor. Possible use of the airspace of the Project AoI. No known	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.

[11] Karyakin, Igor & Nikolenko, Elvira & Knizhov, Kirill & Pulikova, Genriyetta & Kaptyonkina, Alyona & Ongarbaev, Nurlan. (2023). Egyptian Vulture in Kazakhstan. Acta Zoologica Bulgarica. 19-50.

Species Name	IUCN Status	National Status	Status	Status PS 6 Criterion		
				1	2	3
			stop-over sites present within or near the AoI.			
Saker Falcon *Falco cherrug*	EN	NT	Widely distributed breeding species and this species will also migrate through the country. Likely to nest in the Mount Aktau IBA (20km to the north) and the Central Kyzylkum and Foothills of Zarafshan in small numbers. A reasonable EAAA incorporating these areas and typical home ranges of the species of 190km^2 ([12]) would overlap with the project AoI.	Global Population of 12,200-29,800 mature individuals or between approximately 26,000 and 65,500 individuals meaning 130 individuals or approximately 60 pairs required to meet criteria. A reasonable EAAA population with overlap of the project AoI will therefore not equal or breach thresholds in any season. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
Lesser White-fronted Goose *Anser erythropus*	VU	VU	Considered to be a rare and infrequent passage bird, possible use of the airspace of the Project AoI. No known stop-	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant

12 https://www.researchgate.net/profile/Matyas-Prommer-2/publication/328783446_Home_Range_Size_and_Habitat_Use_of_Adult_Saker_Falcons_Falco_cherrug_in_the_Breeding_Season_in_Hungary/links/5be2b1ac4585150b2ba494e6/Home-Range-Size-and-Habitat-Use-of-Adult-Saker-Falcons-Falco-cherrug-in-the-Breeding-Season-in-Hungary.pdf

Species Name	IUCN Status	National Status	Status	Status PS 6 Criterion		
				1	2	3
			over sites present within or near the AoI.	habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.		interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
Common Pochard *Aythya ferina*	VU	-	Passage and wintering species in Uzbekistan. No known stop-over sites present within or near the AoI.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
Yellow-eyed Pigeon *Columba eversmanni*	VU	VU	Nesting and migratory mosaicly distributed species, mainly in the western mountain areas. No known stop-over sites present within or near the AoI.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
European Turtle-dove *Streptopelia turtur*	VU	VU	Possible to occur within the Project AoI during periods of migration however it is certain that an EAAA will not support significant concentrations of this globally species.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.

Species Name	IUCN Status	National Status	Status	Status PS 6 Criterion		
				1	2	3
Curlew Sandpiper *Calidris ferruginea*	VU	-	This species does not breed or winter in Uzbekistan however possibly present during autumn and spring migration, using the airspace of the Project AoI. No known stop-over sites present within or near the AoI.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
Broad-billed Sandpiper *Calidris falcinellus*	VU	-	This species does not breed or winter in Uzbekistan however possibly present during autumn and spring migration, using the airspace of the Project AoI. No known stop-over sites present within or near the AoI.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
Grey Plover *Pluvialis squatarola*	VU	-	This species does not breed or winter in Uzbekistan however possibly present during autumn and spring migration, using the airspace of the Project AoI. No known stop-over sites present within or near the AoI.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.

Species Name	IUCN Status	National Status	Status	Status PS 6 Criterion		
				1	2	3
Greater Spotted Eagle *Clanga clanga*	VU	VU	A non-breeding species and only occurs in low numbers on migration. No known stop-over sites present within or near the AoI.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
Eastern Imperial Eagle *Aquila heliaca*	VU	VU	Breeding and migratory species within Uzbekistan. Breeding in very low density has been previously recorded within the Ustyurt Plateau and the Kyzylkum Desert. Migratory populations are also considered to be low (UzRDB).No known stop-over sites present within or near the AoI.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
Macqueen's Bustard *Chlamydotis macqueenii*	VU	VU	Potential nesting species in the wider area in small numbers but unlikely to be present on site and immediate surroundings due to existing human activities (e.g. developemnet and	The population is expected to fall within the population band for 50,000-99,999 individuals, which is assumed to equate to c.33,000-67,000 mature individuals. Recent (2016) estimates of the breeding population within the south-eastern area of the Kyzylkum Desert (Bukhara Region) were approximately 2,000	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.

Species Name	IUCN Status	National Status	Status	Status PS 6 Criterion		
				1	2	3
			roads etc.) causing significant disturbance.	breeding pairs and this was updated in 2021 to approximately 2,350 breeding females. A reasonable EAAA population with overlap of the project AoI will not equal or breach thresholds in any season. Criteria 1 thresholds are not met.		
Goitered Gazelle *Gazella subgutturosa*	VU	VU	Widely distributed throughout Uzbekistan with an estimated national population of 4,000 individuals. Has not been recorded on site and the wider area is generally unsuitable as it is quite developed and disturbed.	An EAAA for assessment against Criteria 1 (regular occurrence of significant populations) has not been defined as the typical range/suitable habitat does not overlap the Project AoI. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	EAAA for Criteria 3 cannot be determined for a long-distance migratory species with no significant interaction with terrestrial habitats / 'bottleneck' sites. Criterion 3 thresholds are not met.
Marbled Polecat *Vormela peregusna*	VU	VU	In Uzbekistan it is widely distributed with a national population of approximately 5,000 mature individuals. Not confirmed on site. Possibly present in the wider area area.	Localised EAAA and site AOI unlikely to support individuals of any number to meet criteria. Criteria 1 thresholds are not met.	Global population resulting in a large EOO so not range restricted. Criteria 2 thresholds are not met.	Not applicable.

Determination of Critical Habitat

Based on the results of the CHA it has been determined that no thresholds have been met or breached for Critical Habitat.

Priority Biodiversity Values

All species/habitats within the background data search and recorded on site, or those considered to be potentially present, have been assessed against the PBV guidelines, which provide a qualitative approach to the assessment. All criteria were considered for each species/habitat.

Species meeting the criteria for inclusion as Priority Biodiversity Values are presented in the table below.

Species considered to be Priority Biodiversity Values

Species	IUCN Red List Status	National RDB Status
Central Asian Tortoise *Testudo horsfieldii*	VU	VU
Sociable Lapwing *Vanellus gregarius*	CR	VU
White-headed Duck *Oxyura leucocephala*	EN	EN
Great Bustard *Otis tarda*	EN	CR
Great Knot *Calidris tenuirostris*	EN	-
Pallas's Fish-eagle *Haliaeetus leucoryphus*	EN	EN
Egyptian Vulture *Neophron percnopterus*	EN	VU
Steppe Eagle *Aquila nipalensis*	EN	NT
Saker Falcon *Falco cherrug*	EN	NT
Lesser White-fronted Goose *Anser erythropus*	VU	VU
Common Pochard *Aythya ferina*	VU	-
Yellow-eyed Pigeon *Columba eversmanni*	VU	VU
European Turtle-dove *Streptopelia turtur*	VU	VU
Curlew Sandpiper *Calidris ferruginea*	VU	-
Broad-billed Sandpiper *Calidris falcinellus*	VU	-
Grey Plover *Pluvialis squatarola*	VU	-
Greater Spotted Eagle *Clanga clanga*	VU	VU
Eastern Imperial Eagle *Aquila heliaca*	VU	VU
Macqueen's Bustard *Chlamydotis macqueenii*	VU	VU
Goitered Gazelle *Gazella subgutturosa*	VU	VU
Marbled Polecat *Vormela peregusna*	VU	VU

11.3 Assessment of Impacts

This section provides an overview of the predicted impacts to identified ecological receptors as a result of the construction, operational and decommissioning phases of the Project. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

All mitigation measures contained in this section will be included in a Project specific Biodiversity Management Plan (BMP) which will also include details of pre-clearance, pre-construction, and during-construction monitoring. This BMP will be provided as a standalone document.

The BMP will be a live document however it will initially include all of the below mitigation and monitoring requirements to be undertaken during the construction and operation of the battery storage facility. The

EPC Contractor will be required to appoint a Project Ecologist to ensure that all agreed mitigation and monitoring is fully implemented. Details of staffing requirements are set out in the HSSE and BMP.

Should other species of conservation concern be recorded on the site during pre- or during-construction surveys then appropriate mitigation measures detailed below will be applied to them.

11.3.1 Potential Impacts during the Construction Phase

A. Protected Areas

No protected sites or designated areas are present within 10km of the proposed Project area. The nearest designated area is the Mt Aktau IBA which is situated approximately 20km north of the Project location. This site is designated for it breeding populations of Egyptian Vulture and Lesser Kestrel, along with resident Cinereous Vultures. Given the designated species, the reason for designation and the distance from proposed works no impacts to protected sites resulting from the construction of the Project are predicted.

B. Habitats and Flora

Site clearance and construction of the Project will result in the permanent loss of habitat over a construction footprint, totaling approximately 10 hectares of semi-desert vegetation habitat. Of this the majority is natural, though degraded in parts by anthropogenic influences. The majority of sampled representative habitat on site (19 of 30 quadrats) was found to be in Moderate condition, habitat within 8 of the 30 quadrats was found to be in Good condition. Within the proposed Project area, a single IUCN/UzRDB Near Threatened plant species (*Tulipa lehmanniana*) was identified in areas adjacent to, but outside the areas of proposed works, no habitats or plant species ranked VU or greater were found during surveys and all other species found are considered common and widespread and of limited botanical value. No alien or invasive species were noted during the study.

Based on the extent of habitat loss and the type and status of habitats and flora species that are likely to be affected by construction works, direct impacts to natural habitats and flora are considered to be of moderate significance.

Construction Phase - Direct Impacts on Sensitive Receptors (Natural Habitats and Flora)		
Type	Negative	Removal of 10 ha of semi-desert habitat
Duration	Long term	Permanent loss
Magnitude	Medium	Loss of natural habitat in moderate or good condition
Reversibility	Irreversible	Permanent habitat loss is irreversible
Sensitivity	Low-Medium	Areas of natural habitat are of low - medium sensitivity
Likelihood	High	Habitat loss is certain
Frequency	Rare	Habitat/Flora loss will occur once. Once lost/impacted areas can't be impacted again
Timing	At start of construction	
Extent	Low	Impact will occur in Project footprint only
Significance	**Moderate**	

Although not directly affected by the proposals, potential indirect impacts include pollution and increased human pressure across the site which could increase dust levels which in turn could affect the ecological value and function of surrounding habitats and the species they support. Bio-security measures will be

adhered to by construction traffic to limit the risk of introducing alien or invasive species to the Project area.

Construction Phase – Direct Impacts on Sensitive Receptors (Natural Habitats and Flora) – Non-native Species and Introduced Flora		
Type	Negative	
Duration	Short to Long Term	If non-native species become established impacts could be longer term
Magnitude	Medium	Potential change to natural habitat and species composition in areas surrounding the Project area
Reversibility	Reversible	Invasive species can be controlled, if identified
Sensitivity	Low - Medium	Areas of natural habitat are of low - medium sensitivity
Likelihood	Low to Medium	Introduction of invasive non-native species is possible, but not certain
Frequency	Periodic	During Construction
Timing	Not Relevant	For the duration of construction phase
Extent	Medium	If established within the Project footprint it is possible that invasive species could spread to wider areas
Significance	**Minor - Moderate**	

The baseline surveys confirmed the presence of black saxaul (*Haloxylon ammodendron*) within the Project site. A total of 33 individuals are located within the construction footprint and are anticipated to be directly affected by construction activities.

In accordance with national requirements, a site inspection will be undertaken by a representative of the regional branch of the National Committee on Ecology and Climate Change prior to the commencement of construction, and damage estimates for the affected individuals will be calculated by the authorities. The loss of the 33 individuals will be offset through a compensation programme managed by the relevant authorities, implemented following the site inspection. The removal of the affected individuals is subject to obtaining the necessary approval or permit prior to commencement of works. As part of this process, the relevant environmental authority evaluates the vegetation proposed for removal, determines whether it can be preserved or transplanted, and where removal cannot be avoided determines the quantity of species, the timing and the licensing requirements for compensatory planting.

The compensation programme comprises the payment of the authorized removal fees as well as compensatory planting. It is important to note that the payment of the removal fees does not replace the compensatory planting requirement. Under the applicable regulations, the responsible entity is required to plant a minimum of ten large-sized seedlings for each removed shrub and to maintain the planted seedlings for a minimum period of two years. The planting is undertaken by the responsible Project entity with the assistance of the relevant territorial environmental authority.

Taking into account that black saxaul is a desert shrub and that its treatment may differ from conventional tree planting, the compensation programme for the Project will include the following: (i) an inventory of the unavoidable losses; (ii) calculation and payment of the applicable compensation fees; (iii) agreement with the relevant authority on the location and requirements for the planting of saxaul; (iv) undertaking of the planting; and (v) maintenance, monitoring and documentation of the planted areas. The exact compensation amount and the applicable planting conditions will be confirmed through the permitting process and in coordination with the relevant environmental authority.

The Project occupies approximately 10 ha and includes areas of natural habitat, the majority of which have been assessed as being in Moderate condition, with smaller areas assessed as being in Good condition. Only limited habitat will remain within the permanent Project footprint, and opportunities for habitat

enhancement within the Project site are limited. The final extent of habitat impacts, including the area of Moderate and Good condition habitat affected, will be confirmed prior to construction and used to inform the biodiversity management and monitoring measures required to achieve no net loss of biodiversity. The measures required to achieve this objective will be defined in the Biodiversity Management Plan (BMP) and may include, for example, habitat restoration and enhancement, revegetation using native species characteristic of the local area, and other measures identified through application of the mitigation hierarchy.

In relation to Tulipa lehmanniana Merckl., the species was recorded in 12 of the 30 sampling points surveyed, all located along the northern edge of the proposed Project area and outside the Project footprint, as discussed in "Section 11.2.2". As discussed in "Section 4.2.2", the BESS facility was micro-sited to the south in response to this finding, entirely outside the areas where the species was recorded. The areas where the species was recorded, together with their surrounding natural habitats, are considered sensitive areas. The measures required to avoid impacts on such areas during construction, including their demarcation and exclusion from construction activities and from the movement and storage of machinery, equipment and materials, will be defined within the BMP.

- All construction workers will undertake a Project induction before working on site. The induction will include a comprehensive biodiversity element where the baseline ecological value and sensitivity of the site will be discussed.
- To avoid introducing non-native or invasive species to site all vehicles coming to site will be subject to a full clean down which will include wheel and body work cleaning before entry into the access road.
- Regular site walkover surveys throughout the construction period by a suitably qualified botanist to check to the presence and abundance of non-native or invasive species. In case such areas are identified, areas of non-native or invasive species will be mapped and a program of mechanical control will be completed over the construction period in order to remove these species. Chemical control will be avoided however, if necessary, will be used but in accordance with national and international guidelines and management plan will be prepared by the EPC.
- Mitigation for impacts will be transposed into the Construction HSSE MS. This will also include dust suppression activities (e.g. watering of tracks in dry periods, adherence to site speed limits) and banning of site workers from using vehicles away from the established transport routes.

C. Reptiles and Amphibians

Four species of reptile were identified by the site survey, of these Central Asian Tortoise is the only species of conservation concern (IUCN VU, UzRDB VU). Central Asian Tortoise were found at a density of 0.6 animals per hectare over the survey area which is considered low by commonly accepted standards. Central Asian Tortoise are likely to be particularly exposed to impacts during construction as they are cryptic and slow-moving. In addition, their life cycle means that they will be particularly exposed to construction related mortality. Central Asian Tortoise are only typically active for 8 – 12 weeks per year, in the Spring, after which they enter a period of summer aestivation followed, in most years, by winter hibernation. In some years, with warm autumn temperatures, there may be a second period of activity, but this is sometimes very short-lived and very hard to predict. Unmitigated impacts on Central Asian Tortoise could potentially be medium-term and irreversible (e.g. killing resulting in loss of a generation of breeding animals or a period of lower recruitment due to loss of eggs, disturbance, direct habitat loss from construction of infrastructure and access roads and/or habitat loss through fragmentation/barrier effect).

Overall, impacts to Central Asian Tortoise as a result of construction are predicted to be of moderate significance at a local level. The relatively low population density identified on site is not anticipated to create significant negative impacts on the carrying capacity of habitats outside of the Project site.

Construction Phase – Direct Mortality Central Asian Tortoise		
Type	Negative	
Duration	Short Term	Impacts in construction areas would be short term
Magnitude	Medium	Potential mortality could reduce population size and viability within the Project footprint
Reversibility	Irreversible	Mortality of Central Asian Tortoise will be permanent
Sensitivity	High	IUCN VU
Likelihood	High	Mortality is certain without mitigation
Frequency	Periodic	During Construction
Timing	Not Relevant	For the duration of construction phase and in all seasons
Extent	Low	Impact will occur in the Project footprint only
Significance	**Moderate**	

Mitigation to protect Central Asian Tortoise within the Project area has been started in spring 2026, this entailed creating a perimeter exclusion barrier using concrete blocks around the entire site and completion of a translocation exercise to move tortoises from the Project site. During translocation works a total of 13 Central Asian Tortoise were relocated away from the Project site, this included 4 males, 8 females and 1 tortoise of undetermined sex. In addition to the previously completed measures, the following mitigation measures will be implemented during the construction of the Project to ensure that remaining animals are protected from harm. These measures are included (and expanded upon) in the pre-construction and Construction Biodiversity Management Plan.

- All site workers will undertake a Project induction before working on site. The induction will include a comprehensive biodiversity element where the baseline ecological value and sensitivity of the receptors within the AoI will be discussed.
- Before construction works commence, further pre-clearance survey and translocation of the site will be completed in the spring 'active season' by a qualified ecologist. Animals will be moved to areas of suitable habitat and will be distributed evenly and in areas adjacent to where they were found. All burrows that could potentially support tortoises (they have a characteristic shape) will be fully investigated using an endoscope. All burrows will be destroyed / blocked once confirmed they are free of tortoises. Translocation efforts will only take place during the tortoise active season and will cease as soon as aestivating behavior is recorded. Only active animals will be translocated.
- If occupied burrows are found after the active season, then the burrows will be clearly marked (using colored flags) and the working areas adjusted to avoid direct impacts on aestivating / hibernating tortoise.
- Prior to construction works (habitat clearance, levelling or any other works) working areas will be clearly demarked so that site workers fully understand the working area. Working areas will be marked using high visibility fencing (or similar). Encroachment into areas outside of agreed working areas will be prohibited and working areas will be subject to regular check by the EPC Contractor and Developer's Biodiversity Team to check enforcement of working areas.
- Where any Central Asian Tortoise or other species of conservation concern is encountered during construction activities, works in the affected area will be suspended and a biodiversity chance find procedure will be implemented. The procedure will be developed as part of the BMP and will identify the notification and reporting requirements, the actions to be undertaken by the EPC Contractor, and

the role of the regional branch of the National Committee on Ecology and Climate Change, including circumstances requiring notification of and coordination with the authority prior to resuming works.

- Taking into account the movement of vehicles and machinery during the construction phase, the following measures will be implemented: (i) vehicle movements will be restricted to the demarcated working areas and established access and haul routes at all times; (ii) site speed limits will be applied and communicated to all drivers as part of the induction training; (iii) drivers will undertake a visual check beneath and around vehicles and machinery that have been stationary before moving them; (iv) machinery and materials will not be stored outside the demarcated working areas; and (v) any tortoise observed within a working area or on an access route will be reported in accordance with the biodiversity chance find procedure.

D. Birds

Two bird species of conservation concern were recorded flying over the Project site during surveys – Egyptian Vulture and Steppe Eagle (both IUCN EN), however neither species was recorded interacting with the ground, and no habitat suitable for nesting was recorded within, or adjacent to the Project area. No bird species of conservation concern were recorded using the ground or nesting within the Project area, and no birds of conservation concern likely to use the site were returned by the IBAT or back ground literature searches. Typical impacts resulting from construction include the permanent loss of nesting habitat suitable for common and widespread species, minor temporary disturbance resulting from construction activities, and the potential for attracting carrion feeding birds such as vultures and eagles through poor waste management.

Construction Phase – Habitat Loss lower sensitivity Nesting Birds (passerines)		
Type	Negative	
Duration	Short Term	Impacts in construction areas would be short term
Magnitude	Medium	Loss of nesting habitat could reduce population size within the Project footprint and wider area
Reversibility	Irreversible	Direct mortality of adults very unlikely but loss of nests, eggs and chicks would be irreversible
Sensitivity	Low	Receptors are not of elevated international or national conservation concern. High fecundity species
Likelihood	High	Unmitigated loss of nests and chicks is certain
Frequency	Rare	During Construction
Timing	March to July, annually throughout construction	Impacts during the breeding season only throughout construction period
Extent	Low	Impact will occur in the Project footprint only
Significance	**Minor**	

Based on the extent of habitat loss and the type and status of bird species that are likely to be affected by construction works, direct impacts to birds are considered to be of minor significance. As a result of this no species-specific mitigation measures are required, however the following measures will be put in place to ensure that any birds using the site for breeding can be protected during the construction phase of the Project. Poor waste management and the incorrect disposal of food waste have the potential to attract birds of conservation concern, such as Egyptian Vulture, Griffon Vulture and Steppe Eagle to the Project area during construction. This is considered a short term and reversible impact of minor to moderate significance.

Construction Phase – Direct and Indirect Impacts on Sensitive Receptors (Vertebrates) – Littering, Waste Management		
Type	Negative	
Duration	Short Term	Impacts in construction areas would be short term
Magnitude	Low to Medium	Dependent on receptor affected
Reversibility	Reversible	Impact likely to be reversible once construction activities have finished.
Sensitivity	Low to High	Dependent on receptor impacted
Likelihood	Low to Medium	Impacts are not certain to occur
Frequency	Rare	During Construction
Timing	N/A	Impacts possible in all months during construction activities.
Extent	Medium	Impacts within Project AoI but possible wind-blown litter / waste could affect areas within 2 km of Project activities. Any direct / indirect impacts are certain to not affect the Mt Aktau IBA which will be at least 20 km from the closest works.
Significance	**Minor to Moderate**	Dependent on receptor affected

- All site workers will undertake a Project induction before working on site. The induction will include a comprehensive biodiversity element where the baseline ecological value and sensitivity of the receptors within the AoI will be discussed.
- Site clearance works will be completed to the extent possible outside of the bird nesting season. If this is not possible all working areas will be checked prior to clearance by a suitably qualified ecologist. If active nests are identified they will be clearly marked and an appropriate buffer established to exclude construction traffic from the area around the nest. The buffer will be maintained and checked regularly until the nest is no longer active.
- Strict waste management will be put in place, with all waste disposed of in appropriate bins and covered to prevent scavenging. Regular waste collection will be carried out by licenced waste carriers and disposed of in designated dump areas away from the Project site.

E. Mammals

No mammal species of conservation concern were identified during site surveys, and the habitats present on site are not considered suitable for the mammal species of conservation concern returned by the IBAT or background data searches. Impacts resulting from construction to common and widespread species of mammal are the permanent loss of terrestrial habitat and temporary displacement/disturbance resulting from construction activities.

Construction Phase – Direct Mortality and Reduction in Habitat Quality – Mammals		
Type	Negative	
Duration	Short Term	Impacts in construction areas would be short term
Magnitude	High	Number of burrows are very limited within the AoI so loss of such sites is very unlikely, although if lost magnitude would be high
Reversibility	Irreversible	Mortality of individuals would be permanent loss
Sensitivity	Low	No species of conservation concern recorded during surveys

Likelihood	High	Reduced habitat quality is certain to occur
Frequency	Rare	During Construction
Timing	N/A	Impacts possible in all months during construction
Extent	Low	Impact will occur in the Project footprint only
Significance	**Minor**	

Based on the extent of habitat loss and the mammal species present/likely to be present at the time of construction, impacts are considered to be of minor significance. As a result no species specific mitigation measures are required, however the following measures will be put in place to ensure that any mammals using the site can be protected during the construction phase of the Project.

- All site workers will undertake a Project induction before working on site. The induction will include a comprehensive biodiversity element where the baseline ecological value and sensitivity of the receptors within the AoI will be discussed.
- Any site clearance works will be completed following a check by a suitably qualified ecologist. If active burrows or nests are identified they will be carefully dug out by hand, and any animals present within either captured and transported away from site or allowed to disperse to areas outside of the proposed development area.
- Regular checks of the Project area will be completed (at least once per fortnight) to ensure that no animals have moved back into the development area. If new burrows are encountered these will be dug out by hand and any animals either captured and transported away from siteor allowed to disperse as per the previous step.

11.3.2 Potential Impact during the Operation Phase

A. Protected Areas

No protected sites or designated areas are present within 10km of the proposed Project area. The nearest designated area is the Mt Aktau IBA which is situated approximately 20km north of the Project location. This site is designated for it breeding populations of Egyptian Vulture and Lesser Kestrel, along with resident Cinereous Vultures. Given the designated species, the reason for designation and the distance from proposed works no impacts to protected sites resulting from the operation of the Project are predicted.

B. Habitats and Flora

It is possible that non-native or introduced flora could be imported into the Project area onsite maintenance staff vehicles. The impacts of non-native and introduced flora could potentially be significant in absence of any mitigation as these species could become established and out-compete native flora.

Impacts associated with non-native, invasive or introduced flora could result in long-term and irreversible (if allowed to become established) negative impacts. The potential impacts are considered to be long-term but reversible and of minor to moderate significance.

Operations Phase – Direct Impacts on Sensitive Receptors (Natural Habitats and Flora) – Non-native Species and Introduced Flora		
Type	Negative	

Duration	Short to Long Term	If non-native species become established impacts could be longer term
Magnitude	Medium	Potential change to natural habitat and species composition in areas surrounding the Project area
Reversibility	Reversible	Invasive species can be controlled, if identified
Sensitivity	Low - Medium	Areas of natural habitat are of low - medium sensitivity
Likelihood	Low to Medium	Introduction of invasive non-native species is possible, but not certain
Frequency	Periodic	During Construction
Timing	Not Relevant	For the duration of construction phase
Extent	Medium	If established within the Project footprint it is possible that invasive species could spread to wider areas
Significance	**Minor - Moderate**	

- Post-construction monitoring will be completed across the Project site to record the presence and distribution of non-native and invasive plant species and a programme of mechanical control will be completed over the operation period to remove these species from the site. Chemical control will be avoided however, if necessary, will be used but in accordance with national and international guidelines. The programme of control will continue until the species are absent from the Project site, and resume if re-colonisation is identified during the monitoring.

C. Reptiles and Amphibians

The Project area will be fenced with a secure perimeter fence which will not be accessible to sensitive species of reptile such as Central Asian Tortoise. As such operational impacts to reptile species of conservation concern within the BESS area are not anticipated.

Regular monitoring by maintenance staff will be conducted throughout the operational period and if gaps large enough for tortoise are identified in the perimeter fence these will be repaired immediately.

The transmission line will be buried underground during the construction phase of the Project. Following construction, the trench will be backfilled and reinstated and the cable will remain buried. Therefore, routine operation of the transmission line will not result in habitat disturbance, mortality risk, barrier effects or habitat fragmentation. Potential impacts would be limited to infrequent works requiring exposure of the cable for direct intervention, which may result in temporary disturbance or accidental injury to reptiles occupying the reinstated corridor. Taking into account the length of the transmission line of approximately 788 m, such activities are expected to be extremely rare, and any associated impacts would be localized and short-term. Operational impacts to reptiles and amphibians are therefore predicted to be negligible.

D. Birds

Predicted impacts to birds during the operational phase of the Project are expected to be limited to attraction of scavenging birds due to poor waste management, and collision with Project infrastructure such as fencing. Poor waste management over the life of the project is considered a long-term reversible impact of moderate significance. Collision with Project infrastructure is considered a long term permanent impact of moderate significance.

Operation Phase – Direct Impacts on Sensitive Receptors (Birds) – Poor Waste Management and Collision with Project Infrastructure		
Type	Negative	
Duration	Long-term	During operation
Magnitude	Low to High	Dependent on receptor affected
Reversibility	Irreversible	Impact could result in death or injury to sensitive receptors
Sensitivity	Low to High	Dependent on receptor affected
Likelihood	Medium	Direct mortality of sensitive receptors is possible
Frequency	Rare	During operation,
Timing	N/A	Impacts possible in all months
Extent	Low	Impacts limited to Project AoI including access road
Significance	**Moderate**	

In order to manage and mitigate the above impacts the following measures will be in effect for the duration of the operational phase of the Project.

- Strict waste management will be put in place for the entirety of the Projects' operation, with all waste disposed of in appropriate bins and covered to minimize attracting carrion feeding birds and prevent scavenging. Regular waste collection will be carried out by licensed waste carriers and disposed of in designated dump areas away from the Project site.
- The perimeter fence, glazed surfaces and other site infrastructure will be monitored as part of the regular site maintenance routine. If high numbers of collisions are noted (>5 at a single location in a week), measures to increase the visibility of the infrastructure using barrier tape, film or decals or equivalent will be completed in areas identified as higher collision risk.

E. Mammals

No mammal species of conservation concern have been identified in the Project area, so no significant operational impacts are predicted. In addition, the Project area will be fenced with a secure perimeter fence which will not be accessible to more sensitive species of mammal such as Marbled Polecat (IUCN VU). As such operational impacts to mammal species of conservation concern are not anticipated.

Regular monitoring by maintenance staff will be conducted throughout the operational period and if fence gaps are identified these will be repaired and closed immediately to prevent access.

12. ARCHEOLOGY AND CULTURAL HERITAGE

This section provides an assessment of baseline conditions within the Project site and surroundings in relation to archaeology and cultural heritage. The section then presents an assessment of potential impacts during the various Project phases. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

12.1 Assessment of Baseline Conditions

The baseline assessment of the Project site was based on stakeholder consultations and a literature review, each of which is discussed in further details below.

A. Stakeholder Consultation and Engagement

Stakeholder consultation and engagement activities were undertaken with key entities involved in archaeology and cultural management. This included the entities below. Refer to “Section 6.3” earlier for addition details.

- Ministry of Culture of the Republic of Uzbekistan.
- Agency of Cultural Heritage.
- Institute of Anthropology (National Archaeological Centre) of the Academy of Sciences of the Republic of Uzbekistan.

B. Literature Review

Literature review included a comprehensive review of archives, publications and studies on previous archaeological land and cultural heritage work and surveys undertaken in the area, including literature and sources available in English, Uzbek, and Russian.

The review considered the results of previous archaeological investigations undertaken in the region, including archaeological reconnaissance, settlement surveys and studies of prehistoric, historic and rock-art sites. The purpose of this review was to establish the known archaeological context of the wider area and inform the interpretation of the field survey findings.

C. Site Survey

A field survey was undertaken in June 2026 by specialists and experts from the Innovative Research Centre for the Investigation and Musealisation of Archaeological Heritage Sites at Fergana State University, in collaboration with the Institute of Anthropology of the Academy of Sciences of the Republic of Uzbekistan to verify the presence/absence of any surface archaeological or cultural heritage remains within the Project site.

The survey covered the entire Project footprint. This comprised the full BESS area and the complete underground transmission line route connecting the BESS facility to existing Muruntau Substation as shown in Figure 36 below.

High-resolution satellite imagery was used to identify areas of archaeological potential, plan the field survey routes and assess the potential spatial distribution of heritage resources before field verification.

The Project area was divided into survey grids based on high-resolution satellite imagery.

The archaeological field survey was undertaken in accordance with established scientific methodologies and archaeological field survey standards adopted in the Republic of Uzbekistan.

Each survey grid was systematically inspected on foot and traversed at least two to three times. Underground transmission lines and adjacent land on both sides were surveyed using the same systematic pedestrian methodology applied throughout the remainder of the Project area.

The survey included visual inspection for archaeological features and cultural heritage assets. The survey scope provided that, in the event any features were identified, these would be described, their GPS coordinates recorded, and photographic documentation and an assessment in relation to the Project footprint prepared. As presented in the results below, no such features were identified.

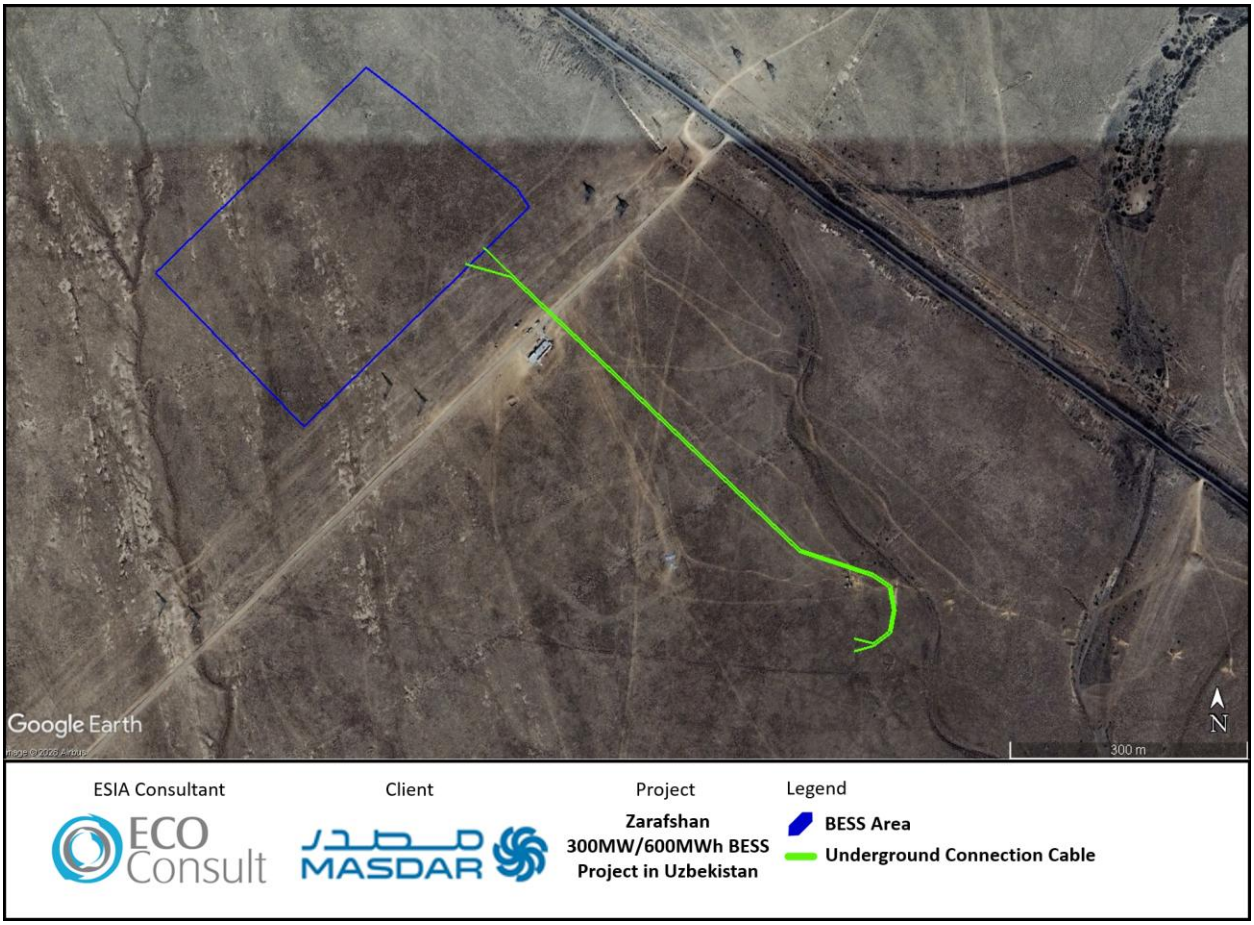


Figure 36: Survey Area

12.1.2 Results

A. Stakeholder Consultation and Engagement

- Institute of Anthropology (National Archaeological Centre) of the Academy of Sciences of the Republic of Uzbekistan indicated the following:

  - Project site itself has not been subject to any previous or current surveys or assessments;
  - Historical records from initial archaeological surveys in the first half of the 20th century refer to the area planned for the general larger Project vicinity as the "Kaltaminar culture sites," where archaeological remains associated with the Neolithic period were identified;
  - No officially registered archaeological or cultural heritage sites have been identified within the Project area or within a 5 km radius of the Project site;
  - Several small hills located within the planned Project area may contain archaeological remains, although confirmation would require field investigations.
  - The Institute advised that archaeological reconnaissance and survey works should be undertaken prior to Project implementation and in coordination with the Institute. Such investigations should be carried out by qualified archaeologists to determine whether any archaeological or cultural heritage objects are present within the Project footprint. In response to this recommendation, the Developer instructed the E&S Team to undertake an archaeological and cultural heritage survey for the Project. The survey was conducted in May 2026 by qualified archaeologists, and the relevant requirements of the Institute were addressed as part of the survey process. At the time of writing this ESIA, the final survey results are not yet available. However, preliminary findings indicate the absence of archaeological or cultural heritage remains within Project AoI.

- Department of Navoi Region of Agency of Cultural Heritage of the Republic of Uzbekistan indicated the following:

  - No tangible cultural heritage objects were identified within the Project area;
  - No existing secondary information relating to archaeological sites or cultural heritage objects has been identified within the boundaries of the project area;
  - No specific cultural heritage risks were identified based on the reviewed Project location information.

B. Literature Review

Based on the literature review, no archaeological and cultural heritage sites were recorded within the Project site or surrounding area.

The closest recorded UNESCO World Heritage Site is the Vardanze Settlement, an ancient town located approximately 140 km south of the Project Site [13], refer to Figure 37 below. Vardanze Settlement is situated along the Silk Roads: Zarafshan-Karakum Corridor, a key section of the ancient Silk Road connecting the Zarafshan River Valley to the Merv Oasis. The site comprises a citadel, a sharistan (inner city) and a mausoleum. A memorial mosque was constructed in a later period on the site, and the site serves as a

[13] https://whc.unesco.org/en/list/1675

place of pilgrimage for the local population. Vardanze Settlement is considered one of the most prominent archaeological monuments of the region [14].

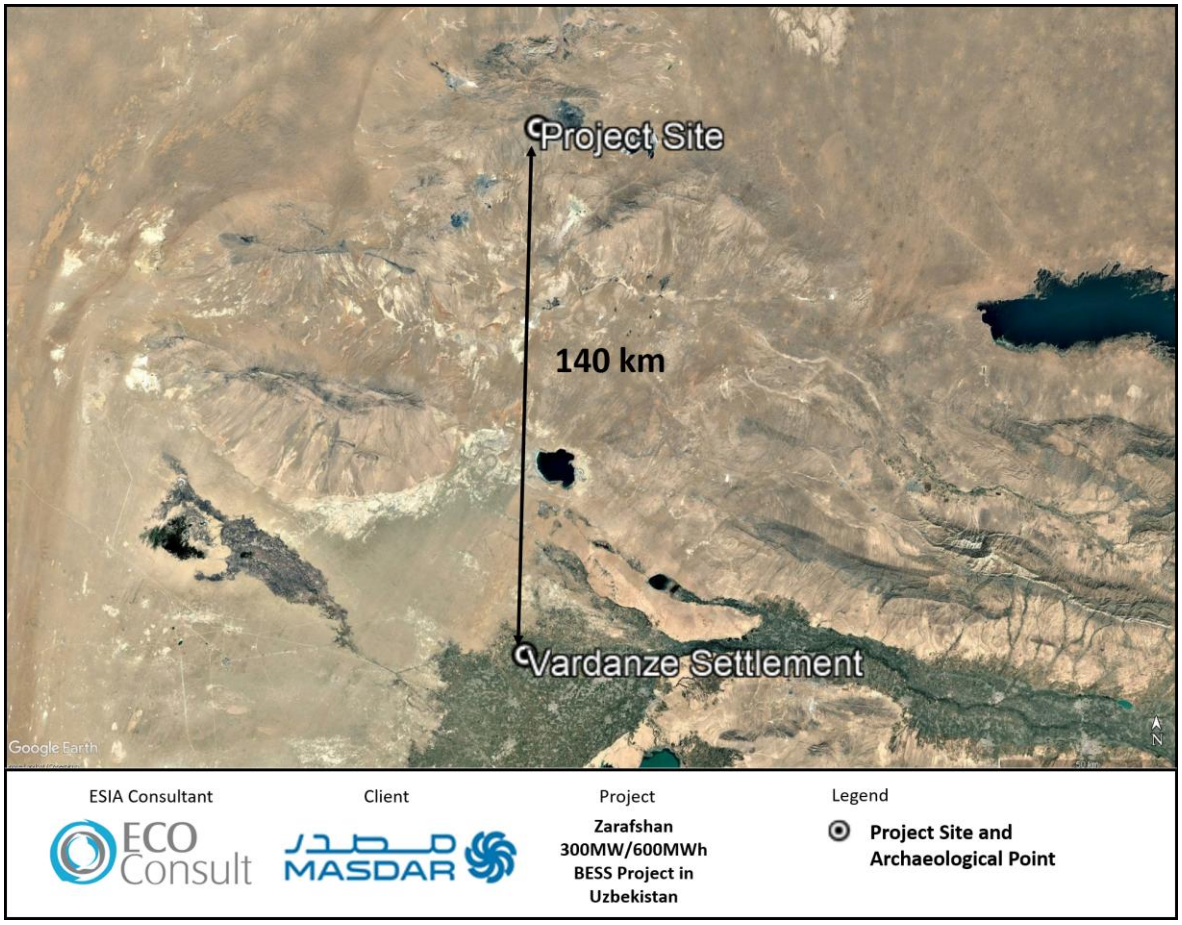


Figure 37: The Project Site in Relation with the Nearest UNESCO World Heritage Site

Closer to the Project site, the literature review identified two areas of potential archaeological or cultural heritage interest. The first is associated with the Muruntau Gold Mine, east of the Project site, where ancient mining workings reportedly dating to the 10th to 12th centuries AD were previously recorded. However, available literature indicates that these remains have been destroyed, with the latest documented destruction reportedly occurring in 1995 as a result of mining expansion. The second is a local religious site, the holy cemetery known as 'Gujumli Arliyo', located around 12 km northwest of the Project site. These features are outside the Project footprint, and no direct interaction is currently anticipated.

In addition, the archaeological background review indicates that Navoi Region contains archaeological sites dating to the Early Iron Age, Classical Period, Early Medieval Period, and Developed and Late Medieval Periods. Archaeological and architectural remains from these periods are particularly associated with the Zarafshan River and its historically irrigated valley.

Previous archaeological investigations in the wider region identified:

[14] https://www.iicas.int/ru/press-office/News/The+site+of+Vardanze

- Numerous Mesolithic and Neolithic sites across Navoi Region and the surrounding territories; [15] [16]
- Neolithic settlements within the Ayakagytma Depression, including eleven settlements located mainly along its eastern and southern margins;
- Archaeological evidence associated with Mesolithic and Neolithic communities in the Lower Zarafshan area;[17] [18] and
- The Sarmishsay Rock Art Gallery, which contains petroglyphs dating from the Stone Age, Bronze Age, Early Iron Age, and Medieval Period.

In contrast, there is no evidence of permanent human occupation has been recorded in the Muruntau mining area and the general area surrounding it.

C. Site Survey Results

As required by the Institute of Anthropology, an archeological site survey was undertaken in June 2026. The systematic field survey of the Project area, including the BESS area and the underground transmission line route, identified the following:

- No archaeological remains;
- No burial structures or burial mounds;
- No settlement traces;
- No archaeological deposits; and
- No other evidence of past human occupation.

As no archaeological or cultural heritage assets were identified:

- No archaeological site inventory or GPS coordinate register was prepared;
- No cultural heritage protection zones or buffer zones were required within the Project area; and
- No archaeological constraints were identified for the proposed BESS construction works or underground cable installation.

[15] Vinogradov, A.V., Mamedov, E.L., and Vorobyova, M.G. (1975). *The Prehistoric Lyavlyakan*. Materials of the Khorezm Archaeological and Ethnographic Expedition, Issue 10. Moscow: Nauka Publishers, 285 p.
[16] Vinogradov, A.V. (1960). *New Neolithic Discoveries of the Khorezm Expedition of the Academy of Sciences*. Issue 4. Moscow, pp. 63–81.
[17] Askarov, A.A. (1962). *The Lower Zarafshan during the Bronze Age*. Extended Abstract of the Candidate of Historical Sciences Dissertation. Leningrad, 20 p.
[18] Islomov, U.I. (1963). *The Neolithic Culture of the Lower Zarafshan*. Extended Abstract of the Candidate of Historical Sciences Dissertation. Leningrad, 22 p.

12.2 Assessment of Impacts

This section identifies and assesses the anticipated impacts from the Project activities on archeology and cultural heritage during the construction. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

Note: no impacts are relevant for the operational phase of the Project.

12.2.1 Potential Impacts during the Construction Phase

Site preparation activities which are to take place onsite by the EPC Contractor for installation of the BESS components and the various other Project components to include substation, cables, buildings, etc. are expected to include land clearing activities, levelling, some minimal excavation, grading, etc.

If such activities are improperly managed, they could damage or disturb archaeological or cultural remains present on the surface of the Project site. However, as noted earlier, there were sites recorded within the Project area and therefore such impacts are not relevant.

Nevertheless, there is a chance that throughout such construction activities, archaeological remains buried in the ground are discovered. Improper management (if such sites are discovered) could potentially disturb or damage such sites which could potentially be of importance.

Construction Phase		
Type	Negative	Impact is negative in nature as it could damage sites
Duration	Short-term	Limited to construction phase which is 18 months
Magnitude	High	Given that there are no sites within the area and unlikely that there will be underground discoveries, but if so such activities could damage these sites if inappropriately managed.
Reversibility	Irreversible	
Sensitivity	Low	
Likelihood	Low	In general, such impacts are considered unlikely
Frequency	Rare	Expected to occur on minimal occasions during construction phase
Timing	Not relevant	N/A
Extent	Low	Limited to actual footprint of activities or recorded sites only
Significance	**Minor**	

Mitigation Measures

The following identifies the mitigation measures to be applied by the EPC Contractor during the construction phase and which include:

- Throughout the construction phase, and as the case with any Project development that entails such construction activities, there is a chance that potential archaeological and/or cultural heritage remains underground might be discovered. It is expected that appropriate measures for such chance find procedures will be implemented. Those mainly require that construction activities are halted, and the area fenced along with proper signage, while immediately notifying the Institute of Anthropology/ National Center of Archaeology. No additional work will be allowed before the National Center of Archaeology assesses the found potential archaeological site and grants a clearance to resume the work. Construction activities can continue at other parts of the site if no potential archaeological remains are found. If found, same procedures above apply.

- Induction training and Toolbox Talks (TBT) should be delivered to all workers to explain chance find procedures to ensure clarity when archaeological and cultural heritage finds are encountered on site.
- Driving will only be permitted on formal site roads and off-road driving is prohibited, unless it is driving within a working area (e.g. moving equipment or infrastructure around the site or for maintenance operations).
- Workers are only permitted within authorized working areas and moving to any offsite area is prohibited.
- Ensure all workers read, understand and sign the worker code of conduct which includes specific requirements related to such an issue and which include:
    - Respect religious sentiments and customs and traditions of co-workers.
    - Respect the local religious and/or traditional days of celebration and their restrictions.
    - Respect practices of the local population.

Following the implementation of these mitigation measures, the significance of the residual impact can be reduced to not significant.

Monitoring Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the EPC Contractor during the construction phase and which include:

- In the case that a suspected site is discovered, a report should be prepared that includes the following to be submitted to the Developer and upon approval it is to be submitted to the National Center of Archaeology:
    - Photo documentation of the site including photos for delineation markers and signage
    - Location (GPS coordinates)
    - Site estimate
    - Topographical description
    - Description of nature and conditions of the site
- After the National Center of Archaeology concludes their assessment of the discovered site, the above report should be updated with the findings of the Center with supporting formal letters to include: (i) formal letter with mitigation to be implemented as required by the Center (if required and applicable); (ii) formal letter from the Center granting permission to commence with construction work within the discovered site.
- Submission of Induction Training records of workers that includes archaeology and cultural heritage model.

13. AIR QUALITY AND NOISE

This section provides an assessment of baseline conditions within the Project site and surroundings in relation to air quality and noise. The section then presents an assessment of potential impacts during the various Project phases. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

Note: impacts from noise during operation due to BESS operations is discussed in "Section 16 – Community Health, Safety and Security" along with a noise baseline.

13.1 Assessment of Baseline Conditions

Based on a site visit undertaken by the E&S Team and a review of satellite imagery, no significant point sources of anthropogenic air pollutant emissions were observed within the immediate vicinity of the Project site.

The area surrounding the Project site is characterized by mainly undeveloped land with existing industrial and utility-related infrastructure. An asphalted road is located directly adjacent to the Project site, and the Muruntau Gold Mine area is situated approximately 2.5 km to the east. In addition, the area includes the existing 220/110 kV substation and associated infrastructure.

During the site visit, no significant sources of air emissions or elevated noise levels were observed within the surrounding area. However, the Project area is subject to routine background noise from surrounding infrastructure, including road traffic, mining related operations and the substation.

Based on consultations with the Central Mining Administration of the Muruntau mining company, the primary source of air emissions associated with mining activities is dust generated from quarry operations, blasting activities and heavy machinery. In addition, the Central Mining Administration conducts air quality and noise monitoring surveys on a weekly and monthly basis.

13.2 Assessment of Potential Impacts

This section identifies and assesses the anticipated impacts from the Project activities on air quality and noise during the various phases to include planning and construction phase. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

It is important to note that there are no anticipated impacts during the operational phase of the Project.

13.2.1 Potential Impacts during the Construction Phase on Air Quality

Site preparation activities which are to take place onsite by the EPC Contractor for installation of the BESS structure and the various Project components to include transmission cables, access roads and internal road network, buildings, etc. are expected to include land clearing activities, leveling, some limited excavation, grading, etc.

The above activities will likely result in an increased level of dust and particulate matter emissions to some extent, which in turn will directly and temporarily impact ambient air quality. If improperly managed, there is a risk of nuisance and health effects to construction workers onsite and nearby surrounding receptors from windblown dust (such as drivers on the A379 Highway).

In addition, construction activities will likely entail the use of vehicles, machinery and equipment (such as generators, compressors, etc.) which are expected to be a source of other pollutant emissions (such as SO_2, NO_2, etc.) which would also have minimal direct impacts on ambient air quality.

The table below provides an overall summary of the impact on air quality during the construction phase.

Construction Phase – Impacts on Ambient Air Quality		
Type	Negative	Generation of dust
Duration	Short-term	Limited to construction period only and specifically activities such as the limited excavation which will be for a couple of weeks
Magnitude	Medium	Dust could be noticeable but dispersed
Reversibility	Reversible	Baseline restored after completion of construction works
Sensitivity	Low	Due to proximity of sensitive receptors
Likelihood	Medium	Given that it is likely limited to activities such as the limited excavation which will be for a couple of weeks
Frequency	Periodic	Expected particularly during excavation and land clearing activities
Extent	Low	Around 2km from active areas due to wind influence
Significance	**Minor**	

Mitigation Measures

The following identifies the mitigation measures to be applied by the EPC Contractor during the construction phase:

- Undertake and document daily visual dust monitoring throughout the construction phase to verify the effectiveness of dust control measures and identify any excessive dust generation. Where excessive dust emissions are observed, appropriate mitigation measures shall be implemented and their effectiveness verified. In the event of dust-related complaints, or where visual monitoring indicates that dust emissions are not being adequately controlled, air quality monitoring (including TSP and PM10, as appropriate) shall be undertaken at representative locations by a qualified third party to assess compliance with applicable national ambient air quality standards and the IFC General EHS Guidelines, whichever is more stringent. Where exceedances are identified, the source of such emissions shall be investigated and additional mitigation measures implemented as necessary;
- Ensure stakeholder grievance mechanism is implemented fully and properly with the local communities to address any grievances submitted in relation to dust. Please refer to the SEP for additional details on the grievance mechanism and its announcement.
- Comply with the Occupational Safety and Health Administration (OSHA) requirements and the Uzbekistan Codes as well as IFC standards as included within the General EHS Guidelines to ensure that for activities associated with high dust levels, workers are equipped with proper Personal Protective Equipment (e.g. eyeglasses, breathing masks, etc.);
- Apply basic dust control and suppression measures which could include:
    - Regular watering of roads and active construction areas for dust suppression;

- Proper planning of dust causing activities to take place simultaneously in order to reduce the dust incidents over the construction period.
- Proper management of stockpiles and excavated material (e.g. watering, containment, covering, bundling).
- Proper covering of trucks transporting aggregates and fine materials (e.g. through the use of tarpaulin).
- Adhering to a speed limit of 15km/h for trucks on the construction site.

- Develop a regular inspection and scheduled maintenance program for vehicles, machinery, and equipment to be used throughout the construction phase for early detection of issues to avoid unnecessary pollutant emissions.

Following the implementation of these mitigation measures, the significance of the residual impact is categorized as not significant.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the EPC Contractor during the construction phase and which include:

- TSP and PM10 quarterly monitoring program at least two monitoring points which represent activities undertaken (i.e. one point for areas with construction activities and one point at nearest receptor);
- Inspection and visual monitoring of the works should be carried out at all times;
- Submission of grievances close out reports as applicable for those related to air quality / dust; and
- Reporting of any excessive levels of pollutants/dust and the measures taken to minimize the impact and prevent it from occurring again.

13.2.2 Potential Impacts during the Construction Phase on Noise

Site preparation activities which are to take place onsite by the EPC Contractor for installation of BESS structure, and the various Project components to include underground transmission cables, buildings, etc. are expected to include land clearing activities, some limited excavation, grading, etc.

All the above activities will likely include the use of machinery and equipment such as hammers, compressors, etc. and which are expected to be a source of noise and vibration generation within the Project site and its surroundings. If improperly managed, there is risk of nuisance and health affects to construction workers onsite and the nearby surrounding receptors (such as drivers on the road).

The table below provides an overall summary of the impact from noise during the construction phase. The overall impact assessment will be of minor significance.

Construction Phase		
Type	Negative	Generation of noise
Duration	Short-term	Limited to construction period only which is 18 months
Magnitude	Medium	Noise will be noticeable but dispersed
Reversibility	Reversible	Baseline restored after completion of construction works
Sensitivity	Low	Due to proximity of sensitive receptors
Likelihood	High	Limited to construction period only which is 18 months
Frequency	Periodic	Due to nature of activities throughout the 18 months

Extent	Medium	Around 2km from active areas
Significance	**Minor**	

Mitigation Measures

The following identifies the mitigation measures to be applied by the EPC Contractor during the construction phase and which include:

- Undertake noise monitoring to verify levels and to define and implement on a case-by-case basis measures and systems in order to maintain noise levels within allowable limits. This will include at least two monitoring points which represent activities undertaken (i.e. one point for areas with construction activities and one point at nearest receptor to include the nearby Highway, it is noted that no noise-sensitive receptors (e.g. residential dwellings or community land uses) are located within the vicinity of the Project site). If noise levels were found to be excessive due to construction activities (i.e. higher than allowable limits specified within Uzbekistan legislations or IFC standards as included within the General EHS Guidelines, whichever is more stringent), the source of such exceedances should be identified, and adequate control measures must be implemented;
- Ensure stakeholder grievance mechanism is implemented fully and properly with the local communities, to address any grievances submitted in relation to noise. Please refer to the SEP for additional details on the grievance mechanism and its announcement;
- Apply adequate general noise suppressing measures. This could include the use of well-maintained mufflers and noise suppressants for high noise generating equipment and machinery, developing a regular maintenance schedule of all vehicles, machinery, and equipment for early detection of issues to avoid unnecessary elevated noise levels, etc.;
- Comply with the Occupational Safety and Health Administration (OSHA) requirements and the Uzbekistan Codes to ensure that for activities associated with high noise levels, workers are equipped with proper Personal Protective Equipment (e.g. Earmuffs).

Following the implementation of these mitigation measures, the significance of the residual impact can be reduced to not significant.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the EPC Contractor during the construction phase and which include:

- Submission of grievances close out reports as applicable for those related to noise;
- Inspection of the works should be carried out at all times; and
- Reporting of any excessive levels of noise and the measures taken to minimize the impact and prevent from occurring again.

13.2.3 Potential Impacts on Air Quality during Operation

BESS could be associated Ozone Depleting Substances (ODSs). ODSs are banned by the Montreal Protocol which Uzbekistan is a signatory on**.**

Operation Phase

Type	Negative	
Duration	Long-term	Risk applicable during operation phase
Magnitude	Medium	Both are banned by international conventions
Reversibility	Reversible	Can be dissipated within ambient air quality conditions
Sensitivity	Medium	Both are banned by international conventions
Likelihood	Low	Can be excluded within BESS systems
Frequency	Rare	Expected only during leakage events
Extent	Medium	Around 2km from active areas due to wind influence
Significance	**Moderate**	

Mitigation and Monitoring Measures

The following identifies the mitigation measures to be applied by the Developer during the planning phase:

- Obtain written confirmation by the Original Equipment Manufacturer (OEM) of the BESS that it does not include ODSs

14. INFRASTRUCTURE AND UTILITIES

This section provides an assessment of baseline conditions within the Project site and surroundings in relation to infrastructure and utilities and then assesses the anticipated impacts from the Project throughout its various phases. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

14.1 Assessment of Baseline Conditions

14.1.1 Methodology of Assessment

Assessment of baseline conditions was based on a site visit by the 'E&S Team' to the Project site and surrounding area. The site visit aimed to identify any key visible infrastructure and utility elements within the Project site or surrounding areas (e.g., electricity infrastructure lines, water infrastructure lines, etc.).

Desktop review as well as consultations were undertaken with key governmental entities to better understand and characterize infrastructure and utility element services required for the Project development as discussed further throughout this section. This includes water supply, waste management services, traffic and transport, etc. The consultation activities were previously discussed in "Chapter 6" and are discussed again in the sections below as applicable and relevant.

14.1.2 Waste Management (Solid Waste, Wastewater and Hazardous Waste)

As discussed earlier within "Section 6.3" consultations were undertaken with the Waste Management Department of the Zarafshan Khokimiyat to obtain information on municipal and construction waste disposal facilities, Wastewater Treatment Plants (WWTPs), and hazardous waste landfills. Results are presented below.

Municipal and Construction Waste Disposal Facilities

It is important to note that currently there are no landfills in Uzbekistan that are constructed or operated according to international standards. The first proper solid waste landfill to meet international standards is currently being developed in Tashkent Region and is financed by the Asian Development Bank (ADB). It is located around 35 km south of Central Tashkent and 400 km east from the Project site. This will include the construction of new sanitary landfills that meet EU requirements, waste sorting complexes, waste transfer points, as well as the purchase of specialized equipment and vehicles.

However, several waste disposal facilities were identified in Tomdi District and the wider Zarafshan-Muruntau area. Official environmental monitoring records identify a Zarafshan dumpsite located in Tomdi District, under the Zarafshan Construction Department of the Navoi Mining and Metallurgical Company (NMMC), with a reported area of 24 ha.

Municipal solid waste management in the area is undertaken by the State Unitary Enterprise "Toza Hudud", which provides municipal waste services in Tomdi, Kyzyltepa and Uchquduq districts, as well as Zarafshan City. Toza Hudud should therefore be considered the key entity for the collection, transport and disposal of domestic-type municipal waste generated by the Project during construction and operation. Prior to

the start of construction, the Project should obtain written confirmation from Toza Hudud and the relevant local authorities regarding the nearest approved municipal waste disposal facility, accepted waste types, collection arrangements, disposal requirements and any applicable contractual or permitting procedures.

For the Project, non-hazardous municipal waste and construction waste should be transferred only to licensed waste contractors and approved receiving facilities. Prior to construction, the Project should confirm the nearest active municipal landfill or transfer point serving Zarafshan City and Tomdi District, including its coordinates, operator, permit status, accepted waste streams and capacity. Confirmation should be sought from Zarafshan City Khokimiyat, Tomdi District Khokimiyat, the regional Ministry of Ecology office, Toza Hudud, and, where relevant, NMMC.

Wastewater Treatment Plants

Based on information obtained from the relevant wastewater entity, no wastewater facility runs through or is immediately adjacent to the BESS site. The nearest identified wastewater facility is located near Hydrometallurgical Plant No. 7 (HMP-7) of the Central Mining Administration of NMMC JSC, in the Besopan Area, Zarafshan, Navoiy Region, 210300, Uzbekistan. The facility is reported to be located around 3 km from the Project site and is understood to be associated with the wastewater infrastructure serving HMP-7 and the wider NMMC industrial area. A wastewater pipeline is reported to run through the area near the facility. The facility is reported to operate according to international standards.

Wastewater infrastructure in the wider Project area is primarily associated with the Zarafshan urban and industrial system. The nearest identified wastewater facility to the Project site is located near Hydrometallurgical Plant No. 7 (HMP-7) of the Central Mining Administration of NMMC. The facility is located around 3 km west of the Project site.

A municipal wastewater treatment plant is also located in Zarafshan City, around 27 km west-northwest of the Project site. This facility forms part of the municipal wastewater infrastructure serving Zarafshan City. However, in July 2025, the Ministry of Economy and Finance announced that the concept for a public-private partnership project for the reconstruction and modernisation of the Zarafshan City Wastewater Treatment Plant had been approved by JSC Uzsuvtaminot, confirming that the facility is planned for upgrade and continued operation as part of the city's wastewater management system. The Zarafshan City Wastewater Treatment Plant is operated by JSC "Navoiy Suv Ta'minoti", the regional water and wastewater utility.

For the Project, wastewater disposal arrangements should be confirmed through formal coordination between the Developer, NMMC JSC / Central Mining Administration and JSC "Navoiy Suv Ta'minoti".

Hazardous Waste Landfill

There are no hazardous waste landfills in Uzbekistan. In general, disposal depends on the type of hazardous waste generated and for each type there are government authorized specialized companies that collect, process, recycle and/or manage such waste streams.

The key hazardous wastes expected to be generated from the Project are summarized below along with the key disposal method/entity for each.

Table 25: Disposal Methods for Hazardous Wastes

Hazardous / Solid	Containers	Plastic containers should be recycled by specialized companies involved in the production of pellets while metal containers can be sold for reuse or recycling at Uzmetkombinat.
	Paints / paint pots	Paints are handed over to specialized companies for recycling.

	Used spill kits and contaminated soils	This waste should be disposed of by a specialized company involved in contaminated kits and soils. An example of such a company would be «Ecotibbiyot» or any company specializing in recycling and disposal of medical waste.
	Clinical	This waste should be disposed of by a specialized company involved in clinical waste. An example of such as company would be «Ecotibbiyot» or any Company specializing in recycle and disposal of medical waste.
	Batteries	Batteries are recycled by Uzvtortsvetmet
	Fluorescent tubes / bulbs	Should be passed for demercurization to a specialized company
Hazardous / Liquid	Spent /excess lube oil	Oily waste can be processed with any specialized company
	Spent /excess hydraulic fluid	Oily waste can be processed with any specialized company
	Spent / excess solvents	This waste should be disposed of by a specialized company involved in solvents. An example of such as company would be «Ecotibbiyot» or any company specializing in recycling and disposal of medical waste.
	Acids / alkalis solutions	This waste should be disposed of by a specialized company involved in acids and alkalis solutions. An example of such a company would be «Ecotibbiyot».
	Paints	This waste should be disposed of by a specialized company involved in paints waste. An example of such a company would be «Ecotibbiyot».
	Discarded chemicals	This waste should be disposed of by a specialized company involved in chemicals. An example of such a company would be «Ecotibbiyot».

14.1.3 Water Resources

It is important to note that the section below is based on secondary data available through a desktop review of water supply and demand within the Republic of Uzbekistan, and more broadly for the region surrounding the Project near Zarafshan City, Tomdi District, Navoiy Region, in the vicinity of Muruntau.

In addition, as noted in Section 14.2.3, the Project's water requirements are estimated at approximately 62 m³/day during the construction phase and 2 – 3 m³/day during the operation phase, which will be met through water delivered to the site by water trucks. The EPC Contractor will be required to confirm the specific water source during the construction phase and ensure that water is sourced from legally approved suppliers.

Water Supply

Water supply in Uzbekistan is heavily dependent on both external and internal sources. According to the "Quantity and Quality of Water for 2020" report by the State Committee on Statistics (CSO, 2021) and updated national data (2023–2025), Uzbekistan's annual water withdrawal averages 51–53 billion m³, approximately 80% of which originates from transboundary rivers such as the Amu Darya, Syr Darya, and Zarafshan. Internal renewable resources include around 0.5 billion m³ of usable groundwater and 1.6 billion m³ of reused drainage and collector water.

In addition, FAO AQUASTAT data for 2022 reports that total actual renewable water resources of 48.87 km³/year, of which only 16.34 km³/year is generated internally and 32.53 km³/year originates externally (a dependency ratio of approximately 80%) alongside total freshwater withdrawal of 44.5 km³, comprising 42.3 km³ from surface water and 0.6 km³ from groundwater (FAO AQUASTAT, 2022). Uzbekistan's water-withdrawal-to-availability ratio (Sustainable Development Goal (SDG) 6.4.2) at approximately 123% in

2022. This indicator measures total freshwater withdrawn each year as a proportion of the country's renewable water resources, after setting aside the water needed to sustain rivers, wetlands and other ecosystems; a value above 100% means the country is withdrawing more water annually than is being renewed, which is only possible because of Uzbekistan's heavy reliance on transboundary river inflows and reused drainage water rather than on a self-sufficient, sustainable domestic supply.

Navoiy Region, within which the Project is located, lies largely within the Kyzylkum Desert and, unlike the Tashkent Region, is not served by any perennial river within its central and northern districts. Navoiy's limited irrigated agricultural areas are concentrated in the south along the lower Zarafshan River; Tomdi District and the wider Muruntau area, by contrast, have no local surface water source. Navoiy Region is consequently one of the most water-constrained regions of Uzbekistan, and approximately 90% of its territory is considered potentially arable only if a source of irrigation water could be secured.

Zarafshan City and the associated Muruntau mining complex, operated by NMMC, are supplied via a dedicated pipeline of approximately 220–250 km drawing water from the Amu Darya River, originally constructed because no adequate local surface or groundwater source exists in the area. Groundwater in the wider Tomdi District occurs within the East Kyzylkum artesian basin at variable depth and is frequently saline (commonly 1–3 g/L, locally up to 6–7 g/L), often exceeding the national drinking water standard (O'zDSt 950:2011) without treatment. Access to reliable, treated water supply is uneven among rural settlements in Tomdi District: it is recorded that New Tamdy and Tamdybulak have established piped tap-water supply, while smaller settlements such as Qinir transport drinking water from Tamdybulak, and Rohat ovuli has no tap-water source at all and relies on unfiltered water drawn from the Amu Darya. This pattern illustrates the general scarcity and unevenness of local water resources across the district.

To improve water-use efficiency at the national level, the Government of Uzbekistan adopted the Water Sector Development Concept for 2020–2030 (Presidential Decree No. UP-6024, 2020) and the subsequent Water Resources Management and Irrigation Sector Development Program for 2025–2028, targeting reduced network losses, modern metering, and expanded digital monitoring across river basins. The Asian Development Bank has also directly supported rural water supply and sanitation improvements in Navoiy Region, through the Kashkadarya and Navoi Rural Water Supply and Sanitation Sector Project (ADB, 2005–2015). The World Bank has separately supported irrigation modernisation projects in Uzbekistan, though its most recent financing in this area (2025) is focused on the Republic of Karakalpakstan and the Bukhara, Kashkadarya, Namangan, and Surkhandarya regions rather than Navoiy Region specifically (World Bank, 2025).

Water Demand

Uzbekistan remains one of the world's most water-intensive economies relative to its renewable resource base. Based on current statistics from the State Committee of Statistics (CSO, 2021) and the Central Asia Water Yearbook (CAWater-info, 2021), the breakdown of national water use is approximately:

Sector	Share of Total Water Use (%)
Agriculture	90 - 91%
Industry	1.5 – 2%
Municipal / Domestic	4 – 5 %
Other (utilities, fisheries)	<1%

Water demand in Uzbekistan is largely dominated by the agricultural sector, which accounts for 90–91% of total withdrawals. Industry, municipal, and other sectors together represent roughly 9–10%, highlighting that, at the national scale, irrigated agriculture is by far the dominant pressure on water resources.

Within Navoiy Region, however, the structure of water demand differs markedly from the national pattern, because of the region's desert setting and its concentration of mining and metallurgical activity. Industrial and municipal demand are more locally relevant than irrigation: NMMC's Muruntau Gold Mine and processing operations and Zarafshan City's municipal supply represent the principal water users in the Project's immediate vicinity, both drawing on the imported Amu Darya supply described above. NMMC has publicly stated that water is a strategically important resource for its operations given the high level of water stress in the region, and has committed to increasing the share of recycled water used in production to 40%, which the company states would conserve approximately 36 million m^3 of fresh water per year. This confirms that industrial water demand and water-use efficiency are material considerations for the Zarafshan–Muruntau area.

14.1.4 Traffic and Transport

Consultations were undertaken with the Main Directorate of Roads of Navoiy Region under the Ministry of Transport to obtain information regarding transportation routes, road infrastructure and permitting requirements relevant to the Project.

The average traffic intensity on the A379 Navoiy–Uchquduq highway, which runs adjacent to the Project site, is approximately 10,000-15,000 vehicles per day. The road section contains a total of eight structures, comprising seven bridges and one overpass. The average permissible axle load is 10 tonnes per axle.

In terms of site planning and access, it was noted that, in accordance with Clause 18 of Sh.N.Q 2.05.02-23, the proposed facility shall be designed such that the distance from the road centreline to the construction boundary of buildings and structures along public international and national highways is not less than 57.5 m on either side of the road.

If access to the Project site require the construction of new roads, including roads intersecting with or adjoining public roads, these may be developed by the Project contractor provided that they comply with the requirements of Chapter 7, Clauses 150 and 152, and other applicable provisions of Sh.N.Q 2.05.02-23. Such roads must be equipped with appropriate traffic signage and implemented based on approved design and cost-estimate documentation.

Additional requirements relating to the transportation of oversized and heavy cargo were also identified. In accordance with the Rules on Ensuring Traffic Safety during the Transportation of Oversized and Heavy Cargo by Road Transport, approved under Resolution No. 342 of the Cabinet of Ministers of Uzbekistan dated 26 December 2011, vehicles exceeding the established weight and dimensional limits for public roads are classified as oversized and/or overweight. Transportation of such cargo is permitted only under a special permit and only where the cargo cannot reasonably be divided into smaller loads or transported using alternative vehicles. Where a special permit is required, applications must be submitted through the official electronic licensing system in accordance with Resolution No. 86 of the Cabinet of Ministers dated 22 February 2022.

14.1.5 Other

Water Pipeline

During the site survey undertaken by the E&S Team, and as discussed in Section 9.1.3 above, a water pipeline together with a manhole containing valves was observed approximately 100 m northwest of the

BESS area of the Project site. Consultations were subsequently undertaken with the pipeline owner (the Muruntau 500/200 kV Substation) and with the contractor responsible for the pipeline's construction, in order to obtain further information on the pipeline running adjacent to the Project site, as described in Section 6.3.

The Substation confirmed that the pipeline crossing the Project site is operational and belongs to the Muruntau 500/200 kV Substation, where it currently functions as an active technical water supply line serving the substation. The Substation further confirmed that no additional pipelines are present within the Project site.

Regarding buffer or setback requirements associated with the pipeline, Substation technical staff advised that they were unable to provide this information and recommended that the Design Institute responsible for the pipeline's original design, or the third-party contractor involved in its construction, be consulted directly.

The E&S Team accordingly contacted the third-party contractor responsible for constructing the pipeline to request information on its alignment, technical specifications, and any applicable buffer requirements. The contractor referred the E&S Team to the Design Institute that had prepared the original design.

Following consultation with the Design Institute, it was confirmed that no as-built survey has been carried out for the pipeline. As a result, the pipeline's actual post-construction coordinates, alignment, and dimensions could not be verified against the original design documentation.

None of the parties consulted were able to provide defined buffer or setback requirements for the pipeline. In the absence of confirmed as-built data and defined protection requirements, the pipeline's precise location, technical characteristics, and applicable protection zone remain unverified.

However, according to orthophoto graphic imagery obtained by the Developer, the approximate alignment of the water pipeline has been mapped, as shown in Figure 38 below.

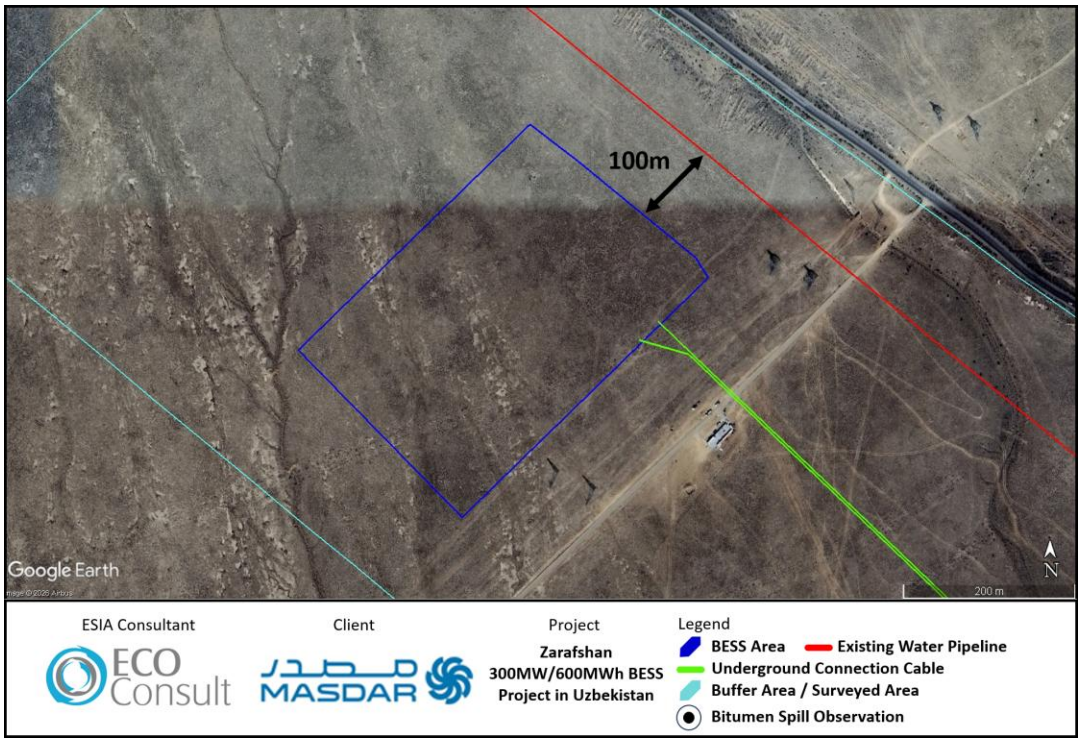


Figure 38: Existing Water Pipeline in Relation to the Project Site

Telecommunication

Consultations were undertaken with the Ministry of Digital Technologies of the Republic of Uzbekistan to obtain information regarding telecommunication infrastructure and permitting requirements relevant for the Project as presented in Section 6.3.

It was confirmed that telecommunications, television, radio and internet services are managed under the Ministry of Digital Technologies. The ministry oversees subordinate organizations including Uzbektelecom, The Center of a Radio Communication, Broadcasting and Television LLC and, The Control Inspection in the Field of Information and Telecommunications.

Within the Project vicinity, existing optical fiber communication cables belonging to the Western Regional Branch of Uzbektelecom JSC and IST Telecom LLC are present, however, outside the Project boundary. Due to security concerns the exact locations cannot be disclosed, however, a specialist will be present once construction starts to provide on-site guidance.

Regarding construction activities within the Project area, Uzbektelecom needs to be notified prior to starting the construction work, and Project design documentation should be prepared based on the issued technical conditions and coordinated with the entity. Additionally, all activities undertaken in proximity to existing telecommunications infrastructure should be carried out under their supervision and telecommunication infrastructure protection zones must be respected during all construction and excavation activities. A 2 m protection corridor on each side of the underground communication cables and overhead communication lines must be maintained, and all design and construction activities should be carried out outside the communication line protection zone where possible.

In addition, construction and excavation activities within the Project area are required to comply with the Rules for the Protection of Telecommunication Lines and Facilities, approved under Cabinet of Ministers Resolution No. 210 dated 15 May 1998, including adherence to all applicable telecommunications protection zoner requirements. In the case that relocation of communication lines is required, a formal written request must be submitted to Uzbektelecom in accordance with national legislation and relocation costs must be fully covered by the Project as the initiating party. Any damage to telecommunications infrastructure resulting from Project activities must be fully compensated by the contractor or organization undertaking the works.

OHTL

Two OHTL lines run adjacent to the Project site, at approximate distances of 37 m and 80 m, respectively. The map below shows the locations of these lines relative to the Project site.

Figure 39: Map of Existing OHTL lines adjacent to the Project Site

14.2 Assessment of Potential Impacts

This section identifies and assesses the anticipated impacts from the Project activities on infrastructure and utilities during the various phases to include construction and operation phase. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

14.2.1 Potential Impacts on Waste Utilities during the Construction and Operation Phases

The Project is expected to generate the following waste streams during the construction and operation phases, and which are provided in detail in the table that follows.

- Wastewater during construction and operation includes black water (sewage water from toilets and sanitation facilities) and grey water (from sinks, showers, etc.). Wastewater generated during operation is expected to be minimal and insignificant. Wastewater will be stored onsite though enclosed collection tanks and collected by licensed tankers from the Project to the closest WWTP.
- Solid waste during construction and operation will include construction waste (mainly during construction to include dirt, rocks, debris, etc.) as well as general municipal waste (such as food, paper, glass, bottles, plastic, etc.). Solid waste quantities generated are not expected to be significant and are likely to be easily handled by closest approved solid waste disposal facility.

- Hazardous waste during construction and operation from the Project activities will include routine waste generated from such activities to include spent oil, lubricants, paint cans, solvents, etc. Hazardous waste quantities generated are not expected to be significant and are likely to be easily handled by closest authorized facility.

Construction Phase			Operation Phase		
Type	Negative	N/A	Type	Negative	N/A
Duration	Medium-term	Limited to construction phase which is 18 months	Duration	Long-Term	Throughout entire operational period
Magnitude	Medium	Given waste quantities above	Magnitude	Low	Given waste quantities during operation are minimal
Reversibility	Reversible	N/A	Reversibility	Reversible	N/A
Sensitivity	Low	Given ability of entities to handle such waste streams	Sensitivity	Medium	Given waste quantities during operation are minimal
Likelihood	High	Given nature of activities expected	Likelihood	High	Given nature of activities expected
Frequency	Periodic	Expected throughout entire construction activities	Frequency	Periodic	Expected throughout entire operational activities
Timing	Not relevant	Applicable throughout entire construction activities	Timing	Not relevant	Applicable throughout entire operational activities
Extent	High	Given impact is at final disposal facilities	Extent	High	Given impact is at final disposal facilities
Significance	**Minor**	N/A	**Significance**	**Minor**	N/A

Following the implementation of the additional requirements highlighted throughout this section, the residual significance can be reduced to not significant.

Additional Requirements

The following identifies the additional requirements to be applied by the EPC Contractor during the construction phase and Project Operator during the operation phase respectively and which include:

- A Waste Management Plan shall be developed for the construction and operations phases - including, but not limited to: waste reduction strategies, recycling and reuse, and appropriate disposal methods, in line with the project standards.
- Coordinate with the State Unitary Enterprise and obtain list of authorized contractors for collection of wastewaters from the site to closest authorized wastewater treatment plant.
- Coordinate with State Unitary Enterprise for the collection of solid waste from the site to the closest authorized landfill (or obtain list of authorized private contractors).
- Coordinate with State Unitary Enterprise to obtain list of authorized contractors for collection of hazardous waste from the site to the closest approved facility for final disposal.

14.2.2 Potential Impacts from Battery Waste Management during Operation and End of Life Disposal

Of particular importance is the disposal of the BESS at the end of their lifetime or in case of defect during the operational phase. During the decommissioning phase of the Project, and as a worst-case scenario disposal of the BESS will take place. BESS is classified as hazardous waste/E-waste.

As a worst-case scenario, the BESS will be disposed of at a landfill and no recycling will take place. However, the prospects of BESS disposal and management are not clear at this stage, taking into account the Project timeline of 15 years.

Decommissioning Phase		
Type	Negative	Prospects of BESS disposal and management is not clear at this stage, taking into account the Project timeline of 15 years.
Duration	Short-term	
Magnitude	Low	
Reversibility	Reversible	
Sensitivity	Low	
Likelihood	High	
Frequency	Rare	
Timing	Not relevant	
Extent	Low	
Significance	**Not Significant**	

Additional Requirements

Where a battery pack is identified as damaged or defective due to a quality issue, the Original Equipment Manufacturer (OEM) will arrange for the affected battery pack to be replaced with a new unit. The removed battery pack will be transferred from the Project site to a central warehouse designated by the OEM, where it will be securely isolated and retained for further technical assessment and appropriate handling. The OEM maintains a central warehouse with the necessary spare parts, including battery packs, to support the Project throughout its operation. Therefore, damaged or defective battery packs subject to the OEM replacement responsibility will not be retained on site and will not be treated as Project waste.

Before commencement of any decommissioning activities and/or in the event of damage or defects to the batteries which are not subject to the OEM replacement responsibility, a Disposal Plan for the BESS should be prepared by the Project Operator in compliance with local regulations.

The plan should be submitted one (1) year prior to decommissioning of BESS components or one (1) month prior to disposal in case of damage or defect.

The plan should consider the following options and compare the costs/benefits of each:

- Evaluate recycling options for E-waste, including the identification of appropriate licensed waste processing facilities for this type of waste within the country, if available.
- In addition, Project Operator should specifically state which materials will be recycled or disposed locally. If exported internationally, Project Operator should specify which materials will be exported and to which location.
- The decommissioning shall be based on safe handling, transport, recycling, recovery, and disposal of battery system components and associated materials, taking into account applicable regulatory requirements and good international industry practice including:

- Assessment of the condition of the Battery System and any requirements for its safe handling and transport;
- Safe packaging, storage, and transportation of battery system components to approved recycling, recovery, or disposal facilities;
- Recycling, recovery, and disposal of battery system components using appropriately licensed facilities and in accordance with applicable regulatory requirements and good international industry practice.

14.2.3 Potential Impacts on Water Resources during the Construction and Operation Phase

It is expected that the Project throughout the construction and operation phase will require water for potable usage (drinking, showering, etc.) and non-potable usage (e.g. cleaning of machinery and vehicles).

The potable water requirements for an average between 300 - 400workers onsite as a worst case scenario are not expected to exceed 50 liters per capita per day for a duration of 18 months. Thus, the daily water consumption at peak is likely to be around 16,000 liters per day – or 16 m^3/day. As a worst-case scenario, taking into account the full construction period (18 months), this is equivalent to an estimated total of 8,760 m^3.

It is important to note that the workforce figures used for the assessment of construction water demand represent a conservative peak-construction scenario. Actual workforce numbers will increase progressively during construction, reach a short-duration peak, and subsequently decrease during commissioning and demobilization. Therefore, the water demand estimates presented below represent a conservative upper-bound assessment and overestimate the average water consumption throughout the construction period.

In addition, water for non-potable purposes, primarily used for dust suppression, and cleaning of machinery and vehicles, will depend on site conditions, weather, and activity intensity. Water for dust control is estimated at 10 m^3/day, sanitary use at 16 m^3/day and construction related needs at 20 m^3/day, resulting in a total non-potable water demand of 46 m^3/day.

Thus, total water requirements during the construction phase are likely to be around 62 m^3/ day. The water requirements throughout the construction phase will be required temporarily (for construction period only) and are considered minimal and not significant.

In addition, water will be required during the operation phase, primarily for drinking and personal use by the onsite staff, estimated at a maximum of 15 personnel. Similar to the construction phase, the potable water demand is not expected to exceed 50 liters per capita per day, resulting in a daily consumption of approximately 1,000 liters, or 1 m^3/ day – at a worst case 2 – 3 m^3/day.

Therefore, the total maximum water consumption during the operation phase is expected to be approximately 3 m^3/day, equivalent to about 1095 m^3/year. This volume is considered minimal and will not pose any significant pressure on local water resources.

Water supply to the Project site will be arranged through scheduled tanker deliveries. The EPC Contractor will confirm the water source with local authorities prior to construction. Water for the Project shall be sourced only from authorized water suppliers, and it is prohibited to source water from third-party facilities to include the Muruntau Gold Mining Facility or its allied facilities.

The table below provides an overall summary of the impact on water resources during the construction phase and operation phase. The overall impact is considered to be of minor significance during the construction phase and the operation phase.

Construction Phase			**Operation Phase**		
Type	Negative		Type	Negative	
Duration	Short-term	Limited to construction which is 18 months	Duration	Long-term	During entire operation period
Magnitude	Low	Amounts of water required is considered low level	Magnitude	Low	Amounts of water required is considered low level
Reversibility	Reversible		Reversibility	Reversible	
Sensitivity	Medium		Sensitivity	Medium	
Likelihood	Medium		Likelihood	Medium	
Frequency	Frequent	Due to continuous requirement for water supply	Frequency	Frequent	Due to continuous requirement for water supply
Extent	Low	Water will be supplied via water tucks which will not affect any other water sources	Extent	Low	Water will be supplied via water tucks which will not affect any other water sources
Significance	**Minor**		**Significance**	**Minor**	

Additional Requirements

The following identifies additional requirements to be applied by the EPC Contractor and Project Operator during the construction and operation phase respectively and which include:

- Document water consumption of the Project during construction (monthly) and during operation (annually).
- Develop a water management plan for the construction and operation phase. The plan should emphasize on water conservation and efficiency such as the following in particular:
  - Utilizing the dry-cleaning methods wherever applicable;
  - Utilizing water saving fittings where applicable (taps, urinals, toilets, trigger guns, etc.);
  - Consider utilizing treated wastewater/grey water for dust suppression and any irrigation requirements as applicable;
  - Ensure that washing/cleaning activities (e.g. vehicle and equipment washing, toilets flushing/cleaning, etc.) are carried out using appropriate methods requiring low water consumption or dry (water-less) cleaning techniques where possible;
  - Awareness about resource efficiency, in particular concerning water use, shall be reinforced to all workers through signage and posters as appropriate; and
  - Undertake weekly inspections for potable and non-potable water storage tanks and water supply connections to ensure there are no leaks. If any are located, they will be fixed immediately.
- Water for the Project shall be sourced only from authorized water suppliers. It is prohibited to source water from third-party facilities to include the Muruntau Gold Mining Facility or its allied facilities.

14.2.4 Potential Impacts on Traffic and Transportation during Construction Phase

1. Impact Assessment on Traffic and Road Capacity

The principal sources of traffic generated by Project construction are listed as follows:

- ***Delivery of Equipment, Machinery and Materials:*** this will include vehicles that will be utilized for the delivery of equipment, machinery and materials to the Project site and that are required for the construction phase. This will include but not limited to: (i) haulage container trucks (to supply BESS components); (ii) site machinery required (e.g. excavators, rollers, etc.). Such vehicles will be using key national highways and roads from ports and other locations where such materials are sourced.
- As noted earlier, shipment of the BESS components (i.e. containers) by road from the nearest port to the Project site. This will be through hauling trucks. Each container (i.e. each PCS and BESS) will require 1 vehicle and 2 trips to transport. It will be a heavy load but inside a standard 20-foot shipping container for the BESS and 40-foot shipping container for the PCS. No more than 220 truck trips containers in total are expected to be required.
- As the EPC Contractor has not been assigned yet, no details are available at this stage on the number of vehicles required for delivery of material and equipment, routes, sources of materials, etc. but has been estimated below.
- Based on the above, the ***maximum at peak*** daily container delivery at peak is estimated at around 10 as noted within the table below (which is expected at peak months only).

Component	Total	Total Per day at Peak	Assumption
BESS	220	10	Assumed all transportation activities to be completed within 30 days
Site Machinery	TBD	~ 5	This will occur throughout entire construction period to include delivery of excavators, Tractor-Loader-Backhoes (TLBs), concrete mixers, concrete pumps, cranes, compaction rollers, and water trucks to and / from site.
Total at peak per day		15	

- ***Transport of project workers***: as discussed earlier, no details are available at this stage on accommodation facilities for workers. However, it is highly likely that there will be private vehicles and bus transportation for Project staff and local workers**. This is likely to include a total of 10 vehicles per day (assuming 3 buses with a bus capacity of 50 and 10 private vehicles)**
- ***Service Contractors***: contractors assigned to provide regular services for the Project to include water tankers, wastewater haulers, hazardous waste haulers, food/catering suppliers, that will be through trucks and large vans. **This is likely to include 1 per day as a maximum.**
- ***Other***: this will include other minor traffic and transportation requirements such as: (i) construction monitoring visits by entities (e.g. lenders, auditors, etc.); (ii) emergency response vehicles in case of an incident onsite (e.g. fire trucks, ambulance, etc.); (iii) other visitors to the site. Those will not generate additional traffic to the site and can be considered negligible.

Summary of Peak Vehicle Numbers

The table below provides a summary of the peak maximum daily number of vehicles that could access the site during a single day. *However, it is important to note that the figure is based on peak numbers, assuming all peak traffic requirements occur on the same day*. In reality, actual peak numbers are likely to be lower given that peak number of workers and peak delivery of materials is not expected to be on the same day or week.

Table 26: Summary of Peak Vehicles

Traffic Source	Maximum Number of Vehicles
Delivery Vehicles	15
Buses	3
Private vehicles	10
Service Contractors	1
Total per day at peak	29

Nevertheless, the Project's traffic requirements are expected to utilize as a worst-case scenario throughout all traffic routes to be utilized 1-lane highways which typically have a capacity of 2,000 equivalent vehicles per hour (as opposed to 2-lane highways which have a capacity of 3,500 equivalent vehicles per hour).

The table below presents the traffic requirement for the Project as established earlier compared to the 1-lane highway capacity. As noted, the entire Project traffic requirement will result in an additional traffic of less than 0.5%.

Table 27: Project and Existing Traffic

Traffic Source from Project	Maximum Number of Vehicles per day	Equivalent Vehicles*	Equivalent Vehicles per hour	Highway Capacity
Delivery Vehicles	15	75	4	2,000
Buses	3	3		
Private vehicles	10	10		
Service Contractors	1	3		
Total	**29**	**91**		

Assuming half/single/double trucks equal to 2/3/5 equivalent vehicles respectively

Construction Phase		
Type	Negative	
Duration	Medium-term	Limited to construction period only which is 18 months
Magnitude	Medium	Given there will be some traffic generated
Reversibility	Reversible	Baseline restored after completion of construction works
Sensitivity	Low	Given less than 1% increase only in traffic
Likelihood	High	Limited to construction period only
Frequency	Frequent	Expected to occur continuously during construction phase
Timing	Not relevant	
Extent	Medium	Impacts could have an affect up to 5km radius
Significance	**Minor**	

2. Impact Assessment on Health and Safety

Health and safety in relation to traffic and transport is mainly related to potential for accidents occurring on roads and highways which in turn could affect the health and safety of users on the roads, workers and others. Road accidents can derive from a number of causes, to include but not limited to the following:

- Violating traffic rules such as speed limits.
- Bad driving behavior such as overtakes, sudden lane changes, misuse of direction indicators, low level of attention, awareness condition of the driver and others.
- Road characteristics and conditions. There could be areas within highways utilized that have sections that are in poor condition and require repairs repair such as potholes and uneven surfaces which give rise to 'accident hotspots.
- Vehicle maintenance (brakes, suspensions, etc.).
- Weather conditions include in particular: (i) sand and salt storms, (ii) windy conditions, (iii) extreme hot and cold weather, and (iv) conditions and low/high temperatures.
- Project components are mainly related to abnormal loads (if applicable) which if inappropriately managed could entail health and safety risks on users on the roads.

Construction Phase		
Type	Negative	In extreme cases could entail permanent impacts (e.g. permanent disability) however such impacts are controlled through implementation of general best practice.
Duration	Medium term	
Magnitude	Low	
Reversibility	Reversible	
Sensitivity	High	
Likelihood	High	
Frequency	Frequent	
Timing	Not relevant	
Extent	Low	
Significance	**Minor**	

Mitigation Measures

The EPC Contractor is required to develop a Traffic and Transport Plan before commencement of any transportation activities to ensure that the transportation process is properly and adequately managed. The Plan must take into account the following:

- Ensure that the final Project design complies with all applicable national requirements, permit conditions, and infrastructure setback requirements relevant to roads and transportation infrastructure. Any approvals, permits, or consultations required by the competent authorities in relation to the Project's proximity to existing roads shall be obtained prior to construction, as applicable .The plan must adhere to the relevant local legislation related to traffic and transport as discussed under the regulatory review section.
- Obtain transportation permit for heavy and abnormal load if applicable.
- Develop the Traffic and Transport Management Plan based on the final Project logistics requirements, including transportation routes, vehicle types, traffic volumes, load requirements, delivery schedules, and any required permits or approvals.

- Confirm the transportation routes to be used for the delivery of Project personnel, equipment, materials, and oversized or heavy loads, taking into account road capacity, safety considerations, applicable restrictions, and any required approvals or permits
- Identification of types of vehicles to be utilized.
- Define and implement procedures for onsite management of traffic. This could include but not limited to: (i) optimization of internal traffic layout so that delivery and other vehicles will be able to access site easily; (ii) identification of requirements for controlling access to the site (e.g. security checkpoint, registration, etc.); (iii) providing appropriate lighting for roads and pedestrian walk and ensure they are segregated; (iv) utilization of appropriate and sufficient traffic signs onsite (e.g. speed limits); (v) barricading of open trenches and excavated pits; (vi) utilization of banksmen and flaggers and other.
- Define and implement procedures for the management of transportation activities during adverse weather conditions, including criteria for restricting, modifying, or suspending activities where necessary to ensure the safety of personnel, vehicles, loads, and other road users.
- Define and implement requirements applicable to all haulage contractors and suppliers, including licensing requirements, driver qualifications, driving instructions, code of conduct requirements, speed limits, incident management procedures, monitoring, and reporting requirements.
- Define and implement a Driver Code of Conduct applicable to all personnel involved in Project-related transportation activities.
- Define and implement site-specific speed limits, traffic control measures, and traffic signage requirements for all Project areas.
- Define and implement procedures for the management, reporting, investigation, and corrective action of on-site and off-site traffic incidents and accidents.
- Incorporate the traffic management requirements and procedures into induction training materials and refresher Toolbox Talks (TBTs).
- Define Key Performance Indicators (KPIs) to monitor and evaluate the implementation and effectiveness of the Traffic and Transport Management Plan.
- Define roles and responsibilities for the implementation of the Traffic and Transport Management Plan.

Ensure that all vehicles used for Project activities are subject to a regular inspection, maintenance, and servicing programme in accordance with the applicable legal requirements. Following the implementation of these mitigation measures, the significance of the residual impact can be reduced to not significant.

Monitoring and Reporting Requirements

The Traffic and Transport Management Plan (TTMP) shall define the monitoring, inspection, reporting, and record-keeping requirements applicable to Project transportation activities including:

- Number of approved drivers who have received the required training and signed the applicable Driver Code of Conduct.
- Number of approved vehicles authorised for use on the Project.
- Number of vehicle inspections undertaken for vehicles operating within the Project site.

- Number of vehicle inspections undertaken for haulage and logistics provider vehicles, including inspections undertaken at ports, factories, staging areas, or other designated locations, as applicable.
- Number of abnormal load permits obtained where required.
- Number of traffic violations, non-compliances, incidents, and accidents related to Project transportation activities.
- Number of traffic-related complaints received and closed.
- Records of corrective and preventive actions implemented in response to traffic incidents, accidents, complaints, inspections, or non-compliances.

15. SOCIO-ECONOMICS

This section provides an assessment of baseline conditions within the Project site and surroundings in relation to socio-economics. The section then presents an assessment of potential impacts during the various Project phases. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

15.1 Assessment of Baseline Conditions

15.1.1 Methodology for Assessment

Socio-economic data was obtained from Zarafshan Khokimiyat and Uzbekistan's National Statistics Committee and included; (i) demographic dynamics, (ii) population characteristics; (iv) livelihood patterns; (v) employment status; and (vi) unemployment.

The baseline is based on official 2026 mahalla-level socioeconomic data for Muruntau Mahalla, supplemented by information gathered through Project consultations and field activities.

15.1.2 Results and Outcomes

Introduction

This section presents the socioeconomic baseline conditions for Muruntau Mahalla, located within Zarafshan City, Navoiy Region. Muruntau Mahalla is considered the main community receptor for the Project due to its location within the wider Project area and its relevance for stakeholder engagement, local employment, community health and safety, and grievance management.

Administrative and Governance Context

Muruntau Mahalla is administered through the local mahalla governance structure, which includes the mahalla chairperson, assistant to the Khokim, women's affairs representative, youth leader, prevention inspector, social worker and tax inspector. These representatives form the local "Mahalla Seven" structure and are responsible for household-level coordination, employment support, social assistance, youth and women's affairs, tax matters and community safety.

The mahalla was established in 1994 and covers an area of around 76.5 hectares. The main local livelihood and economic activities are associated with livestock, poultry and services. The mahalla includes six main streets, including Shodlik, Mehnatkash, Obodyurt, Tadbirkorlar, Ravnaq and Tinchlik, in addition to smaller internal streets.

Population and Household Profile

Muruntau Mahalla has a total population of 3,414 people, including 1,714 men and 1,700 women, indicating a broadly balanced gender composition. The mahalla includes 938 households and 1,012 families, with an average household size of around 3.6 persons. Youth represent a significant proportion of the population, with 932 young people recorded in the mahalla.

Table 28: Population and Households

Indicator	Value
Total population	3,414
Men	1,714
Women	1,700
Youth	932
Households	938
Families	1,012

The community is ethnically diverse, with Uzbeks and Kazakhs forming the largest population groups. Smaller groups include Russians, Karakalpaks, Tatars, Tajiks, Turkmen, Kyrgyz and other minorities.

The general fertility rate of Navoiy Region is 21.9, which is slightly under the national average of 23.2. In both the country as well as the region, the fertility rate is higher for boys than for girls.

Mortality rates in Zarafshan City (2.7) are lower than in Navoiy Region (4.3) and in Uzbekistan (4.7) and has shown a declining trend since 2010.

Overall, the demographic indicators suggest that Navoiy Region is characterized by slightly lower fertility and mortality rates than the national average.

Table 29: Demographics

Area	Fertility Rate		Total Fertility Rate	Mortality Rate		Total Mortality Rate
	Boys	Girls		Men	Women	
Muruntau Community	-	-	-	-	-	-
Zarafshan City	-	-	22.4	-	-	2.7
Navoiy Region	22.1	21.6	21.9	-	3.9	4.3
Uzbekistan	23.8	22.6	23.2	-	4.2	4.7

Livelihoods, Employment and Local Economy

The local economy is mainly based on small-scale services, retail, livestock and poultry-related activities. The mahalla includes small commercial and service establishments such as shops, catering facilities, hairdressing services and other household-level or small enterprise activities.

Employment and job creation are key local priorities. In 2026, 22 residents are included in the mahalla employment support programme. This includes 15 currently unemployed residents and 7 residents expected to enter the labour market, including graduates and returning labour migrants. Planned employment support includes placement in local enterprises, service work, cleaning, cooking support, driving, blacksmithing and other practical job opportunities.

Labour migration is also part of the local socioeconomic context. Several residents are working outside Uzbekistan, mainly in countries such as Russia, Kazakhstan, and Türkiye. Returning migrants are included in the mahalla employment support planning, which indicates that reintegration into local employment is an identified community need.

The unemployment rate in Muruntau community is approximately 0.9%, which is significantly lower than the national rate of 5.5% and the regional rate of 4.9%. This is likely attributable to the significant employment opportunities provided by the nearby Muruntau Gold Mine facilities and activities. Gender-disaggregated data indicate that unemployment in Navoiy region is higher among women (6.7%) than men (3.5%), a trend that is also observed at the national level, where unemployment rates are 7.4% for women

and 4.1% for men.

Zarafshan City has an economically active population of 45,900 persons, and Navoiy region of 493,400.

In terms of livelihoods, a significant proportion of the Muruntau Community is associated with employment at the Muruntau Gold Mine. In 2022, more than 2,000 residents were working at the mine.

Table 30: Unemployment Rate

Area	Unemployment Rate		Total Unemployment Rate	Economically Active Population (1,000 persons)
	Men	Women		
Muruntau Community	-	-	0.9	-
Zarafshan City	-	-	-	45.9
Navoiy Region	3.5	6.7	4.9	493.4
Uzbekistan	4.1	7.4	5.5	15,678.8

Social Conditions

The socioeconomic data for Muruntau Mahalla identifies a number of resident's social conditions. These include 448 pensioners, 45 families that have lost a breadwinner, 5 single elderly persons requiring care, 7 children under guardianship, and 62 persons with disabilities. Of the persons with disabilities, 8 are recorded as Group 1, 45 as Group 2 and 9 as Group 3.

The mahalla includes 2 families in the poverty register, with 7 family members recorded under this category. Local support measures include employment assistance, vocational training, targeted social support and household-level improvement measures.

Community safety and social support indicators include residents under preventive monitoring, people under probation, and persons who have returned from correctional institutions. These indicators show that the mahalla has existing social support and prevention needs, although these remain limited in scale compared to the total population.

Education

Muruntau Mahalla has one state preschool and two state schools. The document records 431 school students living in the mahalla, including 22 graduating students. No students were identified as having difficult behaviour or poor school attendance.

The presence of students and young people reinforces the importance of transparent local recruitment, skills development and communication on potential job opportunities, especially during the Project construction phase.

Healthcare and Community Facilities

Muruntau Mahalla has one primary healthcare facility. No hospital or private medical facility is recorded within the mahalla. Community facilities include education, cultural and recreational infrastructure, including a music and art school, sports facilities, a library and children's play areas.

The mahalla administrative building is recorded as being in good condition. However, it does not currently have a heating system or solar panels. Local development planning includes installation of solar panels on the mahalla building, which indicates an existing local interest in energy-related improvements.

Infrastructure and Public Services

Muruntau Mahalla has 12.6 km of internal roads, all recorded as asphalt roads. No repair requirements are identified for the local road network.

Electricity infrastructure includes 13 transformers, 134 electricity poles and associated distribution infrastructure. No major repair requirements are identified for the electricity network.

Drinking water supply is available through a centralised network. The mahalla has around 14.3 km of drinking water network, and all 938 households are connected to centralised drinking water supply.

Natural gas supply is not available to households. Many households rely on gas cylinders and coal, which indicates a household energy access sensitivity. This is relevant for understanding local community priorities and expectations in relation to energy infrastructure and development projects.

Infrastructure Indicator	Value
Internal asphalt roads	12.6 km
Transformers	13
Electricity poles	134
Drinking water network	14.3 km
Households connected to centralised drinking water	938

Community Development Priorities

Local development priorities include employment generation, poverty reduction, social support, community safety, infrastructure improvement and household-level upgrades. The “Yashil Makon” greening programme is planned in the mahalla, with around 2,000 seedlings to be planted across households and community areas.

Other local improvement measures include household repairs, yard improvements, external wall whitewashing, greening activities and community mobilisation through hashar. These measures indicate an active local governance structure and ongoing efforts to improve household conditions and the public environment.

Key Socioeconomic Sensitivities

The key socioeconomic sensitivities relevant to the Project include the following:

- Employment expectations: Employment is a clear local priority. The Project may generate expectations for direct and indirect job opportunities, particularly during construction.
- Youth and women’s employment: Youth represent a significant share of the population, and women are included in unemployment and local employment support categories. Recruitment processes should therefore be transparent, inclusive and accessible.
- Vulnerable households: Persons with disabilities, pensioners, single elderly persons, families that have lost a breadwinner, and poverty-register households may require tailored engagement and accessible grievance channels.
- Labour migration: The presence of labour migrants and returning migrants indicates a need for local employment and reintegration opportunities.

- Household energy access: The lack of household natural gas connection and reliance on gas cylinders and coal indicate an energy-related community sensitivity.
- Local governance capacity: The Mahalla Seven structure provides an important platform for engagement, information disclosure, grievance communication and identification of vulnerable households.

15.2 Assessment of Potential Impacts

This section identifies and assesses the anticipated impacts from the Project activities on socio-economics during the various phases to include construction and operation phase. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

15.2.1 Employment and Procurement Opportunities

Given the generic nature of the impacts on socio-economic development for both phases of the Project (construction and operation) those have been identified collectively throughout this section.

During the construction and operation phases, the Project is expected to create the following job opportunities:

- During the construction phase, workforce requirements will increase progressively as activities advance, reaching a peak workforce of approximately 300-400 personnel during the main construction period before reducing during commissioning and demobilization. The workforce is expected to comprise a combination of skilled, semi-skilled, and unskilled workers, including engineers, technicians, supervisors, surveyors, equipment operators, labourers, drivers, security personnel, and support staff.
- The Project is committed to maximizing local employment and procurement opportunities wherever suitably qualified personnel and services are available. It is anticipated that a substantial proportion of the construction workforce will be recruited from local and regional communities, creating employment opportunities and contributing to local economic development. Specialist personnel may be mobilized from elsewhere within Uzbekistan or internationally where specific technical expertise is required.
- A temporary workforce accommodation facility may be required for non-local construction workers and specialist personnel. Worker accommodation, where provided, will be developed and managed in accordance with applicable national legislation, lender requirements, and international good practice, including provisions related to worker welfare, health and safety, and living conditions.
- Construction workforce numbers and accommodation requirements may vary throughout the construction period depending on the final construction methodology, contractor mobilization strategy, and project schedule..
- Around 15 job positions during the operation phase for a duration of 15 years. This will include around 5 skilled job opportunities (such as engineers, technicians, administrative employees, etc.), 5 semi-skilled and 5 unskilled job opportunities (such as security personnel, drivers, etc.).

Taking the above into account, the Developer is aiming to hire local community members to the greatest extent possible throughout the construction and operation phase for skilled and unskilled jobs. The Developer is committed to adhering to transparent recruitment procedures which includes local community members.

However, the EPC Contractor and Project Operator have not been selected at this stage, and therefore there are no details available on the number of job opportunities targeted to local communities, type of jobs, duration, etc. In addition to the above, the local communities could also be engaged in procurements such as local contractors, local supply of equipment and machinery, cleaning services, etc.

Taking the above into account, the Developer is committed to ensuring that priority for job opportunities and procurement activities where relevant are targeted to the local communities.

The above could also entail other indirect positive benefits to the local community from increase in demand for local services, supplies, and businesses. This could include for example possible engagements for supplies and service providers (accommodation services, food, etc.). Such demands could improve the existing local economic activities and impact certain sectors, such as wholesale/retail trade.

Taking all of the above into account, this to some extent could contribute to enhancing the living environment for its inhabitants.

However, it is understood that the socio-economic development of the area is not hinged on a single project but rather on implementing collective and coordinated actions, including other development projects and investment within the area.

Nevertheless, proper planning and local community engagement from the start is crucial to understand issues and opportunities which in turn would enable the Project build true sustainable links which will bring maximum benefits to the local communities. Given the above, such impacts are anticipated to be *positive*.

However, it is important to note that there are potential for negative impacts in relation to employment and procurement from issues such as those identified below. Such issues could result in the creation of distrust and resentment between the local communities and the Developer, EPC Contractor and Project Operator. In extreme cases this could lead to other escalated events such as strikes, riots, blocking access roads to the Project site, or other incidents that are similar in nature.

- If local community engagement in relation to employment and procurement is not implemented properly, openly and in a transparent manner; or
- If expectations on number and amount of employment and procurement opportunities are not properly managed and addressed; or
- If procurement and employment is coming primarily from another region or abroad specifically for opportunities where local capacity is available.

Construction Phase			**Operation Phase**		
Type	Negative		Type	Negative	
Duration	Medium-term	Limited to construction which is 18 months	Duration	Long-term	During entire operation period
Magnitude	Medium	They could entail issues related to strikes and in worst-case scenario riots	Magnitude	Medium	They could entail issues related to strikes and in worst-case scenario riots or blocking access to site.
Reversibility	Reversible		Reversibility	Reversible	
Sensitivity	Medium		Sensitivity	Medium	

		or blocking access to site.			
Likelihood	Medium	No local community activity in the area	Likelihood	Medium	No local community activity in the area
Frequency	Rare	Expected to occur in rare occasions	Frequency	Rare	Expected to occur in rare occasions
Timing	Not relevant		Timing	Not relevant	
Extent	Low	Relevant within community settlement as applicable	Extent	Low	Relevant within community settlement as applicable
Significance	**Moderate**		**Significance**	**Moderate**	

As the impacts discussed are mainly positive, no mitigation measures have been identified. This section provides recommendations which aim to enhance such positive impacts anticipated from the Project throughout the construction and operation phases to the greatest extent possible.

Therefore, it is recommended that the EPC Contractor and Project Operator undertake the following:

- Project Updates to local communities in accordance with identified measures in the Stakeholder Engagement Plan (SEP) which also includes measures related to management of local stakeholder expectations on jobs during both construction and operation phase. This should include the following in particular:
  - Undertake periodic consultations in line with the SEP with local communities to: (i) manage expectations on employment and procurement opportunities for the Project; (ii) emphasize that job opportunities for this Project will be met throughout various entities that will include local communities; (iii) provide updates on Project implementation and overall schedule; and (iv) other as appropriate.
  - Provide updates on implementation of the local recruitment and procurement procedures to date (e.g. number of locals employed to date).
  - As required by the local communities (refer to "Section 6.4") all communication / updates to the local communities should be provided through the following channels in particular: (i) Notifications and advertisements with Zarafshan and Tomdi Khokimiyat and the applicable Mahallas (including Mahalla Community Organization); and (ii) Telegram Channels of Muruntau Mahalla.
- Implement local employment and recruitment measures as part of the Labor and Working Conditions Management Plan (LWCMP) (refer to "Section 17.2.3"). The recruitment process shall take into account the following:
  - Employment opportunities for skilled and unskilled workers will be communicated through the recruitment channels established under the LWCMP. Recruitment and selection processes will be fair, transparent and based on qualifications, competency and experience, while providing equal opportunities for all candidates, including women. The following order of priority with respect to employment, subject to availability of qualifications and skills will be promoted: (i) Muruntau community; (ii) Tomdi District/Zarafshan City; (iii) Navoiy Region; and (iv) Uzbekistan.
  - The local recruitment process will be conducted in an inclusive, fair, equitable and diverse manner, and it will be ensured that there is no bias or discrimination and will be open to all community members regardless of their class, race, color, gender, age, disability, civil status, etc.
  - Recruitment will be based on competency and skill.

- Efforts and resources will be allocated to make sure that women are also fairly targeted and recruited and are provided opportunities to participate equally as men.
- Gender inclusive advertising will be utilized in the announcement of job opportunities, , including language encouraging women to apply where appropriate.
- Candidate selection (recruitment) will be conducted by a mixed-sex panel (comprising of at least two people). Candidate promotion selection be conducted by more than one person and never by a single-sex panel).
- It will be prohibited to terminate the contract of a female worker during her maternity leave.

- Take into account the vulnerable groups identified in "Section 15.1.2" throughout the implementation of local employment, procurement and engagement measures. This includes the following in particular:

  - Ensure that information on Project-related employment and procurement opportunities, as such opportunities become available, is communicated through channels accessible to vulnerable groups, including through the Mahalla Seven structure;
  - Ensure that recruitment processes are accessible to youth, women, persons with disabilities and members of vulnerable households, taking into account that such groups may face barriers in accessing employment opportunities;
  - Ensure that consultation activities take into account the needs of vulnerable groups, including timing, location and accessibility of sessions; and
  - Ensure that the stakeholder grievance mechanism is accessible to vulnerable groups in accordance with the SEP.

- Considering implementing a Community Development Plan which aims to benefit the local community to the greatest extent possible. It is recommended that a structured approach is developed for such a program that takes into account the community's needs and priority development projects which could benefit local communities (which logically should also take into account other factors such as allocated budget by the Developer, timeline for implementation of such projects, etc.).

- Stakeholder grievance mechanism shall be implemented in line with the Stakeholder Engagement Plan (SEP) and the LWCMP provisions. Any grievances submitted should be handled fully in accordance with the mechanism that is included within the SEP.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the EPC Contractor and Project Operator:

- Submission of stakeholder engagement log sheets that summarize local community engagement activities and their objectives for the reporting period along with evidence (e.g. photos of sessions or announcements). This should be submitted monthly during both construction and operation.

- Submission of local community employment and procurement records including records of local employment and procurement opportunities and their implementation.

- Submission on an annual basis a summary of community development measures undertaken.

- Documentation of submitted grievances related to local community engagement or employment/procurement and measures undertaken to resolve such grievances in accordance with

the SEP grievance mechanism, and documentation of worker grievances in accordance with the LWCMP.

16. COMMUNITY, HEALTH, SAFETY AND SECURITY

This section provides an assessment of baseline conditions within the Project site and surroundings in relation to community health, safety and security. The section then presents an assessment of potential impacts during the various Project phases. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

16.1 Assessment of Baseline Conditions

As noted earlier, the closest residential area, Muruntau Mahalla, to the Project site is located 12 km to the north and is considered as the most reasonable sensitive receptors in relation to community health, safety and security issues.

The Project site in relation to the closest noise sensitive receptor is shown in the map below.

Figure 40: Closest Sensitive Receptor

A review of the area within a 1 km radius of the proposed BESS site indicates the absence of public-use facilities such as schools, religious buildings, community centers, and recreational areas. The only identified utilities within the 1 km radius are the existing Muruntau 500 kV Substation, existing OHTLs, and Highway A379.

16.2 Assessment of Potential Impacts

16.2.1 Potential Impacts from Noise during Operation

BESS has a relatively low noise emission profile compared to other energy infrastructure developments, such as wind farms. During the operation phase, noise is typically limited to auxiliary equipment such as inverters and HVAC units, which emit low and steady sound levels. Given the low emission profile of BESS facilities, the potential for nuisance is minimal.

The BESS facility will be located in the vicinity adjacent to the Muruntau Gold Mine and allied facilities as mentioned above, which is expected to contribute to continuous noise from the mining operations. As such, the incremental increase in environmental noise levels due to the Project is anticipated to be relatively low.

Based on the desktop review and site visit undertaken in May 2026, only one (1) potential noise-sensitive receptors were identified in the area surrounding the Project site which is the adjacent Highway A379 located 200 m west of the BESS Boundary within the Project.

For the purpose of clarity, the definition of receptor was followed as that defined within the "World Bank Group / IFC General EHS Guideline" (IFC, 2007). In accordance with the Guideline a receptor is defined as "*a point of reception or* receptor *may be defined as any point on the premises occupied by persons where extraneous noise and/or vibration are received. Examples of receptor locations may include permanent or seasonal residences; hotels / motels; schools and daycares; hospitals and nursing homes; places of worship; and parks and campgrounds.*" All of which are not within the Project's vicinity.

In addition to the above, a rapid Noise Modelling Assessment was undertaken using QGIS software to evaluate potential noise propagation associated with Project activities. The assessment was based on precautionary baseline parameters, including a noise emitter height of 3 m, a maximum noise level of 90 dBA, and an assessment radius of 20 km. Both project duration and operational activities were assumed to occur continuously over a 24-hour period. These parameters were selected to represent a worst-case operational scenario, ensuring that potential noise impacts are not underestimated.

According to the results of the assessment as shown in Figure 41 below, the Muruntau Community is expected to experience noise levels within the range of 10 – 20 dBA, which is considered extremely low and well below internationally acceptable thresholds for residential and recreational receptors.

Given the relatively low magnitude of predicted noise levels and the nature of the Project with limited moving or mechanical components, it is therefore not anticipated to create a source of nuisance noise to the Project's surrounding or other nearby receptors.

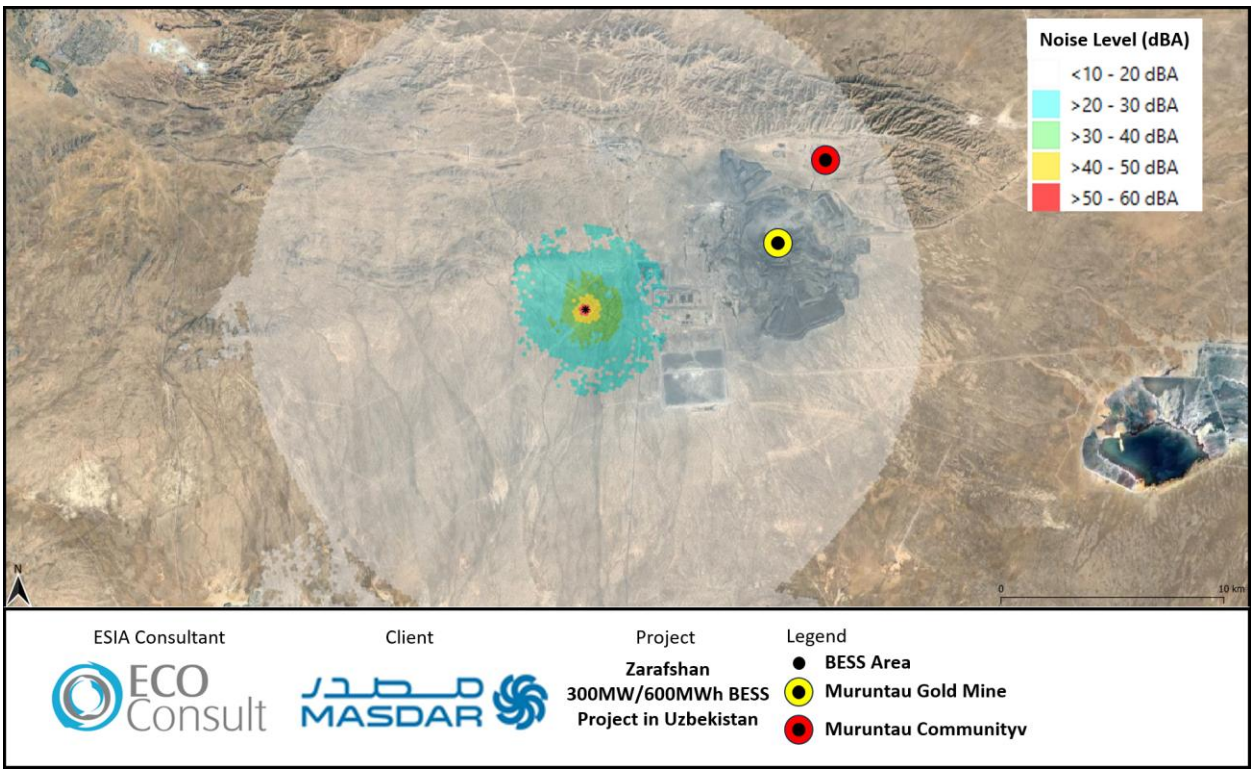


Figure 41: Rapid Noise Modelling for the Project Site

Considering the surrounding context and the presence of existing background noise sources in the area, the potential for significant noise impacts from the Project is assessed as low.

Based on the above, this impact is scoped out and there are no further requirements to be considered for the ESIA study.

16.2.2 Potential Impacts from Emergency Situations during Operation

Although of low likelihood, BESS facilities could be associated with some emergency incidents and risks to include in particular the following:

- Fire;
- Explosions;
- Arc Flash and Electric Shock; and
- Toxic Chemical Release.

The following is noted in particular:

- Explosion risks were raised by local communities as per consultations undertaken as discussed previously within “Section 6.4”.
- Consultation with the Navoi Regional Department of Emergency Situations as discussed previously in “Section 6.3”, highlighted that the Project area is located within a predominantly desert area, with no forest fires or other major fire incidents recorded in the vicinity based on the information available to the Ministry. However, the nearest rescue unit is located in the centre of Zarafshan City, around 65 km

from the Project area, and access for rescue vehicles is limited as there are no paved roads beyond around the first 50 km of the route. Due to the remote location of the Project, the Department recommended that appropriate onsite emergency response and firefighting capacity be considered during Project operation, and that the need for a dedicated fire and rescue station be assessed in accordance with Clause 64 of SHNQ 2.09.17-21 "Design of Master Plans for Industrial Enterprises".

- The Department also confirmed that, as the BESS will comprise various buildings and structures, the Project design should take into account applicable national fire safety and emergency-related requirements, including requirements for fire safety of buildings and structures, fire automation systems, external water supply networks, internal water supply and wastewater disposal systems, and electrical installations. These requirements should be reflected in the Project's design, fire safety arrangements and operational Emergency Preparedness and Response Plan.
- Consultation with the Sanitary-Epidemiological Welfare and Public Health Committee and the Navoi Regional Department of Poverty Reduction and Employment as discussed previously in "Section 6.3", emphasized the importance of occupational health and safety during both construction and operation, including electrical safety, safe working conditions, workplace attestation, provision of appropriate protective equipment, and compliance with applicable sanitary, hygienic and occupational health and safety requirements. These requirements are relevant to the management of operational emergency risks associated with BESS operation and maintenance activities.
- Consultation with the Central Mining Administration of NMMC JSC as discussed previously within "Section 6.4", confirmed that the Project is located outside the risk zone associated with nearby mining operations. Blasting activities are undertaken at the nearest quarry around 2 to 3 times per week; however, due to the distance of around 5 km between the quarry and the Project area, blasting vibrations are not expected to affect the Project site. No specific geotechnical constraints, groundwater issues, unsuitable construction conditions, road use restrictions or infrastructure constraints affecting the Project were identified. In addition, the Project is considering cooperation with the nearby NMMC fire station through a formal service agreement, rather than constructing a separate facility, should emergency response requirements permit. This option will be reviewed during detailed design and permitting, in coordination with the Ministry of Emergency Situations and in accordance with Clause 64 of SHNQ 2.09.17-21.

However, the BESS technology that is selected by the Developer meets Good International Industry Practice (GIIP). In addition, installation activities will also be undertaken in accordance with GIIP requirements. This will include the following:

1. <u>Safety Standards</u>

- **IEC 62619**: "Safety requirements for secondary lithium batteries" – Addresses safety aspects of lithium-ion batteries used in BESS.
- **UL 1973**: "Standard for Batteries for Use in Stationary, Vehicle Auxiliary, and Light Electric Rail Applications" – Provides safety requirements for battery systems used in stationary applications.
- **UL 9540**: "Standard for Energy Storage Systems and Equipment" – Covers safety and performance requirements for energy storage systems, including BESS.
- **IEC 61508**: "Functional safety of electrical/electronic/programmable electronic safety-related systems" – Provides guidelines for the functional safety of systems, including those used in BESS.

2. <u>Performance and Testing Standards</u>

- **IEC 62040**: "Uninterruptible power systems (UPS)" – Addresses performance criteria for uninterruptible power supplies, which can be relevant for BESS in UPS configurations.
- **IEC 62485**: "Safety requirements for secondary batteries and battery installations" – Includes safety and performance testing standards for battery systems.
- **IEC 60896**: "Stationary lead-acid batteries" – Provides performance and testing standards for lead-acid batteries, which are sometimes used in BESS.

3. Interconnection Standards

- **IEC 61850**: "Communication networks and systems for power utility automation" – Defines communication protocols and standards for integrating BESS with grid systems and other utility infrastructure.
- **IEEE 1547**: "Standard for Interconnecting Distributed Resources with Electric Power Systems" – Specifies requirements for interconnecting distributed energy resources, including BESS, with electric power systems.

4. Environmental and Efficiency Standards

- **IEC 62933**: "Energy storage systems for power systems" – Covers the general performance and efficiency standards for energy storage systems.
- **ISO 14001**: "Environmental management systems" – Specifies requirements for effective environmental management, applicable to the lifecycle of BESS.

5. Installation and Maintenance Standards

- **IEC 60364**: "Electrical installations for buildings" – Provides standards for electrical installations, including those involving energy storage systems.
- **NFPA 855**: "Standard for the Installation of Stationary Energy Storage Systems" – Offers guidelines for the installation, maintenance, and safety of stationary energy storage systems.

In addition, as noted within “Section 2.3” earlier, the BESS will be equipped with components to specifically control such risks and prevent emergency situations from occurring. This will include in particular the following components:

- Recording, monitoring, and analysis system;
- Fire detection systems;
- Smoke/heat/gas detection and leakage monitoring and sensor systems;
- Effective suppression systems including cooling systems;
- Remote onsite/offsite monitoring system for temperature, heat and gas leakage;
- Temperature and moisture management systems.

The table below provides an overall summary of the impact on emergency situations during the operation phase. The overall impact is considered to be of minor significance.

Operation Phase

Type	Negative	
Duration	Long-term	Risk will be for entire operational phase
Magnitude	Medium	An emergency event would be contained within the Project site, which is fully fenced and located around 12 km from the nearest settlement. No public use facilities are located within the vicinity of the Project site
Reversibility	Reversible	Could be irreversible (e.g. damage to facilities)
Sensitivity	Low	The nearest community receptor is Muruntau Mahalla located around 12 km from the Project site. No sensitive receptors are located within the immediate vicinity of the Project site
Likelihood	Low	The BESS will utilize Lithium Iron Phosphate (LFP) technology and will be designed, installed and operated in accordance with the safety standards identified above, including fire detection, gas detection, suppression, cooling and monitoring systems
Frequency	Rare	Emergency events of this nature are rare within BESS facilities designed and operated in accordance with GIIP
Timing	N/A	Not applicable
Extent	Medium	Effects would be limited to the Project site and its immediate surroundings, taking into account the distance to the nearest community receptor
Significance	**Minor**	

Mitigation Measures

The Project Operator will be developing a Project and site-specific Emergency Preparedness and Response Plan (EPRP). The plan must consider the following components in particular:

- Identify emergency response procedures to be implemented with the objective of establishing a series of organization, operational and preventive measures, which in turn will ensure the safety of workers, communities and property within/surrounding the specific Project site. This should include in particular procedures for fire, explosion, arc flash and electric shocks;
- Ensure emergency controls are established for each identified risk;
- Ensure onsite emergency responders are always available onsite and which have received certified training for the BESS risks to include fire, explosions, arc flash and electric shocks, toxic chemical release;
- Ensure appropriate emergency signs are established within and near the BESS;
- Undertake annual emergency drills for the BESS;
- Identify requirements for emergency kits;
- Identification of onsite assembly points;
- Identification of emergency signs;
- Identify training requirements to include but not limited to induction training, emergency responders training, and emergency drills;
- Identify monitoring and reporting requirements;
- Identify roles and responsibilities of the personnel involved in implementation of the plan;
- Undertake consultation with emergency service providers prior to commencement of any operational activities to ensure they are aware and can respond to above risks (e.g. hospital, civil defense, etc.);

- Identify of a communication and management process with external authorities to include in particular firefighting services and health providers;
- Identify potential community exposure scenarios to emergency incidents, including nearby residential areas, schools, workplaces, and road users.
- Ensure that the Emergency Preparedness and Response Plan (EPRP) includes clear procedures for timely communication with these groups in case of an emergency. This should include:
    - Early warning systems such as sirens, SMS alerts, or phone calls.
    - Coordination with local authorities (e.g., civil defense, police, schools) to ensure evacuation routes and instructions are effectively communicated.
    - Public awareness campaigns and drills for local communities to ensure understanding of emergency procedures.
- Submit required documentation and obtain approval from Ministry of Emergency Situations as required based on consultations undertaken under "Section 6.3"; and
- Include requirements in particular on updating local communities on the above system and control measures and emergency preparedness plans and requirements as part of the Stakeholder Engagement Plan (SEP) to be developed. Please refer to SEP for additional details.

Following the implementation of these mitigation measures, the significance of the residual impact is categorized as not significant.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the Project Operator during the construction and operation phase and which include:

- Inspections and audits on EPRP requirements identified earlier;
- Submission of drill reports and training records and certifications;
- Submission of approval / permit from Ministry of Emergency Situations;
- Submission of stakeholder consultation logs as part of SEP activities with nearby receptors; and
- Reporting on the following: (i) number of emergency responders assigned with required certification; (ii) number of emergency drills conducted; (iii) number of emergency incidents triggered.

16.2.3 Potential Impacts from Trespassing of Unauthorized Personnel during Construction and Operation

Potential impacts during construction and operation phase are mainly limited to trespassing of unauthorized personnel from the local communities / receptors into the Project site which could result in potential risks from several hazards.

During construction this could include but not limited to the following:

- Electric shocks and thermal burns from electrical components and equipment;
- Roads and pedestrian accidents and injuries from internal traffic; and

- Exposure to chemicals and hazardous materials.

Similarly, during operation this could include but not limited to:

- Electric shocks and thermal burns from electrical components and equipment;
- Roads and pedestrian accidents and injuries from internal traffic;
- Other.

Construction Phase			**Operation Phase**		
Type	Negative		Type	Negative	
Duration	Short-term	Limited to construction which is 18 months	Duration	Long-term	During entire operation period
Magnitude	Medium	Extreme cases they could entail permanent impacts	Magnitude	Medium	Extreme cases they could entail permanent impacts
Reversibility	Irreversible		Reversibility	Irreversible	
Sensitivity	Medium		Sensitivity	Medium	
Likelihood	Medium	There are nearby receptors such as local communities, grazers, etc.	Likelihood	Medium	There are nearby receptors such as local communities, grazers, etc.
Frequency	Rare	Expected to occur in rare occasions	Frequency	Rare	Expected to occur in rare occasions
Timing	Not relevant		Timing	Not relevant	
Extent	Low	Will have an effect on impacted area only	Extent	Low	Will have an effect on impacted area only
Significance	**Moderate**		**Significance**	**Moderate**	

Mitigation Measures

The EPC Contractor is responsible for preparing the detailed design for the Project. As part of the detailed design process, appropriate physical and operational security measures shall be incorporated into the Project design to prevent and deter unauthorized access to Project facilities during both the construction and operation phases.

Those will be emphasized within a Security Management Plan (SMP) that will be prepared by the EPC Contractor and Project Operator. This is expected to include but not limited to the following measures:

- Security personnel will be used at the access points to control the entry and exit of people, and continuous security patrols will be implemented. Security personnel will be trained in the Voluntary Principles on Security and Human Rights, and a Code of Conduct will be enforced to prevent the use of force or harassment.
- BESS and substation area will be fenced off during construction and will have signs with warning notices in English, Russian, and Uzbek language.

- Warning signs indicate the presence of the Project to inform local people of the dangers posed by the Project.
- The Stakeholder Engagement Plan (SEP) shall include measures to engage with local communities (including grazers) and nearby receptors to inform them about the start of construction works in advance, to educate them on the dangers inside the fenced-off area, and the danger of approaching construction works at other locations and emphasize importance of avoiding trespassing at all times.
- Stakeholder grievance mechanism should be implemented in relation to any grievances related to security incidents and/or security personnel code of conduct. Any grievances submitted should be handled fully in accordance with the mechanism that is included within the SEP. Please refer to the SEP for additional details.

Following the implementation of these mitigation measures, the significance of the residual impact can be reduced to not significant.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the EPC Contractor and Project Operator:

- Reporting of any trespassing incidents and the measures undertaken in such cases to control the situation and prevent it from occurring again.
- Submission of stakeholder engagement log sheets that summarize local community engagement activities and their objectives for the reporting period along with evidence (e.g. photos of sessions or announcements). This should be submitted monthly during both construction and operation.
- Documentation of submitted grievances related to the SMP (if applicable) as part of the SEP and measures undertaken to resolve such grievances. This should be submitted monthly during construction and operation.

16.2.4 Potential Impacts Associated with Security Personnel during Construction and Operation

There could be interactions between security guards and personnel of the Project with local communities and nearby receptors. Inappropriate management of security issues and incidents by security personnel towards local communities (e.g. overreaction, mistreatment, use of excessive force) could result in potential for conflict, resentment, distrust and escalation of events.

Construction Phase			**Operation Phase**		
Type	Negative		Type	Negative	
Duration	Short-term	Limited to construction which is 18 months	Duration	Long-term	During entire operation period
Magnitude	Medium	Extreme cases they could entail permanent impacts	Magnitude	Medium	Extreme cases they could entail permanent impacts
Reversibility	Irreversible		Reversibility	Irreversible	
Sensitivity	Medium		Sensitivity	Medium	

Likelihood	Medium	There are nearby receptors such as local communities, grazers, etc.	Likelihood	Medium	There are nearby receptors such as local communities, grazers, etc.
Frequency	Rare	Expected to occur in rare occasions	Frequency	Rare	Expected to occur in rare occasions
Timing	Not relevant		Timing	Not relevant	
Extent	Low	Will have an effect on impacted area only	Extent	Low	Will have an effect on impacted area only
Significance	**Moderate**		**Significance**	**Moderate**	

Mitigation Measures

The EPC Contractor and Project Operator shall prepare and implement a Security Management Plan (SMP) or the construction and operation phase of the Project.

The plan must identify appropriate measures for hiring, rules of conduct, training, equipping, and monitoring of unarmed security personnel. The plan must also adhere to IFC PS 4 (Community Health, Safety, and Security), , and AIIB ESS 1: Environmental and Social Assessment and Management, specifically the Health and Safety requirements, in relation to the security guards employed. This requires that the behavior for the security personnel is guided by the Voluntary Principles on Security and Human Rights in terms of hiring, rules of conduct, training, equipping and monitoring of such personnel. It also requires making reasonable inquiries to satisfy that those providing security measures are not implicated in past abuses, will ensure they are trained adequately in the use of force and appropriate conduct towards the workers and the local community. Force should only be used when strictly necessary, and to an extent proportional to the threat.

In addition, stakeholder grievance mechanism should be implemented in relation to any grievances related to security incidents and/or security personnel code of conduct. Any grievances submitted should be handled fully in accordance with the SEP. Please refer to the SEP for additional details.

Stakeholder engagement activities with local communities must provide information on security control requirements and measures implemented in accordance with the SEP, as applicable.

Following the implementation of these mitigation measures, the significance of the residual impact can be reduced to not significant.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the EPC Contractor and the Project Operator:

- Inspection to ensure the implementation of the provisions of the Security Management Plan (SMP) and assess compliance with its requirements;
- Documentation of copies of clearance of security guards and background checks demonstrating that security personnel are not credibly implicated in past abuses.

- Documentation of signed code of conduct by security workers and associated disciplinary measures as applicable.
- Documentation of induction training modules and Toolbox Talks for security personnel to include training on use of force as well as Voluntary Principles on Security and Human Rights.
- Inspection, monitoring and reporting on required mitigation measures in the plan.
- Reporting on the following: (i) security related incidents/accidents; (ii) submitted grievances related to security activities, use of force, allegations of abuse, misconduct or other wrongdoing by security personnel (as applicable) and measures undertaken to resolve such grievances.
- Submission of stakeholder engagement log sheets that summarize local community engagement activities and their objectives for the reporting period along with evidence (e.g. photos of sessions or announcements). This should be submitted monthly during construction and operation.

16.2.5 Potential Impacts from Worker Influx during Construction

As discussed in "Section 2.6", workforce requirements will increase progressively as construction activities advance, reaching a peak of approximately 300 to 400 personnel during the main construction period before reducing during commissioning and demobilization. Workforce numbers will vary throughout the construction phase in line with the activities being undertaken and are expected to be lower than peak values during much of the construction period. For the purposes of this assessment, the upper end of the anticipated workforce range has been applied as a conservative scenario.

A substantial proportion of the construction workforce is expected to be recruited from local and regional communities and, on this basis, is expected to return to their homes after working hours. Accommodation will be required for the non-local workforce and for specialist personnel, and is expected to be provided through a temporary worker accommodation camp located within the Project boundary, with limited use of hotel or apartment accommodation during periods of reduced workforce mobilization. The worker accommodation camp is located approximately 12 km from Muruntau Mahalla and access to the Project site is controlled. On this basis, interaction between the accommodated workforce and the local community is expected to be limited. The temporary presence of workers in the wider area could result in certain community health, safety and security impacts, which are discussed below.

Risk of Diseases

Influx of workers may introduce new reservoirs of diseases such as vector-related diseases, water-borne diseases, etc. In addition, there is also a risk of spreading communicable diseases, including sexually transmitted ones. The risk of catching or exchanging communicable diseases (e.g., Virus B, Virus C, and HIV/AIDS) and the lack of awareness on transmission of disease can represent a high risk to workers and community health and safety.

Inappropriate Code of Conduct

Other risks from worker influx include inappropriate code of conduct by workers towards local communities which might result in hostilities and resentment. Such inappropriate conduct could include also disrespecting the traditional culture and social norms of the area and local communities.

Increase in Social Vices

Population influx could result in an increase of social vices including alcoholism, drug abuse, and other.

Increase in Competition for Public Services

The sudden increase in population due to the influx of workers and their families can put substantial pressure on existing local infrastructure, particularly water, electricity, and transportation systems. These services might not have been designed to handle such an increase in use, leading to overloads and service disruptions.

Local Inflation of Prices

The arrival of a large labor force can drive up the demand for goods and services, potentially leading to higher local prices and displacing regular consumers in the local community.

Increased Risk of Crime

The influx of workers in communities could lead to a rise in criminal activities or create a feeling of insecurity among local residents. Potential issues may include theft, physical assaults, substance abuse, prostitution and human trafficking. The local police force might be unprepared to handle the surge in population and associated challenges.

Construction Phase		
Type	Negative	N/A
Duration	Short-term	Limited to construction which is 18 months
Magnitude	Medium	Medium magnitude and sensitivity given that it could entail some impacts on local resources, spread of serious diseases which could impact community H&S, and other.
Reversibility	Reversible	
Sensitivity	Low	
Likelihood	Medium	Due to presence of nearby communities
Frequency	Frequent	Throughout entire construction phase
Timing	Not relevant	
Extent	Medium	Effects expected within 5km radius from impact
Significance	**Minor**	

Mitigation Measures

As noted earlier in “Section 17.2.2” and “Section 17.2.3” the EPC Contractor will be required to prepare and submit a Worker Accommodation Plan (WAP) and a Labor and Working Conditions Management Plan (LWCMP).

The above plans, should include specific sections on worker influx that should include the following measures:

- As discussed earlier, in the case that worker accommodation / worker camps are not used, it is recommended / preferred to manage workers in a centralized location / approach that are not located within local communities. If accommodation is to be located within local communities, then again, it is recommended / preferred to manage in a centralized location / approach (e.g. within 1 apartment building or several located next to each other and not multiple apartments / hotels located in various dispersed areas).

- Medical examination programs. All workers must be subject to medical examinations and fitness-for-work assessments in accordance with applicable national requirements and project procedures. Medical examinations should be consistent amongst all worker to ensure no discriminatory implication.
- Details and procedures for ensuring and maintaining hygienic conditions onsite at all times specifically related to the toilet and washing facilities, eating areas, etc. This should be applicable onsite and within worker accommodation.
- Development of a code of conduct and associated disciplinary procedures for workers which takes into account appropriate behaviors by workers at all times, religious customs, traditional cultures and social norms in the area. In addition, it must include specific requirements for social vices including gender-based violence, sexual harassment, alcoholism, drug abuse, etc.
- Induction training and self-awareness raising sessions on risks associated to the most common contagious diseases (e.g. influenza virus), communicable diseases, general measures for hygiene, code of conduct expected to be implemented and other as appropriate.
- Stakeholder grievance mechanism should be implemented in relation to any grievances related to worker influx. Any grievances submitted should be handled fully in accordance with the mechanism that is included within the SEP. Please refer to the SEP for additional details.
- Stakeholder engagement activities with local communities must provide information on worker influx expected and measures that will be undertaken to control such impacts. Stakeholder engagement activities are undertaken in accordance with the SEP.

Following the implementation of these mitigation measures, the significance of the residual impact can be reduced to not significant.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the EPC Contractor:

- Inspection to ensure the implementation of the above provisions and assess compliance with its requirements;
- Documentation of copies of required worker medical examination and fitness-for-work records, as applicable and in accordance with national requirements and project procedures.
- Inspection, monitoring and reporting on all mitigation measures included within the plan.
- Visual inspections and investigations on hygienic conditions to include offices, rest areas, sanitary and toilet facilities and other.
- Documentation of signed code of conduct by workers and associated disciplinary measures as applicable.
- Documentation of induction training modules and Toolbox Talks on hygiene and code of conduct expected to be implemented.
- Reporting on the following: (i) worker accommodation, worker welfare, worker conduct, or worker-community interaction related incidents, as applicable; (ii) health conditions to include epidemic

outbreaks, diseases or infections; and (iii)submitted grievances related to worker influx (if applicable) as part of the SEP and measures undertaken to resolve such grievances.

- Submission of stakeholder engagement log sheets that summarize local community engagement activities and their objectives for the reporting period along with evidence (e.g. photos of sessions or announcements).

16.2.6 Electromagnetic Fields (EMFs)

As noted earlier, there are no receptors within the site or surrounding areas or within a 5 km radius. The nearest receptor is Muruntau Community/Mahalla located 12 km from the Project site.

Based on desktop review as well as a site visit, the Project area contains existing electrical infrastructure, including the existing Muruntau 220 kV Substation, as well as several overhead transmission and distribution lines in the vicinity of the Project. As such, the area is already subject to routine electromagnetic field (EMF) exposure associated with standard power infrastructure. As previously mentioned in "Section 2.3", the Project will be connected to the existing Muruntau 220 kV Substation by a 788 m 220 kV Underground Transmission Line.

EMF emissions may arise from two primary components of the Project: (i) the BESS facility and (ii) the associated 220 kV Underground Transmission Line. Both electric fields (from voltage) and magnetic fields (from current) are considered within the analysis below.

The analysis is undertaken with reference to the World Bank Group's EHS Guidelines for Electric Power Transmission and Distribution (2007), specifically the exposure limits presented in the table below.

Table 31: ICNIRP Exposure Limits for General Public Exposure to Electric and Magnetic Fields[19]

Frequency	Electric Field (V/m)	Magnetic Field (µT)
50 Hz	5000	100
60 Hz	4150	83

In addition, consultation with the Sanitary-Epidemiological Welfare and Public Health Committee under the Ministry of Health confirmed that the Committee has no objection to the development and implementation of the Project, provided that the Project complies with SanQvaN No. 0103-25 "Sanitary Rules, Norms and Hygienic Standards for Sanitary Protection Zones", as well as other applicable sanitary, hygienic and occupational health and safety requirements. The Committee stated that the sanitary protection zone for the Project should be determined based on the distance between the BESS equipment and the nearest residential building, and that compliance with the applicable sanitary protection zone requirements should be demonstrated during Project design and implementation. The Committee also identified applicable electromagnetic field limits, including electric field strength limits of 0.5 kV/m inside residential buildings, 1 kV/m within residential areas, 10 kV/m at road crossings and 20 kV/m in non-residential areas, as well as a magnetic field strength limit of 80 A/m, equivalent to 100 µT.

A. BESS Facility

The operation of the BESS facility will involve equipment such as inverters, transformers, and communication cabling, which are known sources of low-level electric and magnetic fields. These components are enclosed, with no exposed conductors, which effectively eliminates surface-level electric

[19] Environmental, Health, and Safety Guidelines for Electric Power Transmission and Distribution

field exposure. The MV/LV transformer is expected to be the primary source of EMF but will be located within the secured facility boundary.

Electric fields from the BESS facility are considered negligible, as all components are fully enclosed and grounded, preventing electric field emissions into the surrounding environment. This conclusion is consistent with international guidance, including that of the Radiation and Nuclear Safety Authority of Finland (STUK, 2023), which confirms that electric fields from enclosed or buried equipment do not reach ground level. The U.S. National Institute of Environmental Health Sciences (NIEHS, 2016) also notes that electric fields are easily shielded by physical objects such as enclosures or the earth, making exposure from such equipment unlikely under normal conditions.

Most notably, the material of the container for the BESS system is steel alloy, which is the most common electromagnetic field shield.

The EMI shielding not only reduces the interference experienced on the BESS itself but also its emissions.

On top of this the installation of the BESS will be following IEC 61933-5-1, which will help in measuring and mitigating any EMF emissions if any.

Magnetic fields will be localized and low in intensity. Based on equipment design and shielding, magnetic field levels are expected to remain well below public exposure thresholds. This is confirmed by the Original Equipment Manufacturer (OEM), which has indicated that magnetic field strength will not exceed 10 µT at a distance of 1 meter from the equipment surface under normal operating conditions. Field strength is expected to dissipate rapidly with distance and become negligible beyond 10 meters. All BESS components will be designed and installed in accordance with the IEC 61000 series, which sets international standards for electromagnetic compatibility (EMC) and electromagnetic interference (EMI). These standards ensure that:

- Equipment does not emit excessive electromagnetic disturbance, and
- Equipment can operate reliably in its electromagnetic environment.

Compliance with these standards is essential to prevent electromagnetic interference, which could otherwise disrupt the operation of nearby equipment or the BESS system itself, potentially leading to safety hazards or equipment malfunction.

All power and communication cabling will be appropriately shielded and spaced to prevent EMI and ensure emissions remain within acceptable design tolerances.

Given the enclosed nature of the installation, shielding measures, and equipment compliance with IEC 61000, EMF emissions from the BESS facility are expected to be minimal, localized, and well below IFC limits referenced above.

B. Underground Transmission Line

The Project includes a 220 kV transmission line to connect the BESS facility to the substation. This line will be constructed underground with a conduit planned for the adjacent road crossing section, which significantly reduces EMF exposure at the ground surface due to soil shielding and close conductor spacing. No public footpaths, dwellings, or agricultural structures are located directly above the underground section. A public road crosses the route of the underground transmission line, at which location the line will be installed within a conduit as discussed above. Research shows magnetic fields from buried high-voltage cables fall off dramatically with depth and distance, typically reducing to 10–20% of surface-level intensities at just 0.5 meters depth (e.g., IEC/TR 60169, CIGRÉ studies).

Electric fields at the surface are effectively eliminated by cable burial, as the earth provides shielding and the cable sheaths are grounded. Guidance from the Radiation and Nuclear Safety Authority of Finland (STUK, 2023) confirms that electric fields from underground cables installed at depths greater than 0.5 meters do not reach ground level. Similarly, the U.S. National Institute of Environmental Health Sciences (NIEHS, 2012) notes that electric fields do not penetrate soil and are blocked by most common materials, and that EMF exposure at 100 m from high-voltage lines is typically comparable to background household levels.

Similarly, the EHS Guidelines for Electric Power Transmission and Distribution issued by the IFC also states that although there is public and scientific concern over the potential health effects associated with exposure to EMF (not only high voltage power lines and substations, but also from everyday household uses of electricity), there is no empirical data demonstrating adverse health effects from exposure to typical EMF levels from power transmissions lines and equipment. However, while the evidence of adverse health risks is weak, it is still sufficient to warrant limited concern.

As mentioned above, the IFC EHS Guideline also requires that exposure level limits to the public should remain below the International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998 limits provided in Table 31 above.

As a conservative screening comparison and noting that overhead transmission and distribution lines already operate in the immediate Project area, typical field levels for overhead lines of an equivalent or higher voltage class are presented first; these represent an upper bound for electric field exposure, since for the buried Project cable (underground transmission line) the electric field at the surface is effectively screened by the grounded metallic sheath and the surrounding soil (WHO, 2002).

The National Grid (an international electricity and gas company based in the UK and north-eastern US) provides typical electric and magnetic field limits for various voltage lines (132 kV, 275 kV, and others). The values indicate that electric and magnetic fields are within the ICNIRP limits and even reach negligible. As shown in the figure below, the maximum electric field directly beneath the conductors of a typical 275 kV overhead line is approximately 3 kV/m, decreasing rapidly with distance to below 0.5 kV/m at around 25 m from the centerline. Since 220 kV lines operate at a lower voltage than 275 kV, the expected electric field levels for a 220 kV line would be equal to or lower than those shown here. This is consistent with typical electric field levels reported for power transmission lines in authoritative sources, such as the U.S. National Institute of Environmental Health Sciences (NIEHS), which documents that electric fields from a 230 kV OHTL generally range from about 2 kV/m directly under the OHTL to 0.3 kV/m at a distance of 30m from the line as shown by Figure 43. These measured and modeled values are substantially below the IFC EMF public exposure limit of 5 kV/m, confirming that electric field exposure from the proposed line would be negligible even under conservative assumptions.

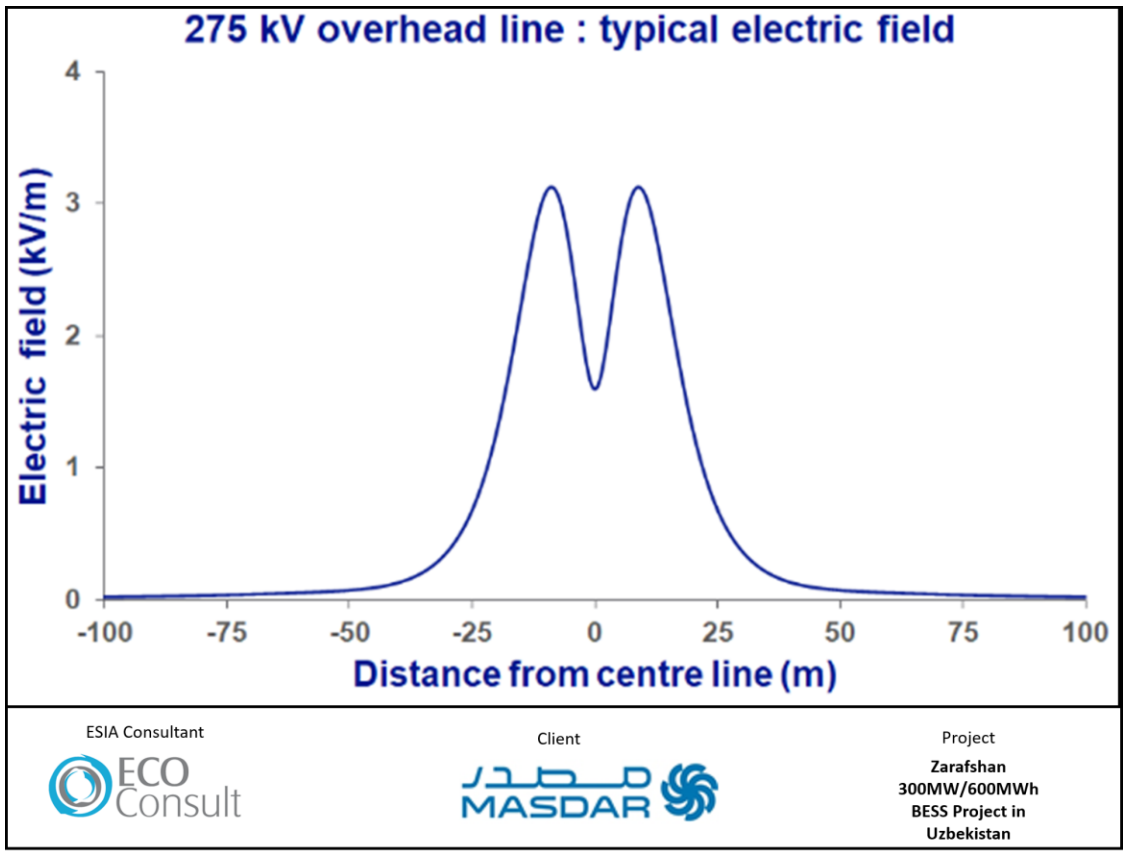


Figure 42: Typical Electric Field Values for a 275 kV Steel Pylon Overhead Line (National Grid, as cited in EMFs.info, n.d.)

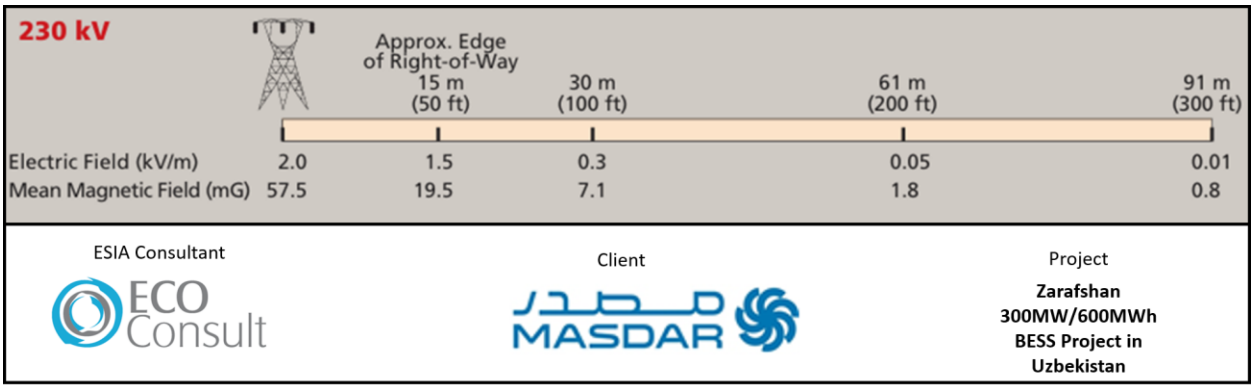


Figure 43: Typical EMF Levels for Power Transmission Lines (NIEHS, 2020, p. 38)

For magnetic fields, typical overhead line values are presented below as context for the existing baseline environment, followed by data specific to underground cables of the Project's voltage class. Based on data from the UK National Grid and electricity system operators, EMF exposure levels from a 220 kV overhead transmission line, even if operated at a higher voltage of 275 kV, would remain very low. As shown in the figure below, magnetic field strength beneath a typical 275 kV overhead line peaks at approximately 6 µT and decreases rapidly with distance, falling to about 1 µT or less at 20–30 meters from the centerline and approaching typical background levels of ≤ 0.1 µT beyond 60–70 meters. This is consistent with typical magnetic field levels reported for power transmission lines in authoritative sources such as the U.S. National Institute of Environmental Health Sciences (NIEHS), which documents that typical magnetic field strengths for a 230 kV OHTL range from about 57.5 mG (5.75 µT) directly beneath the transmission line

to 0.8 mG (0.08 µT) at a distance of 91 m (NIEHS, 2020, p. 38). These levels are significantly below the IFC EMF public exposure limit of 100 µT, reaffirming that EMF exposure risks would be negligible even under conservative assumptions.

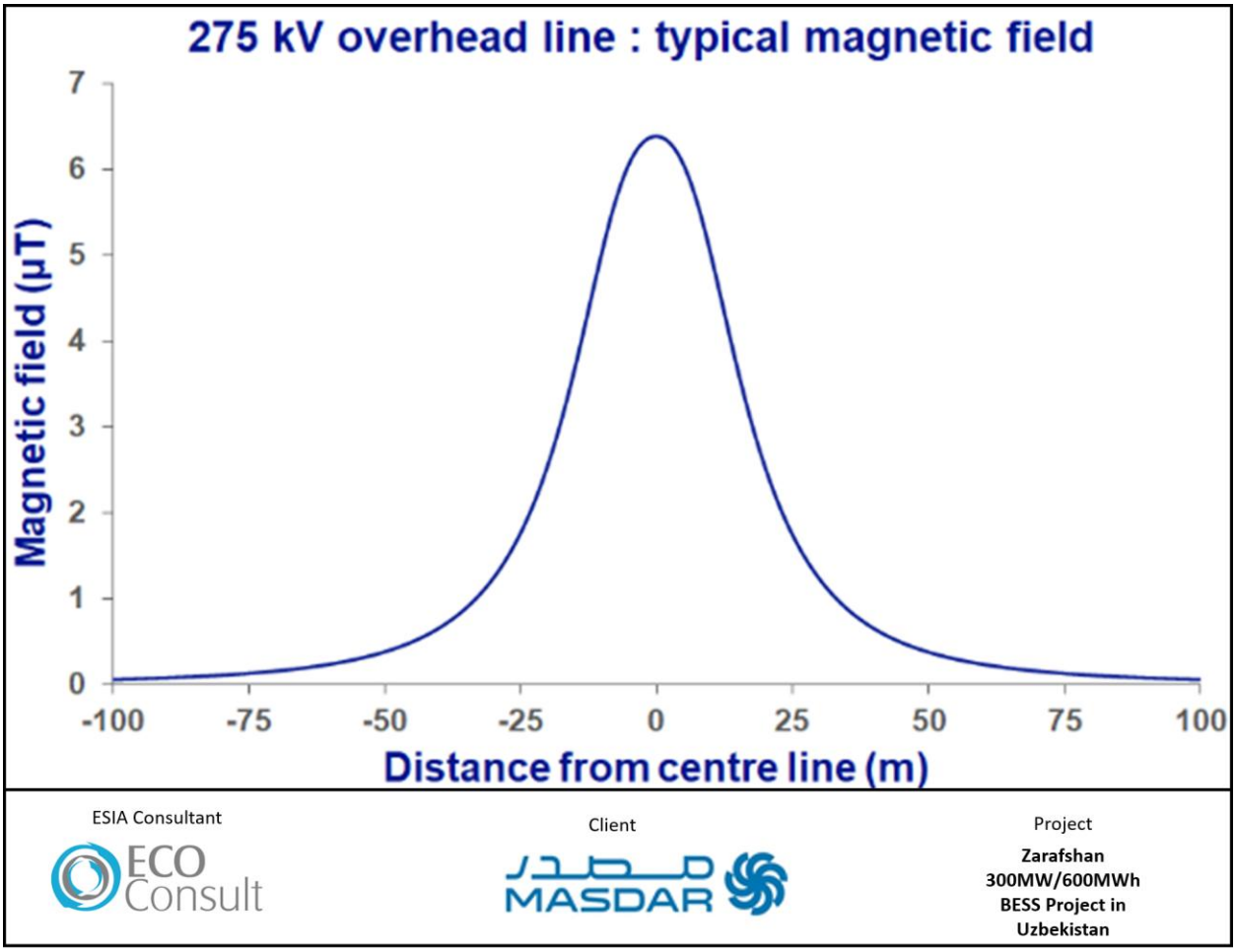


Figure 44: Typical Magnetic Field Values for a 275 kV Steel Pylon Overhead Line (National Grid, as cited in EMFs.info, n.d.)

For the underground configuration specifically, the World Health Organization publication "Establishing a Dialogue on Risks from Electromagnetic Fields" (WHO, 2002) notes that when a high-voltage line is placed underground, the insulated conductors can be placed closer together than on an overhead line, which increases phase cancellation and tends to reduce the magnetic field produced. The net result is that to the sides of the underground cable the magnetic field is usually significantly lower than for the equivalent overhead line, although directly above the cable route it can be locally higher; in all cases the field is concentrated above the cable trench and decreases rapidly with lateral distance.

Published data for cables directly comparable to the Project connection confirm the substantial margin to the exposure limits. Predicted worst-case magnetic fields for a typical 220 kV underground transmission cable (trefoil configuration, 1.5 m burial depth, operating at a maximum capacity of 630 MVA) are presented in the table below (Transpower New Zealand, 2022). These values represent maximum current flow on a heavily loaded interconnection circuit, the Project's 788 m-long Underground Transmission Line will carry substantially lower currents, and actual field levels are therefore expected to be well below these figures. Even the worst-case value directly above the cable corresponds to less than 20% of the ICNIRP/IFC public exposure reference level of 100 µT presented in Table 31 above.

Table 32: Predicted Worst-Case Magnetic Fields for a Typical 220 kV Underground Transmission Cable (Transpower New Zealand, 2022)

Distance from cable centreline	Directly above	5 m	10 m	30 m
Magnetic field (% of ICNIRP general public reference level of 100 µT)	<20%	<5%	<1.4%	<0.2%

Therefore, based on burial depth, cable configuration, absence of sensitive receptors, and compliance with international EMF thresholds, the underground transmission line is not expected to generate any significant EMF-related impact.

Key Outcome

Given the design characteristics of the BESS facility and associated infrastructure, EMF limits are expected to be well within the IFC requirements. In addition, as noted earlier, the area is already subject to some EMF due to the substation and several existing transmission and distribution lines. The Project will make a negligible contribution to existing baseline levels.

Taking the above into account, significant EMF exposure of the general public is not anticipated. Although the underground transmission line crosses an existing road used by a limited number of users, any potential exposure would be brief and infrequent. In addition, electric and magnetic field levels at ground level above the buried cable are expected to remain well below the applicable ICNIRP and IFC exposure limits.

The nearest residential receptor is Muruntau Mahalla, located approximately 12 km from the Project site and there are no other public receptors within a 5 km radius.

Occupational exposure of workers may occur during the operation phase, and the impact is therefore assessed below.

Occupational Exposure

Personnel undertaking operation and maintenance activities within the BESS facility and the onsite substation, as well as personnel undertaking maintenance activities along the route of the underground transmission line, may be exposed to electric and magnetic fields. The applicable occupational exposure limits are those presented within the World Bank Group EHS Guidelines for Electric Power Transmission and Distribution (2007), as presented in Table 31 above. In addition, the electric field strength limit of 10 kV/m at road crossings identified by the Sanitary-Epidemiological Welfare and Public Health Committee, as discussed above, is applicable at the location where the underground transmission line crosses the public road.

Right-of-Way Management

The route of the underground transmission line will be demarcated through the installation of cable route markers along its length, including at the road crossing. Excavation and any other intrusive works within the right-of-way will be undertaken only under a permit to work in accordance with the requirements identified in "Section 17.2.1", issued following confirmation of the cable alignment and depth.

As discussed in "Section 2.3.3", the underground transmission line will be transferred to NEGU for operation and maintenance following completion of construction. The arrangements applicable to the management of the right-of-way following handover, including responsibilities for the maintenance of route markers, signage and access control, will be confirmed between the Developer and NEGU prior to handover.

Mitigation Measures

The following mitigation measures have been identified for the operation phase:

- Confirm through measurement that electric and magnetic field levels within the BESS facility, the onsite substation and along the route of the underground transmission line, including at the road crossing, are within the applicable occupational and general public exposure limits presented in Table 31 above, prior to commencement of operation.
- Restrict access to the BESS facility and the onsite substation to authorized personnel only.
- Install cable route markers along the route of the underground transmission line, including at the road crossing.
- Undertake excavation and other intrusive works within the right-of-way of the underground transmission line only under a permit to work, in accordance with the requirements identified in "Section 17.2.1".
- Include EMF awareness within the induction training for personnel undertaking operation and maintenance activities, including the applicable exposure limits and the requirement to limit the duration of exposure in proximity to energized equipment.
- Confirm the arrangements for the management of the right-of-way with NEGU prior to handover of the underground transmission line.

Monitoring Requirements

The following identifies the monitoring requirements that must be adhered to during the operation phase:

- Submission of the results of the EMF measurements undertaken prior to commencement of operation.
- Submission of records of the permits to work issued for excavation and other intrusive works within the right-of-way of the underground transmission line.

17. WORKER WELFARE, HEALTH AND SAFETY

This chapter presents the assessment of potential impacts during the various Project phases on worker welfare, health and safety. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

17.1 Assessment of Baseline Conditions

Assessment of baseline conditions with regards to worker welfare, health and safety is considered irrelevant. In addition, although an EPC Contractor has been assigned for the Project, no details are available at this stage on the workforce and working conditions – this includes breakdown, nationalities, worker accommodation, etc.

17.2 Assessment of Potential Impacts

17.2.1 Occupational Health and Safety Impacts during Construction and Operation

This section presents the assessment of potential impacts on occupational health and safety collectively during the construction and operation phase, given that they are similar in nature during both phases.

Throughout the construction and operation phase there will be generic occupational health and safety risks to workers, as working onsite increases the risk of injury or death due to accidents. The following risks are generally associated with BESS development projects:

- Working with powered and hand-held tools;
- Struck-by objects;
- Slips and falls;
- Moving machinery;
- Working in confined spaces
- Exposure to chemicals, hazardous or flammable materials and fire;
- Exposure to electric shocks and burns when touching live components;
- Risks from extreme hot and cold weather and conditions and low/high temperatures; and
- Infectious and airborne diseases.

The table below provides an overall summary of the impact on occupational health and safety during the construction and operation phases. The overall impact is considered to be of moderate significance.

Construction Phase			Operation Phase		
Type	Negative	In extreme cases could entail permanent impacts (e.g. permanent	Type	Negative	In extreme cases could entail permanent impacts (e.g. permanent disability), however such
Duration	Short-term		Duration	Long-term	
Magnitude	Medium		Magnitude	Medium	
Reversibility	Irreversible		Reversibility	Irreversible	

Sensitivity	Medium	disability), however such impacts are controlled through implementation of general best practice.	Sensitivity	Medium	impacts are controlled through implementation of general best practice.
Likelihood	Medium		Likelihood	Medium	
Extent	Low		Extent	Low	
Significance	**Moderate**		**Significance**	**Moderate**	

Mitigation Measures

It is expected that the EPC Contractor shall define and implement an Occupational Health and Safety Plan (OHSP) regarding the Project's construction, installation and commissioning works as well as the general construction site operations. In addition, the Project Operator is expected to develop an OHSP tailored to the Project's operation phase.

The objective of the OHSP is to ensure the health and safety of all personnel in order to concur and maintain a smooth and proper progress of work at the site and prevent accident which may injure personnel or damage property of the EPC Contractor and all involved sub-contractors, as well as the Project Operator.

The OHSP for the construction and operation phase should be Project and site specific and must take into account the national requirements and assurance of the adequacy of the working environment. In addition, it must also be compliant with IFC PS2 (Labor and Working Conditions), , AIIB ESS 1 Section E: Health and Safety and Section F: Labor and Working Conditions which recognize the importance of avoiding or mitigating adverse health and safety impacts on workers and require the development of a project-specific health and safety plan that is in accordance with Good International Practice (GIP).

The objective of the OHSP should be as follows:

- Prevent all occupational incidents to the greatest extent possible for all workers.
- Zero fatal accidents, injuries and lost time accidents.
- Zero occupational disease.
- Zero major incidents.
- Providing a place of work that is safe for workers and communities.
- Full compliance with legal and contractual requirements related to occupational health and safety.
- Maintain safe working areas and good housekeeping.

In general, the OHSP should address the following components:

- Risk assessment and job safety planning procedure.
- Permit to Work (PTW) system procedure.
- Lock Out/Tag Out (LOTO) Procedure.
- Site control occupational health and safety procedure to include requirements for: Personal Protective Equipment (PPE), requirements for site risks (fall protection, powered and hand tools, compressed air / gas cylinders, fire prevention, hot works, electrical works, material handling, machinery use and safety, excavation/concrete works/civil works, confined space activity, storage, medical requirements, and communicable disease management).

- Occupational health and safety signage requirements.
- Identify OHS training requirements to include but not limited to induction training, specialized trainings, and other as appliable. Specialized trainings will be required for the following:

- Safe rigging and lifting
- Welding and Hot Works
- Ladders and scaffolding
- Electrical works
- Fall protection
- Lock-out/tag-out
- Excavation
- Hot Works
- Power and Hand Tool Safety
- Extreme weather conditions (e.g. windy conditions, hot and cold weather and conditions and low/high temperatures
- Heat Stress
- Permit to work
- Defensive driving
- Lifting and rigging safety
- Banksman
- Manual handling
- Confined Spaces
- Excavations
- Working at heights

- Identify monitoring and reporting requirements.
- Identify roles and responsibilities of the personnel involved in implementation of the plan.
- Exposure and risk of transmission of infectious diseases throughout the workforce and measures to reduce such risks (e.g., awareness session on symptoms, isolation measures for confirmed cases, utilizing masks and sanitizers, social distancing where applicable, etc.).
- A worker grievance mechanism should be implemented and that should handle any grievances related to OHSP. Requirement for worker grievance mechanism is included within “Section 17.2.3“ below.
- Taking into account the existing overhead transmission lines located adjacent to the Project site at approximate distances of 37 m and 80 m as discussed in "Section 14.1.5", lifting operations and the movement of high vehicles and mobile plant in proximity to such lines shall be undertaken under a permit to work. The permit shall confirm the minimum safe approach distances to the overhead lines, the requirement for a banksman to be present, and any restrictions on crane orientation, boom radius and travel routes. In addition, exclusion zones shall be established beneath and adjacent to the existing overhead transmission lines based on the confirmed minimum safe approach distances. Such zones shall be physically demarcated on site using high visibility fencing or equivalent, and signage identifying the electrical hazard shall be installed. The requirements shall be identified within the OHSP and communicated to all relevant personnel as part of the induction and toolbox talks.
- Provision of potable water to workers. Water for the Project shall be sourced only from authorized water suppliers. Potable water must meet the applicable national drinking water quality requirements, water quality testing must be undertaken and records maintained, and non-potable water sources must be clearly marked as unsuitable for drinking.

The EPC Contractor and Project Operator are expected to adopt and implement the provisions of the OHSP throughout the Project construction and operation phase.

Following the implementation of these mitigation measures, the significance of the residual impact can be reduced to not significant.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the EPC Contractor and Project Operator during the construction and operation phase:

Inspection to ensure the implementation of the provisions of the OHSP and assess compliance with its requirements;

- Inspections and audits on OHSP requirements identified earlier.
- Submission of training records.
- Submission of worker grievances related to OHSP and grievances close-out forms.
- Reporting on the following: (i) number of near misses per month; (ii) number of injuries per month; (iii) number of medical evacuations per month; (iv) number of medical treatment injuries, restricted work injuries and lost time injuries; (v) lost working hours per month; (vi) number of working days since the last accident; (vii) number of HS audit/inspections; (viii) number of HS training/toolbox talks; (ix) number of HS meetings per month; (x) number of unsafe acts/conditions per month.

17.2.2 Worker Accommodation Impacts during Construction and Operation

As discussed in "Section 2.6", workforce requirements will increase progressively as construction activities advance, reaching a peak of approximately 300 to 400 personnel during the main construction period before reducing during commissioning and demobilization. A substantial proportion of the construction workforce is expected to be recruited from local and regional communities and, on this basis, is expected to return to their homes after working hours.

Accommodation will be required for the non-local workforce and for specialist personnel. Accommodation is expected to be provided through a temporary worker accommodation camp located within the Project boundary, with limited use of hotel or apartment accommodation during periods of reduced workforce mobilization. Workforce numbers and accommodation requirements will be confirmed following appointment of the EPC Contractor and may vary throughout the construction period depending on the final construction methodology, the contractor mobilization strategy and the Project schedule. Worker accommodation, where provided, will be developed and managed in accordance with the applicable national legislation, lender requirements and international good practice, including provisions relating to worker welfare, health and safety and living conditions, as set out in the mitigation measures below.

In general, inappropriate accommodation facilities entails impacts on worker welfare that could include but not limited to:

- Workers could be provided with accommodation facilities that do not meet basic services. This includes security arrangements, appropriate work temperature, safe food, drinking water, access to safe exit in emergency conditions, segregated toilets, washing facilities and sleeping areas for women and men, and access to means of communication with areas outside the project boundary.

- Disturbance issues arising from construction, including traffic (dust, noise and vibration).
- Workers could be provided with accommodation that does not account for social and cultural considerations, which would have major consequences for those affected.

The table below provides an overall summary of the impact on worker accommodation during the construction and operation phases. The overall impact is considered to be of moderate significance.

Construction Phase			**Operation Phase**		
Type	Negative	Such impacts are controlled through implementation of general best practice.	Type	Negative	Such impacts are controlled through implementation of general best practice.
Duration	Short term		Duration	Long term	
Magnitude	Medium		Magnitude	Medium	
Reversibility	Reversible		Reversibility	Reversible	
Sensitivity	Medium		Sensitivity	Medium	
Likelihood	Medium		Likelihood	Medium	
Extent	Medium		Extent	Medium	
Significance	**Moderate**		**Significance**	**Moderate**	

Mitigation Measures

The EPC Contractor and Project Operator shall define and implement an Accommodation Management Plan. The objective of the plan is to identify the required management standards and specifications for accommodation that shall be met for the workforce.

The Plan must include the following components:

- Identify the workforce requirements including all subcontractor requirements and number of workers that require accommodation facilities (i.e. not from the local community or nearby areas).
- Identify workforce transportation requirements to/from accommodation facilities.
- Identify accommodation procedures to ensure that workers are provided with a decent accommodation which meets the basic worker's needs. These requirements shall apply equally to worker camps and to any hotel, apartment or other third-party accommodation facilities used by the Project. In specific, accommodation must be compliant with good international industry practices – mainly the "Workers' accommodation: process and standards" (EBRD/IFC Guidance Note, 2009). The document provides guidance notes on general living facilities, room facilities, medical facilities, management of accommodation units, etc.
- Worker accommodation must take into account climatic conditions of the area (e.g. extreme heat and extreme cold) and it must be equipped with suitable measures such as air conditioning, heating, etc.
- The accommodation should consider the social and cultural backgrounds of the workers, providing spaces that respect cultural practices and promote social interaction in a positive manner. This includes considerations for gender segregation where culturally appropriate and facilities for religious practices.
- In relation to gender requirement the following should be considered:
    - Separate sleeping rooms for men and women will be provided in shared accommodations;
    - Means of securing bedroom doors from inside and out will be provided; and
    - Finally, female sanitary and toilet facilities will be kept separate from men.
- Identify housing rules and regulations including code of conduct.

- Where workers are accommodated in hotels or apartments within existing communities, the Code of Conduct shall include specific requirements relating to interactions with community members, respectful behavior, noise management, alcohol and substance use, and compliance with local laws and customs.
- Identify training requirements.
- Identify monitoring and reporting requirements.
- Identify roles and responsibilities of the personnel involved in implementation of the plan.
- A worker grievance mechanism should be implemented and that should handle any grievances related to worker accommodation. Requirement for worker grievance mechanism is included within "Section 17.2.3" below.

Following the implementation of these mitigation measures, the significance of the residual impact can be reduced to not significant.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the EPC Contractor and Project Operator during the construction and operation phase:

- Inspection on workers accommodation to ensure its compliance with the requirements of "EBRD/IFC's Guidance Note – Workers' accommodation: process and standards" to include the following.
    - Inspections and audits on standards of worker accommodation to include but not limited to room/dormitory facilities sanitary and toilet facilities, canteen, cooking and laundry facilities, medical facilities, leisure and social facilities.
    - Reporting on: (i) worker accommodation incidents/accidents; (ii) health conditions to include epidemic outbreaks, diseases or infections; and (iii) worker accommodation grievances and complaints.
    - Submission of worker grievances and worker grievance close-out forms.

17.2.3 Worker Human Rights Impacts during Construction and Operation

Inappropriate management of the workforce during both the construction and operation phase could entail several human right risks and violations by employing entities such as the EPC Contractor and Project Operator. This could include but not limited to violations against core labor standards (e.g. engaging child workers, confiscation of passports of foreign workers, unsuitable working hours, and other),

In addition, it is expected that the workforce will include a team from various backgrounds, ethnicities, nationalities and cultures. Therefore, there could be risks and impacts within the workforce related to discrimination, harassment, abuse and other based on ethnicities, cultures, and nationalities.

The table below provides an overall summary of the impact on worker human rights during the construction and operation phases. The overall impact is considered to be of moderate significance.

Construction Phase			**Operation Phase**		
Type	Negative		Type	Negative	

Duration	Short-term	Limited to the construction phase of around 18 months.	Duration	Long-term	Throughout the entire operation phase
Magnitude	Medium	Risks are associated with the management of the workforce by the EPC Contractor and its subcontractors, and could affect individual workers or groups of workers	Magnitude	Medium	Risks are associated with the management of the workforce by the Project Operator and its subcontractors, and could affect individual workers or groups of workers
Reversibility	Reversible	Impacts can be addressed through corrective action, although certain impacts on individual workers could be irreversible	Reversibility	Reversible	Impacts can be addressed through corrective action, although certain impacts on individual workers could be irreversible
Sensitivity	Medium	The construction workforce will include foreign workers and workers from various backgrounds, ethnicities, nationalities and cultures, who may be less able to access grievance channels or may be subject to discrimination	Sensitivity	Medium	The operation workforce may include workers from various backgrounds, ethnicities, nationalities and cultures, who may be less able to access grievance channels or may be subject to discrimination
Likelihood	High	The EPC Contractor has not yet been appointed, and workers will be engaged through multiple entities including subcontractors, which increases the potential for inconsistent labor management practices	Likelihood	High	The Project Operator has not yet been appointed, and workers will be engaged through multiple entities including subcontractors, which increases the potential for inconsistent labor management practices
Extent	Low	Effects would be limited to the workforce engaged on the Project	Extent	Low	Effects would be limited to the workforce engaged on the Project
Significance	**Moderate**		**Significance**	**Moderate**	

Mitigation Measures

The EPC Contractor and Project Operator are required to develop and implement a Labor and Working Conditions Management Plan (LWCMP). Objective will be as follows:

- Provide an overview of the labor use on the project throughout the construction and operation phase.
- Provide a Human Resources (HR) policy.
- Identify an HR management procedure for the workforce that will ensure decent and humane working conditions, worker rights, and enhance constructive work floor relations. This should be guided by the Local Labor Law as well as the IFC PS2 (Labor and Working Conditions), AIIB ESS 1 Section E: Health and Safety and Section F: Labor and Working Conditions as well as the ILO Fundamental Labor Conventions covering the following in particular:

    - Ensuring all workers onsite are provided with a signed contract, including casual/daily/temporary workers.
    - Providing reasonable working conditions and terms of employment to include but not limited to contract management, working hours, salaries/wages, annual and medical leaves, bereavement leaves, accommodation, etc.
    - Recognizing workers' rights to form and to join workers' organizations of their choosing and to bargain collectively without interference.
    - Prohibition of child labor within the workforce.
    - Overall management of young workers within the labor force. The recruitment of children under the age of 18 should be explicitly prohibited.
    - Prohibition of forced labor and human trafficking including confiscation of employees' passports.
    - Non-discrimination throughout the entire work cycle in all its forms.
    - Providing equal opportunities for all throughout procurement and employment opportunities including women groups.
    - Overall management of daily workers, migrant workers and third-party workers and ensuring they are engaged on similar working conditions to other workers.
    - Ensure the following on wages: (i) wages to be determined on a case-by-case basis and must be must be fair and should meet the basic needs to maintain a safe and decent standard of living; (ii) must be established based on qualifications and competencies, professional experience, job responsibilities, and wages at equivalent positions; (iii) equal remuneration shall be provided for men and women performing work of equal value; and (iv) should not be below the nationally established minimum wage.
    - Ensure the following on working hours: (i) working hours, rest periods, overtime and leave entitlements shall comply with applicable national labour legislation; (ii) overtime is allowed with appropriate need subject to applicable legal requirements; (iii) workers should have a 24-hour period of rest after 6 days of work; and (iv) all workers will be notified of their schedule for the weekly day's rest, working hours, break periods and any changes introduced to such a schedule.
    - Ensure the following on leaves: workers shall be entitled to leave and social benefits in accordance with applicable labour legislation and contractual requirements. These shall be reflected in workers' contracts.
    - All workers should be required to read and sign a Worker Code of Conduct which will be explained verbally. The code of conduct should prohibit the following and which is subject to disciplinary action: (i) harassment, and abuse of any kind will not be tolerated; (ii) discrimination based on personal characteristics is prohibited to include but not limited to gender, race, nationality, ethnic, social and vulnerable people, religion or belief, disability, age, or sexual orientation, and (iii) accessing third-party facilities in the vicinity of the Project site, including the facilities associated with the Muruntau Gold Mining Facility, is prohibited.

- Ensure privacy and protection of workers is maintained at all times. This will include limiting access to the below data and information to authorized personnel with a legitimate need to access such information.

- Contracts
- HR files and databases
- Payment register
- Worker grievance forms and registers
- Disciplinary action register
- This information will be properly handled and stored, saved online through password protected files, and in secured cabinets with a fitted lock in case of hardcopies.
- Identify a disciplinary procedure for the workforce to be implemented;
- Identify a worker welfare procedure related to drinking water, rest areas, sanitary facilities, changing rooms
- Identify a worker grievance procedure to manage all worker related complaints and grievances that should consider the following: (i) applicability to all workers including workers of contractors and subcontractors; (ii) submission channels available in the Project languages including for workers unable to submit a written grievance; (iii) timeframes for response and resolution; (iv) measures for escalation of grievances by workers; (v) anonymous submission; and (vi) protection of complainants against reprisal.
- Identify training requirements related to the plan.
- Identify monitoring and reporting requirements related to the plan.
- Identify roles and responsibilities related to the plan.

Following the implementation of these mitigation measures, the significance of the residual impact can be reduced to not significant.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the EPC Contractor and Project Operator:

- Maintain records of worker contracts and employment documentation in accordance with the LWCMP and applicable legal requirements..
- Maintain records confirming worker acknowledgement of the worker code of conduct.
- Submit payment register on a monthly basis.
- Submit disciplinary action register on a monthly basis.
- Submit training and TBT records on a monthly basis.
- Submit worker grievance logs with close-out forms on a monthly basis.

- Undertake monitoring, inspection and reporting on all requirements of the plan on a monthly basis during construction and operation at frequencies established under the LWCMP.
- Reporting on: (i) total number of working hours / total overtime; (ii) % of workers receiving salary payment on time; (iii) % of workforce with written contract; (iv) % of workforce with age verification (child labor); (v) % of workforce above minimum wage; (vi) % any identified cases of forced labor; (vii) number of disciplinary actions issued; (viii) worker welfare inspections and identified corrective actions;; (ix) number of worker grievances submitted; (x) number of outstanding grievances.

17.2.4 GBVH and SEAH Impacts to Workers and Community Members during Construction and Operation

Inappropriate management of the workforce (some of which could be from the local communities) during both the construction and operation phase could entail gender-related issues such as Gender Based Violence and Harassment (GBVH) or Sexual Exploitation, Abuse and Harassment (SEAH).

In addition, inappropriate behavior of workforce within local community settlements could also entail similar risks and impacts. This could be related to worker accommodation within local communities or as part of worker time-off / leisure trips to local community areas.

The assessment takes into account the accommodation of non-local workers within an onsite camp, the recruitment of workers from the surrounding local communities, and the interaction between the workforce and community members through recruitment, transportation and worker leisure trips. The management measures set out below respond to these risk factors.

The table below provides an overall summary of the impact on GBVH and SEAH impacts to workers and community members during the construction and operation phases. The overall impact is considered to be of moderate significance.

Construction Phase			**Operation Phase**		
Type	Negative	Potential adverse impacts on workers and community members	Type	Negative	Potential adverse impacts on workers and community members
Duration	Medium-term	Limited to the construction phase	Duration	Long-term	Throughout the entire operation phase
Magnitude	Medium	Impacts could affect individual workers or community members and could have serious consequences for those affected	Magnitude	Medium	Impacts could affect individual workers or community members and could have serious consequences for those affected
Reversibility	Irreversible	Impacts on affected individuals could be irreversible	Reversibility	Irreversible	Impacts on affected individuals could be irreversible
Sensitivity	Medium	The construction workforce will include foreign workers accommodated within an onsite camp, together with	Sensitivity	Medium	The operation workforce may include workers recruited from outside the local communities

		workers recruited from the surrounding local communities			
Likelihood	Medium	Interaction between the workforce and local community members could occur through local recruitment, worker transportation and worker leisure trips to local community areas	Likelihood	Medium	Interaction between the workforce and local community members could occur through local recruitment and worker transportation
Extent	Low	Effects would be limited to the workforce and members of the local communities	Extent	Low	Effects would be limited to the workforce and members of the local communities
Significance	**Moderate**		**Significance**	**Moderate**	

Mitigation Measures

The EPC Contractor and Project Operator are required to develop and implement a Labor and Working Conditions Management Plan (LWCMP). The Plan should include at a minimum the following:

- Safe transport will be provided to female and male workers. The codes of conduct, which prohibit gender-based violence, harassment and abuse, will apply to transportation modes. Drivers and transport contractors will receive GBVH awareness and Code of Conduct training, and reporting procedures for incidents during transit will be implemented.
- All workers should be required to read and sign a Worker Code of Conduct which will be explained verbally. The code of conduct should prohibit harassment, gender-based violence and abuse of any kind subject to disciplinary action.
- All workers should be provided with a copy of the Gender Based Violence and Harassment (GBVH) Code of Conduct and will be required to sign it.
- Identify a worker welfare procedure related to drinking water, rest areas, sanitary facilities, changing rooms and other that should include take into account the following in particular:
    - Female sanitary, toilet facilities, and prayer rooms will be kept separate from men.
    - All such facilities will have lockable doors with adequate numbers provided.
    - Separate changing rooms and cabinets will be provided for men and women both of which have locking mechanisms.
- Identify a worker grievance procedure to manage all worker related complaints and grievances that should consider the following:
    - Prohibiting gender-based violence and harassment in the workplace and will outline that a suitably trained male and female person is designated to process grievances in which male / female workers might feel uncomfortable discussing with a person of the opposite sex. The grievance mechanism also includes a procedure to deal with Gender Based Violence and Harassment (GBVH) grievances.

- Stakeholder Grievance Mechanism as part of the SEP also includes a procedure for GBVH grievances. This should be implemented entirely to handle any grievances related to GBVH Please refer to the SEP for additional details.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the EPC Contractor and Project Operator:

- Maintain records of signed GBVH Code of Conduct for all workers.
- Undertake monitoring, inspection and reporting on all requirements of the plan at frequencies established under the applicable management plans.
- Documentation of submitted grievances related to GBVH and SEAH as part of the SEP and worker grievance mechanism and measures undertaken to resolve such grievances.

18. SUBCONTRACTOR AND SUPPLIER MANAGEMENT

This section provides an assessment of baseline conditions in relation to subcontractor and supplier management. The section then presents an assessment of potential impacts during the various Project phases. For each impact, a set of management measures (which could include mitigation measures, additional requirements, etc.) and monitoring measures have been identified to eliminate or reduce the impact to acceptable levels.

18.1 Assessment of Baseline Conditions

Subcontractors refer to any entity, whether international or local, appointed directly by the EPC Contractor or the Project Operator through contractual agreements to carry out construction or operation activities within the project area or provide specific services for the project. These services could encompass various tasks such as the security, cleaning, water supply, waste collection, and more.

Suppliers, on the other hand, are entities appointed directly by the EPC Contractor or the Project Operator through contractual agreements to provide necessary products, including equipment, materials, or components, essential for the project's development. This could include but not limited to BESS, office furniture, etc.

Therefore, there is no information on the required subcontractor(s) and supplier(s) that will be appointed for this Project.

18.2 Assessment of Potential Impacts

Improper management of subcontractors could entail key E&S risks on the Project as identified throughout all previous sections earlier. Such risks could also cascade to the subcontractor's subcontractor. This could include but not limited to:

- Environmental risks such as for example inappropriate management of dust from construction activities which could impact air quality as discussed previously under "Section 13";
- Occupational health and safety risks such as for example inappropriate Personal Protective Equipment (PPE) which could lead to risk of injury or death as discussed previously under "Section 17";
- Other labor risks such as inappropriate management of worker accommodation or worker influx into local communities, or human rights risks and violations and other as discussed in "Section 17"; and
- Social risks such as for example inappropriate management of local recruitment and procurement opportunities as discussed previously under "Section 15".

In relation to suppliers, key risks are related to offsite risks and within the suppliers' premises. This most importantly includes human right abuses concerning workers and employees such as discrimination, child labor, forced labor and other similar violations.

Construction Phase			**Operation Phase**		
Type	Negative		Type	Negative	
Duration	Short-term	Limited to construction	Duration	Long-term	During entire operation period
Magnitude	Medium		Magnitude	Medium	

Reversibility	Reversible	Contractors and suppliers could result in key E&S risks for the project.	Reversibility	Reversible	Contractors and suppliers could result in key E&S risks for the project.
Sensitivity	Medium		Sensitivity	Medium	
Likelihood	High		Likelihood	High	
Frequency	Periodic		Frequency	Periodic	
Timing	Not relevant		Timing	Not relevant	
Extent	Low		Extent	Low	
Significance	**Moderate**		**Significance**	**Moderate**	

Mitigation Measures

- Undertake a supply chain due diligence or reputational risk assessment on the Original Equipment Manufacturer (OEM) of the BESS component, taking into account labor and human rights risks within the OEM's own supply chain. This will be provided as a standalone document.
- The Developer is required to develop and implement a Subcontractor and Supplier Management Plan that must also be enforced on the second-tier subcontractors and suppliers as applicable. The objective will be as follows:
  - Identify the key subcontractors and suppliers that will be involved in the Project.
  - Subcontractor and Supplier Management Procedure to ensure that Environmental and Social (E&S) requirements are adhered to. This could include but is not limited to the following:

a. Screening Process: during the tendering process the key E&S requirements applicable to the scope of work should be identified and included within the tender documents. This may include adherence to International Financial Institution (IFI) E&S requirements, national E&S regulations, ESIA and HSSE requirements and others. In addition, tenders will be required as part of the tender to specify how they intend to comply with such requirements as part of their scope of work.

b. In the case there is no tendering process subcontractor/supplier will be required to respond to an E&S prequalification questionnaire and will be required to submit company HSE policies.

- Finally, as part of the screening process, an online desktop review (including media research) on the list of companies bidding, their owners and shareholders on E&S reputational issues.

c. Selection Process: where selected subcontractor / supplier risks have been identified, Developer / EPC Contractor will assess these risks further with the subcontractor / supplier concerned to understand their capacity to avoid and manage such risks and to understand the controls the subcontractor / supplier has in place. This could include but not limited to: (i) submission of E&S policies and procedures as relevant for subcontractor / supplier (e.g. for suppliers' focus would be on human resources and labor policies and procedures), (ii) traceability, (iii) cascading E&S requirements, (iv) undertaking auditing protocols, etc. Where this is not possible, alternative suppliers will be sought.

d. Contractual Controls: Developer / EPC Contractor will put in place controls to avoid and manage potential risks. This will include but not limited to contractual controls, including corrective actions and exit mechanisms, to avoid and manage potential risks. This would depend on the level of risk identified and the leverage over the subcontractor / supplier concerned. Contractual controls could include but not limited to the following: (i) requirement to comply with IFI E&S requirements and national E&S requirement as applicable; (ii) requirements to comply with the project HSSE MS and associated manual; (iii) include clauses that enable the undertaking of inspections and/or audits to ensure compliance with the requirement above; (iv) include clauses allowing imposition

of contractual penalties as applicable.

e. Proactive management and a system of contractor accountability.

Following the implementation of these mitigation measures, the significance of the residual impact can be reduced to not significant.

Monitoring and Reporting Requirements

The following identifies the monitoring and reporting requirements that must be adhered to by the Developer:

- Submission of supply chain risk assessment / reputational risk assessment of OEM
- Submission of a subcontractor and supplier management plan
- Submission of outcomes of screening processes for all selected subcontractors and suppliers (e.g. tender E&S requirements, reputational assessments).
- Submission of risk assessment for subcontractor / supplier selected and E&S controls for risks identified.
- Submission of E&S contractual controls.
- For all appointed subcontractors, detailed monitoring and reporting requirements are identified (e.g. inspections, audits) throughout the construction and operation phases. This is discussed in further details within the institutional arrangement requirements under “Section 20”.
- For suppliers Developer / EPC contractor will, depending on the risks associated with a supply plan, put in place monitoring approach including reports from suppliers, ad hoc audits, etc. to the extent this is feasible. Monitoring will seek to ensure compliance with the mitigation defined, and in cases of non-compliance, help define corrective actions with the supplier concerned. Developer / EPC Contractor will maintain appropriate records of its supply chain assessment and risk management. Where this is conducted by EPC contractors it will be reported to Developer on a regular basis.

19. ASSESSMENT OF CUMULATIVE IMPACTS

The ESIA investigated the cumulative impacts which could result from incremental impacts from other known existing and/or planned developments in the area.

19.1 Existing Projects

Consistent with the developments identified in Section 2.7 (Other Developments in the Area), the following existing facilities have been identified within the Project's area of influence and are considered in the cumulative impact assessment for Water Resources, Traffic and Transportation, and Waste Generation below:

- Zarafshan Wind Farm: Approximately 7 km north of the Project site. A 500 MW (521.7 MW installed) wind farm comprising 111 Goldwind turbines, developed by Masdar – the same Developer as the Project – and officially inaugurated in December 2024. Given its proximity, shared Developer, and overlapping regulatory and infrastructural context, the Zarafshan Wind Farm's Environmental and Social Impact Assessment (Wood Group UK Limited, Revision B9) has been reviewed in detail to inform the cumulative assessment below.
- Muruntau Gold Mining Facility: Approximately 3 km east of the Project site. Operated by the Navoi Mining and Metallurgical Company (NMMC), one of the world's largest operating gold mines.
- Muruntau 500/220 kV Substation: Approximately 300 m south of the Project site, part of the national transmission grid.
- Existing Overhead Transmission Lines: A number of overhead lines connect the above facilities to the national grid and traverse the general Project vicinity.

The developments considered within the cumulative impact assessment were identified through the desktop review and the consultations undertaken as part of the ESIA process. As presented in "Section 2.7", beyond the facilities identified there are no other major industrial or energy developments within the immediate vicinity of the Project site. In addition, as presented in "Section 6.3", NMMC confirmed that there are no planned mining projects within the immediate Project area. Therefore, the cumulative impact assessment considers the existing facilities identified above.

An important consideration for the assessment below is the temporal relationship between the Project and the Zarafshan Wind Farm. The Zarafshan Wind Farm's construction phase ran from 2022 until its commissioning in December 2024, and the wind farm has been in commercial operation since that date. The Project's own construction phase is scheduled for Q4 2026 to Q1 2028. As a result, there is no overlap between the two projects' construction phases: the Zarafshan Wind Farm will already be in full commercial operation throughout the Project's construction phase and, subsequently, its own operational phase. This has a material bearing on the cumulative assessment for each topic below, as described further.

The table below summarizes the potential cumulative impacts.

E&S Attribute	Issue	Additional Requirement
Land Use	Land use impacts (physical and/or economical displacement) are considered project and site-specific. Therefore, cumulative impacts in this case are not anticipated. In addition, as noted within the ESIA earlier, such impacts are scoped out for the Project.	None
Geology, Hydrology and Hydrogeology	Key impacts are related to flood risks, onsite waste management and erosion and sediment control. Such impacts are considered project and site-specific. In addition, the Project does not utilize cyanide or other processing chemicals, does not generate tailings, and does not discharge to the tailings facilities associated with the Muruntau Gold Mining Facility. Therefore, the Project does not contribute to the potential impacts on water resources associated with such facilities. Therefore, cumulative impacts in this case are not expected.	None
Biodiversity	Key impacts are related to disturbance to exiting habitats and potential impacts associated with workforce activities. Such impacts are considered project and site-specific. Therefore, cumulative impacts in this case are not anticipated.	None
Archaeology and Cultural Heritage	This includes impacts on surface sites of importance and/or chance finds. Both impacts are considered Project and site-specific. Therefore, cumulative impacts in this case are not anticipated. In addition, as noted within the ESIA earlier, no sites were recorded within the Project area.	None
Air Quality and Noise	Key impacts from the Project are mainly related to dust and noise generation from construction activities. Such impacts are considered project and site-specific. The Institute of Air Quality Management (IAQM) guidance is widely recognized as good practice guidance for construction dust risk assessment. The latest "Guidance on the Assessment of Dust from Demolition and Construction" (Version 2.2, January 2024) uses a 250 m screening distance for human receptors, whereby a detailed assessment would normally be required where human receptors are located within 250 m of the site boundary. For the purposes of this cumulative assessment, the 250 m criterion has been applied as a conservative screening envelope around the project boundary. This does not imply that dust impacts would extend uniformly to 250 m from the entire project boundary; rather, it provides a precautionary basis for identifying potential receptor project interactions. Actual dust generating activities will be concentrated around specific construction areas.	None

E&S Attribute	Issue	Additional Requirement
	As noted within the figure below, the Project does not overlap with the Muruntau Gold Mine within this distance. Therefore, cumulative impacts in this case are not anticipated.	
Infrastructure and Utilities	Water Resources. Water requirements of all Projects cumulatively could entail constraints on existing users and/or existing resources. However, the Zarafshan Wind Farm is already operational and therefore has limited routine operational water requirements. As presented in "Section 14.2.3", the Project conservatively requires up to approximately 62 m^3/day during the construction phase and 2 to 3 m^3/day during the operation phase, which will be supplied through scheduled tanker deliveries. Given the limited volumes required and the temporary nature of the construction phase demand, the Project's contribution to cumulative water demand within the area is negligible. Accordingly, significant cumulative impacts on water resources are not anticipated.	None. Existing Project-level mitigation and management measures are considered adequate. Given that the Zarafshan Wind Farm is currently in operation, its water requirements, waste generation and traffic contribution are expected to be minimal and negligible when compared to its construction phase. In addition, the BESS Project is substantially smaller in scale and will involve significantly fewer construction activities than those required for the development of the Zarafshan Wind Farm. Therefore, the Project's construction-phase water demand, waste outputs and traffic movements are not expected to place pressure on local resources, infrastructure or baseline conditions, particularly as they will occur while the Zarafshan Wind Farm is already in operation. Overall, the BESS Project's requirements and outputs are considered low and are not expected to result in significant cumulative impacts.
	Waste Utilities. Waste generated by the identified projects includes different waste streams that are typically managed through different treatment, recovery and disposal routes. The Muruntau Gold Mining Facility primarily generates mining-related waste streams that are managed through dedicated mining waste management facilities. In contrast, the proposed BESS Project would generate relatively limited quantities of construction, domestic and hazardous wastes associated with workforce activities, equipment maintenance and construction works. Given the differences in waste types, management requirements and disposal pathways, the Project is not expected to place additional pressure on the waste management facilities used by the mining operation. Accordingly, significant cumulative impacts associated with waste management infrastructure and utilities are not anticipated.	

E&S Attribute	Issue	Additional Requirement
	Traffic and Transport. Traffic and transportation requirements associated with the identified projects were considered. The Zarafshan Wind Farm is located north of the Project site, is already operational, and generates only limited operational traffic. In addition, it does not rely on the same primary access routes as the proposed BESS Project. The Muruntau Substation is located in close proximity to the Project site but is associated with very limited operational traffic requirements. While the Muruntau Gold Mining Facility generates regular traffic movements associated with ongoing mining activities, the BESS Project's traffic demand would be primarily associated with the construction phase and would be temporary and relatively limited in scale. Given the absence of overlapping major construction activities with the Zarafshan Wind Farm, the limited traffic associated with the substation, and the comparatively small and short-term nature of BESS construction traffic, the Project is not expected to materially contribute to cumulative traffic volumes or place significant additional pressure on the local road network. Accordingly, significant cumulative traffic and transportation impacts are not anticipated.	
Worker Welfare, Health and Safety	Key impacts from the Project are related to occupational health and safety, worker accommodation, and labour and working conditions of workforce. Such impacts are considered Project and site-specific. As discussed in "Section 15.1.2", the livelihoods of the local community are primarily associated with employment in the nearby mining enterprises. Where workers recruited for the Project were previously employed at such enterprises, medical examinations and fitness-for-work assessments are required for all workers as discussed in "Section 16.2.5", applied consistently amongst all workers to ensure no discriminatory implication. Therefore, cumulative impacts in this case are not anticipated.	None
Community Health, Safety and Security	Worker influx requirements of all projects cumulatively could entail constraints on existing villages or cities. However, given that the worker requirements of the Project is minimal, cumulative impacts in this case are not anticipated.	None
	Impacts from trespassing and interaction with security personnel are considered Project and site-specific. Given the nature of the identified projects and the absence of shared security operations, significant cumulative impacts associated with trespassing and security interactions are not anticipated.	None

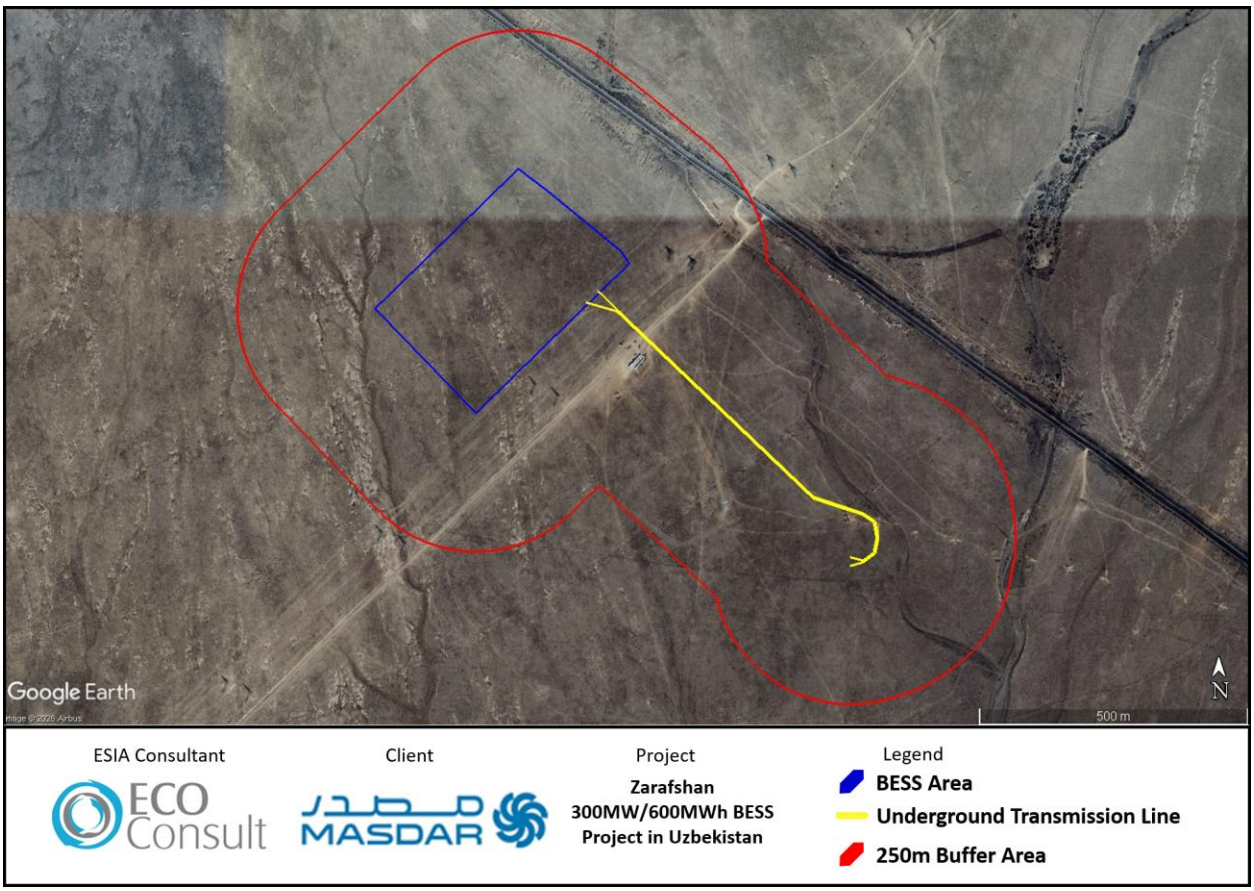


Figure 45: Project Site with 250m Buffer

20. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

This section presents the Environmental and Social Management Plan (ESMP) for the various Project phases and the overall requirements for the Health, Safety, Security, and Environment (HSSE) Management System (MS).

20.1 Institutional Framework and Procedure Arrangements

Generally, two main pillars govern the successful implementation of any Environmental and Social Management Plan (ESMP) as well as the Health, Safety, Security, and Environment (HSSE) Management System (MS) for the project that will be developed at a later stage (as discussed in further details below). These pillars include:

- Proper identification of roles and responsibilities for the entities involved; and
- Effective control of the process.

All management practices are interlinked, and this section describes how these two pillar criteria could be fulfilled, which in turn helps ensure that the overall objectives are met.

Staffing Requirements

Defining roles and responsibilities of the involved entities identifies where and when each entity should be engaged, their degree of involvement, and the tasks expected of the entity. This in turn eliminates any overlap of jurisdiction or authority and ensures proper communication and effective management of ESMP and HSSE MS components.

The table below identifies the staffing requirements that are expected for the Project. This should be expanded further in the HSSE Manual that is required as part of the HSSE MS (as discussed in further details below). This should include an organizational structure that identifies the lines of authority and roles and responsibilities of all involved entities.

Table 33: Roles and Responsibilities of Entities Involved in ESMP

Project Role	Entity	Responsibilities	Staffing Requirements
Project Owner and Developer	Masdar	▪ Selection of EPC Contractor and Project Operator; ▪ Implement mitigation and monitoring requirements as applicable for such entity as detailed in the ESMP; and ▪ Ensure overall compliance of EPC Contractor and Project Operator with the requirements of the ESMP and ESHS MS.	▪ Appoint competent E&S Staff (HSE Manager, Social Manager) ▪ Appoint a Project's HSSE Manager (male / female)
EPC Contractor	TBD	▪ Appoint a competent HSE team; and ▪ Implement mitigation and monitoring requirements as detailed in the ESMP and ESHS MS requirements.	▪ Appoint onsite and full-time E&S Manager ▪ Appoint one E&S officer per 100 workers ▪ Appoint Emergency response team (doctor, nurse, firefighters, etc.)
Project Operator	TBD	▪ Appoint a competent HSE team; and ▪ Implement mitigation and monitoring	▪ For Project nature and duration, this requires

Project Role	Entity	Responsibilities	Staffing Requirements
		requirements as detailed in the ESMP and ESHS MS requirements;	an E&S Staff (HSE Manager / Social Manager), but it could be off-site / corporate role with support from other onsite personnel ▪ Appoint Emergency response team (e.g. firefighters, etc.)
Ministry of Ecology, Environmental Protection, and Climate Change	Granting environmental clearance to the Project	▪ Undertake compliance monitoring	N/A
IFIs	TBD	▪ The Bank team to carryout monitoring missions during the construction and operation phases of the project and engagement with developer, EPC Contractor and Project operator. The implementation of ES management will be reviewed to ensure compliance with AIIB Environmental and Social Framework requirements.	N/A

Training and Awareness

An HSSE training plan will be developed and maintained onsite which identifies the type of training that is required for each worker onsite. The plan will ensure that each worker is competent in relation to the tasks to be performed. In addition, signed attendance sheets and training material must be maintained onsite at all times. This should be completed by the EPC Contractor and Project Operator as applicable.

Training should include the following as applicable and as highlighted in the table that follows.

- Basic visitor HSSE induction training;
- Worker HSSE induction training for all workers onsite to include for example EPC Contractor and subcontractor crew;
- Emergency response training for all workers onsite to include for example EPC Contractor and subcontractor crew;
- Specialized training: there are other specific training requirements that must be adhered to, and which are related to specific topics as applicable. This includes for example specific training for Occupational Health and Safety (OHS), waste, drivers, security workers, GBV/SEAH (Gender-Based Violence / Sexual Exploitation, Abuse, and Harassment) etc.; and
- Toolbox Talks (TBT): regular TBT meetings must be undertaken with for example EPC Contractors respective crews and subcontractor crew. Topics and frequency are developed and distributed regularly.

In addition, training effectiveness should be evaluated periodically, for example through refresher sessions, follow-up assessments, or competency checks, to ensure continuous improvement and retention of key HSSE knowledge.

Table 34: Training Elements

Training	EPC Contractor	Project Operator
Basic visitor HSE induction training	✓	✓
Worker HSE induction training	✓	✓
Emergency response training	✓	✓
Specialized training	✓	✓
Toolbox Talks (TBT)	✓	✓

Inspection and Monitoring

ESHS inspection and monitoring must be undertaken to ensure compliance of involved entities with the mitigation and monitoring requirements as detailed in the ESMP and HSSE MS requirements. This should be completed by the Developer, EPC Contractor, and Project Operator as applicable.

Inspection and monitoring should include the following as applicable and as highlighted in the table that follows.

- Daily HSE inspection and monitoring at the site and preparation of a daily observation report stating therein the corrective measures on observed safety deficiencies, unsafe acts and conditions;
- Weekly site inspections to be carried out using the weekly site inspection checklists template based on requirements of the ESMP and HSSE MS; and
- HSSE and Labor & Working conditions Audits to be undertaken by Developer on EPC Contractor to ensure compliance with ESMP requirement and HSSE MS. HSSE and labor/working conditions audits should be undertaken quarterly during the construction phase and annually during the operation phase.

Table 35: Inspection and Monitoring Elements

Inspection and Monitoring	Developer	EPC Contractor	Project Operator
Daily HSE Inspection and Monitoring		✓	
Weekly Site Inspections		✓	✓
HSSE Audits	✓		
labor & working conditions Audits	✓		
Monitoring of E&S Parameters (e.g. Noise)		✓	✓

Meetings

Regular HSSE meetings must be undertaken to discuss HSSE performance onsite, outstanding issues, key issues of concern and other as applicable. Signed attendance sheets and Minutes of Meeting (MoM) must be maintained onsite at all times. This should be completed by the Developer, EPC Contractor, and Project Operator as applicable.

Meetings should include the following as applicable and as highlighted in the table that follows.

- Weekly HSSE meetings
- Monthly HSSE meeting

- Quarterly management HSSE reviews

Table 36: Required Meetings

Meetings	Developer	EPC Contractor	Project Operator
Weekly HSSE Meetings		✓	✓
Monthly HSSE Meeting	✓	✓	✓
Quarterly Management HSE reviews	✓	✓	✓

Reporting

HSSE reporting will be required to summarize the following:

- Progress in implementing the ESMP and HSSE MS plans as required;
- Findings of the monitoring programs, with emphasis on any breaches of the control standards, action levels or standards of general site management;
- Outstanding incident report forms;
- Relevant changes or possible changes in legislation, regulations and international practices;
- Reporting on Key Performance Indicators (KPI);
- Grievances (worker and stakeholder); and
- Security incidents.

Reporting should be submitted to the Developer as applicable by the relevant entities as identified below.

Table 37: Reports

Reporting	EPC Contractor	Project Operator
Reporting	Monthly	Monthly

20.2 Health, Safety, Security, and Environment (HSSE) Management System (MS)

The ESIA is considered a key document in assessing and managing environmental and social risks related to the Project. The key output of the ESIA is the ESMP which aims to provide high level mitigations and requirements for managing the environmental and social risks anticipated from the Project.

Throughout the Project's construction and operation phase a Health, Safety, Security, and Environment Management System (HSSE-MS) must be implemented by all relevant parties (i.e. Developer, EPC Contractor and Project Operator). The HSSE-MS must be project and site specific and must build on and take into account the requirements of the ESMP presented throughout this document.

Summarized below is the overall framework, structure and key requirements for the HSSE-MS for the key entities involved in the Project.

Developer

- ESIA including ESMP

- HSSE MS Manual that should include: (i) HSSE Policy; (ii) Human Resources Policy and Procedures; (iii) HSSE Organizational Structure and Responsibilities; (iv) ESHS Monitoring and Reporting Requirements; (v) HSSE Meeting Requirements; (Vi) HSSE Training Requirements.
- Stakeholder Engagement Plan (SEP) including stakeholder grievance mechanism;
- Subcontractor and Supplier Management Plan; and
- Community Development Plan
- Environmental and Social Action Plan (ESAP)

EPC Contractor

- ESIA including ESMP
- HSSE MS Manual (in line with Developer) that should include: (i) HSSE Policy; (ii) Human Resources Policy and Procedures; (iii) HSSE Organizational Structure and Responsibilities; (iv) HSSE Monitoring and Reporting Requirements; (v) HSSE Meeting Requirements; (Vi) HSSE Training Requirements.
- Training Management Plan
- Site Mobilization Plan
- Hazardous Material and Waste Management Plan
- Water Management Plan
- Biodiversity Management Plan
- Emissions Management Plan
- Noise and vibration management plan
- Chance Find Procedure
- Traffic and Transportation Management Plan
- Emergency Preparedness and Response Plan
- Occupational Health and Safety Management Plan
- Labor and Working Conditions Management Plan which includes:
    - Grievance Redress Mechanism
    - Code of Conduct
    - Gender-Based Violence and Harassment Measures
- Worker Accommodation Management Plan
- Subcontractor and Supplier Management Plan
- Security and Human Rights Management Plan
- Gender Management Plan

Project Operator

- ESIA including ESMP
- HSSE MS Manual (in line with Developer) that should include: (i) HSSE Policy; (ii) Human Resources Policy and Procedures; (iii) HSSE Organizational Structure and Responsibilities; (iv) HSSE Monitoring and Reporting Requirements; (v) HSSE Meeting Requirements; (Vi) HSSE Training Requirements.
- Training Management Plan
- Hazardous Material and Waste Management Plan
- Water Management Plan
- Traffic and Transportation Management Plan
- Emergency Preparedness and Response Plan
- Occupational Health and Safety Management Plan
- Labor and Working Conditions Management Plan
- Subcontractor and Supplier Management Plan
- Security and Human Rights Management Plan
- Gender Management Plan
- Pollution Prevention Plan

20.3 HSSE Budget

An HSSE budget will be developed to support the implementation of the Environmental and Social Management Plan (ESMP), including the required mitigation, monitoring, training, reporting and management measures identified within this ESIA. The budget will be prepared once the ESIA, ESMP and associated management commitments are finalised and approved, to ensure that all required environmental, social, health, safety and security measures are adequately resourced throughout the construction and operation phases of the Project.

20.4 Environmental and Social Action Plan

An Environmental and Social Action Plan (ESAP) will be developed by the Project E&S Team following finalization and approval of the ESIA. ESAP will consolidate the key environmental and social actions, commitments, responsibilities, timelines and monitoring requirements needed to ensure the Project is implemented in accordance with applicable national requirements, lender standards and the mitigation measures identified in the ESIA and ESMP. The ESAP will be maintained as a live document and updated as required during Project implementation.

20.5 Compilation of the Environmental and Social Management Plan (ESMP)

The tables below present the ESMP for the: (i) planning and construction, and (ii) operation phase respectively and which include the following:

- The E&S attribute (e.g. air quality) that is likely to be impacted;
- A summary of the potential E&S impact and/or likely issue;
- The identified management measures that aim to eliminate and/or reduce the potential impact to acceptable levels. Management measures include mitigation actions, further requirements, additional studies, etc.;
- Monitoring actions to ensure that the identified mitigation measures are implemented. Monitoring actions include inspections, review of reports/plans, reporting, etc.;
- The frequency for implementing the monitoring actions, which include once, continuously throughout the construction/operation period (depending on the mitigation measure identified this could include daily, weekly, or monthly), or upon occurrence of a certain issue;
- Parameters and location of monitoring actions as identified and applicable; and
- Responsible entity for implementing the mitigation measures and monitoring actions identified.

It is important to note that the management plans identified within the ESMP must be submitted to and approved by the Developer prior to the commencement of the applicable Project phase. Construction activities shall not commence prior to Developer approval of the management plans identified as required before commencement of construction.

Table 38: ESMP for the Planning and Construction Phase

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
Landscape and Visual	Visual and landscape impact due to presence of typical elements of a construction site such as equipment and machinery (e.g. trucks, excavators, etc.).	Ensure proper general housekeeping and personnel management measures are implemented which could include: (i) ensure the construction site is left in an orderly state at the end of each workday; (ii) to the greatest extent possible construction machinery, equipment, and vehicles that are not in use should be removed in a timely manner and kept in locations to reduce visual impacts to the area; (iii) to ensure proper storage, collection, and disposal of waste streams generated.	Mitigation	Visual inspections	Continuous	EPC Contractor
Geology, Hydrology and Hydrogeology	Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Solid waste management	Coordinate with State Unitary Enterprise for the collection of solid waste from the site to the municipal approved landfill or for recycling	Mitigation	Submit Contract	Once before commencement of construction	EPC Contractor
		Prevent fly-dumping of any solid waste to the land	Mitigation	Visual Inspections	Continuous	
		Establish a solid waste management area onsite that is of hard surface, properly secured, with appropriate labelling and signage Distribute appropriate number of properly contained litter bins and containers properly marked as "Municipal Waste."				
		Adhere to waste hierarchy principles with associated mitigation measures to include prevent, minimize, reuse, recycle, recover and dispose.				
		Distribute a sufficient number of properly contained containers clearly marked as "Construction Waste" for the dumping and disposal of construction waste.				
		Recycling measures must be implemented as follows: (i) separation and disposal of recyclables in a separate container (cardboard, paper, glass, metal, etc.); and (ii) separation and disposal of non-recyclable materials in a separate container (e.g. food waste). Each container must be clearly marked. In addition, ways to reduce construction waste must be undertaken by reusing materials (for example through recycling of concrete for road base coarse).				
		Implement proper housekeeping practices on the construction site at all times.				
		Maintain records and manifests that indicate volume of waste generated onsite, collected by contractor, and disposed of at the landfill. The numbers within the records are to be consistent to ensure no illegal dumping at the site or other areas.	Mitigation	Submit manifests	Continuous	
	Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Wastewater management	Coordinate with State Unitary Enterprise to hire a private contractor for the collection of wastewater from the site to the closest WWTP.	Mitigation	Submit contract	Once before commencement of construction	EPC Contractor
		Ensure that constructed septic tanks during construction are well contained and impermeable to prevent leakage of wastewater into soil.	Mitigation	Submit detailed design		
		Prohibit illegal uncontrolled or unauthorized discharge of wastewater to the land.	Mitigation	Visual Inspections	Continuous	
		Ensure that septic tanks are emptied and collected by wastewater contractor at appropriate intervals to avoid overflowing.				
		Maintain records and manifests documenting the volume of wastewater generated onsite, collected by contractor, and disposed of at the WWTP. The numbers within the records are to be consistent to ensure no illegal discharge at the site or other areas.	Mitigation	Submit manifests	Throughout construction period	
	Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Hazardous waste management	Hire approved private contractor for the collection of hazardous waste from the site to the approved hazardous waste disposal facilities.	Mitigation	Submit contract	Once before commencement of construction	EPC Contractor
		Ensure that hazardous waste is disposed in a dedicated area that is enclosed, of hard surface, with proper signage and suitable containers as per hazardous waste classifications and that they are labelled for each type of hazardous waste.	Mitigation	Visual Inspections	Continuous	
		Ensure hazardous waste storage area is equipped with spill kit, fire extinguisher and anti-spillage trays and a hazardous waste inventory is available.				
		Prohibit uncontrolled disposal of hazardous waste to the land.				
		Potentially contaminated water (e.g., runoff from paved areas) must be				

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		drained into appropriate facilities (such as sumps and pits). Contaminated drainage must be disposed of as hazardous waste.				
		Ensure that containers are emptied and collected by the contractor at appropriate intervals to prevent overflowing.				
		Maintain records and manifests that indicate volume of hazardous waste generated onsite, collected by contractor, and disposed of at the hazardous waste disposal facilities.	Mitigation	Submit manifests	Throughout construction period	
	Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Hazardous material management	Ensure that hazardous materials are stored in an area that is of hard impermeable surface, flame-proof, accessible to authorized personnel only, locked when not in use, and prevents incompatible materials from coming in contact with one another.	Mitigation	Visual Inspections	Continuous	
		Maintain a register of all hazardous materials used and accompanying MSDS must present at all times. Spilled material should be tracked and accounted for.				
		Incorporate dripping pans at machinery, equipment, and areas that are prone to contamination by leakage of hazardous materials (such as oil, fuel, etc.)				
		Maintenance activities and other activities that pose a risk for hazardous material spillage (such as refuelling) must take place at a suitable location (hard surface) with appropriate measures for trapping spilled material				
		Ensure that sufficient spill response equipment and absorbent materials are available at hazardous materials storage areas at all times to effectively contain and clean up any spills.				
		If spillage on soil occurs, spill must be immediately contained, cleaned-up, and contaminated soil disposed as hazardous waste				
	Accidental spills and leakages may occur potentially resulting in localized soil and groundwater contamination.	Ensure that all fuels, oils, lubricants, and chemicals are stored in properly designed storage facilities constructed of hard, impermeable surfaces, with roof cover and secondary containment (bunded areas) capable of holding at least 110% of the largest container.	Mitigation	Inspection	Continuous	
		Maintain an updated Material Safety Data Sheet (MSDS) register onsite for all hazardous materials, accessible to all staff.	Mitigation	Inspection	Continuous	
		Prohibit any refuelling or oil handling activities outside designated, hard-surfaced, and contained areas.	Mitigation	Inspection	Continuous	
		Equip all relevant areas (storage, refuelling, battery rooms, and maintenance zones) with spill kits and ensure that personnel are trained in their use.	Mitigation	Inspection	Continuous	
		In case of accidental spillage, contain the spill immediately, recover the leaked material using non-reactive absorbents, and dispose of contaminated soil and absorbents as hazardous waste.	Mitigation	Inspection	Continuous	
		Maintain emergency spill response procedures as part of the Project's HSSE.	Mitigation	Inspection	Continuous	
		Conduct regular inspection and maintenance of all equipment, storage containers, and transfer systems to identify early signs of leaks or deterioration.	Mitigation	Review of maintenance and inspection records	Continuous	
		Ensure that BESS units are housed in sealed containers or enclosures with integrated drip trays or containment sumps to prevent leakage from reaching the ground.	Mitigation	Inspection	Continuous	
		Maintain a Battery Management System (BMS) capable of real-time monitoring of temperature, voltage, and leakage current to detect early signs of failure or electrolyte loss.	Mitigation	Inspection	Continuous	
		Develop and implement a BESS Fire and Spill Response Procedure that includes isolation, cooling, and safe removal of damaged battery modules.	Mitigation	Submission of BESS Fire and Spill Response Procedure	Continuous	
		Collect and dispose of any spilled electrolyte, contaminated absorbents, or damaged battery cells as hazardous waste through an Ministry of Ecology-approved contractor.	Mitigation	Inspection	Upon Occurrence	
		Prevent the washing of spilled material or firewater runoff into soil or stormwater drains.	Mitigation	Inspection	Continuous	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		Conduct specialized emergency response training for the O&M team focusing on chemical spill containment, first aid, and safe handling of battery incidents.	Mitigation	Inspection	Continuous	
		Prior to construction, the EPC Contractor will undertake a pre-construction walkover of the Underground Transmission Line route to confirm whether any visible spills, stained soils, bitumen residues or other signs of contamination are present. The observed bitumen spill area will be avoided where practicable. If works are required within or near the affected area, the EPC Contractor will undertake a targeted inspection and, where needed, testing before disturbance. Any bitumen-contaminated soil or material encountered during construction will be segregated, prevented from reuse as backfill, and removed by an approved contractor to a suitable licensed facility. Workers will be instructed to stop work and notify the HSE/E&S team if stained soil, oily material, bitumen residues or unusual odours are encountered.	Mitigation	Inspection	Prior to OHTL Construction	EPC Contractor
	Construction activities could disturb soil, and result in erosion and runoff could result in siltation of surface water (during rain events)	Drainage system design will consider channels and diversion drains to be constructed and maintained to divert surface runoff around while maintaining the natural drainage characteristics where practicable	Mitigation	Visual Inspections	Continuous	EPC Contractor
		Drainage infrastructure will be constructed during dry periods to reduce erosion risk and the potential for sediment movement downstream.				
		To the extent possible, construction activities should be minimized during wet conditions. When work must occur under such conditions, stormwater should be effectively controlled using appropriate measures to prevent erosion and sedimentation. This involves two complementary approaches: first, keeping clean water clean by avoiding disturbance to natural drainage features, minimizing works in or around artificial drainage channels, and diverting uncontaminated surface runoff away from excavations, construction zones, and temporary storage areas. Second, managing potentially contaminated water by collecting drainage from work areas that may carry silt, sediment, or nutrients and directing it to appropriate control measures, such as stilling ponds and/or sediment traps, which must be routinely monitored and cleaned as necessary.				
		Salvage and store topsoil and subsoil before areas are excavated, with topsoil stripped and stockpiled separately.				
		Install as needed interceptor or cut-off drains in advance of any main construction works commencing. Interceptor or cut-off drains are installed up gradient of any works areas to collect surface flow runoff and prevent it reaching excavations and construction areas of the site where it might otherwise have come into contact with exposed surfaces and picked up silt and sediment.				
		Place clear markers indicating stockpiling area of excavated materials to restrict equipment and personnel movement.				
		Install erosion control barriers around work site as needed during site preparation and construction to prevent silt runoff where applicable.				
		Return surfaces disturbed during construction to their original (or better) condition to the greatest extent possible.				
Biodiversity	Habitats and Flora - permanent loss of ~10 ha of semi-desert habitat,	All construction workers will undertake a Project induction before working on site. The induction will include a comprehensive biodiversity element where the baseline ecological value and sensitivity of the site will be discussed.	Mitigation	Submission of induction records	Once per worker	EPC Contractor
		To avoid introducing non-native or invasive species to site all vehicles coming to site will be subject to a full clean down which will include wheel and body work cleaning before entry into the access road.	Mitigation	Visual inspections	Continuous	EPC Contractor
		Regular site walkover surveys throughout the construction period by a suitably qualified botanist to check to the presence and abundance of non-native or invasive species. In case such areas are identified, areas of non-native or	Mitigation	Botanist survey reports	Regular, throughout construction period	EPC Contractor / Developer's Biodiversity Team

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		invasive species will be mapped and a program of mechanical control will be completed over the construction period in order to remove these species. Chemical control will be avoided however, if necessary, will be used but in accordance with national and international guidelines.				
		Mitigation for impacts will be transposed into the Construction HSSE MS. This will also include dust suppression activities (e.g. watering of tracks in dry periods, adherence to site speed limits) and banning of site workers from using vehicles away from the established transport routes.	Mitigation	Visual inspections	Continuous	EPC Contractor
		In accordance with national requirements, a site inspection will be undertaken by a representative of the regional branch of the National Committee on Ecology and Climate Change prior to the commencement of construction, and damage estimates for the 33 black saxaul *(Haloxylon ammodendron*) individuals located within the construction footprint will be calculated by the authorities. The loss of these individuals will be offset through a compensation programme managed by the relevant authorities, implemented following the site inspection.	Compensation	Site inspection record and damage estimates / evidence of compensation	Once, prior to commencement of construction	Developer / EPC Contractor
		The final extent of habitat impacts, including the area of Moderate and Good condition habitat affected during construction, will be confirmed prior to construction and used to inform the biodiversity management and monitoring measures required to achieve no net loss of biodiversity. The measures required to achieve this objective will be defined in the Biodiversity Management Plan (BMP) and may include, for example, habitat restoration and enhancement, revegetation using native species characteristic of the local area, and other measures identified through application of the mitigation hierarchy.	Mitigation / Compensation	Habitat measurement records / restoration and replanting records (BMP)	Once, prior to habitat clearance; restoration during and post-construction	EPC Contractor / Developer's Biodiversity Team
	Habitats and Flora - Tulipa lehmanniana Merckl. recorded along the northern edge of the Project area	Demarcate the areas where Tulipa lehmanniana Merckl. was recorded, together with their surrounding natural habitats, prior to the commencement of construction. Such areas shall be excluded from all construction activities and from the movement and storage of machinery, equipment and materials. The boundaries of such areas shall be identified within the BMP and included within the worker induction training.	Mitigation	Submission of demarcation records Visual Inspections	Once, prior to commencement of construction; continuous thereafter	EPC Contractor / Developer's Biodiversity Specialist
	Reptiles and Amphibians	All site workers will undertake a Project induction before working on site. The induction will include a comprehensive biodiversity element where the baseline ecological value and sensitivity of the receptors within the AoI will be discussed.	Mitigation	Submission of induction records	Once per worker	EPC Contractor
		Before construction works commence, pre-clearance survey and translocation of the site will be completed in the spring 'active season' by a qualified ecologist. Animals will be moved to areas of suitable habitat and will be distributed evenly and in areas adjacent to where they were found. All burrows that could potentially support tortoises (they have a characteristic shape) will be fully investigated using an endoscope. All burrows will be destroyed / blocked once confirmed they are free of tortoises. Translocation efforts will only take place during the tortoise active season and will cease as soon as aestivating behavior is recorded. Only active animals will be translocated.	Mitigation	Submission of translocation report	Once, prior to habitat clearance (active season)	EPC Contractor / Developer's Biodiversity Team
		If occupied burrows are found after the active season, then the burrows will be clearly marked (using colored flags) and the working areas adjusted to avoid direct impacts on aestivating / hibernating tortoise.	Mitigation	Visual inspections	Continuous during construction	EPC Contractor / Developer's Biodiversity Team
		Prior to construction works (habitat clearance, levelling or any other works) working areas will be clearly demarked so that site workers fully understand the working area. Working areas will be marked. Encroachment into areas outside of agreed working areas will be prohibited and working areas will be subject to regular check by the EPC Contractor and Developer's Biodiversity Team to check enforcement of working areas.	Mitigation	Visual inspections	Continuous during construction	EPC Contractor / Developer's Biodiversity Team
		Implement a biodiversity chance find procedure developed as part of the BMP.	Mitigation	Submission of	As required, throughout	EPC Contractor /

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		Where any Central Asian Tortoise or other species of conservation concern is encountered during construction activities, works in the affected area shall be suspended. The procedure shall identify the notification and reporting requirements, the actions to be undertaken by the EPC Contractor, and the role of the regional branch of the National Committee on Ecology and Climate Change, including circumstances requiring notification of and coordination with the authority prior to resuming works.		chance find records	the construction period	Developer's Biodiversity Specialist
		Restrict vehicle movements to the demarcated working areas and established access and haul routes at all times. Apply and communicate site speed limits to all drivers as part of the induction training, and require drivers to undertake a visual check beneath and around vehicles and machinery that have been stationary before moving them.	Mitigation	Visual Inspections	Continuous during construction	EPC Contractor
	Birds	All site workers will undertake a Project induction before working on site. The induction will include a comprehensive biodiversity element where the baseline ecological value and sensitivity of the receptors within the AoI will be discussed.	Mitigation	Submission of induction records	Once per worker	EPC Contractor
		Site clearance works will be completed to the extent possible outside of the bird nesting season. If this is not possible all working areas will be checked prior to clearance by a suitably qualified ecologist. If active nests are identified they will be clearly marked and an appropriate buffer established to exclude construction traffic from the area around the nest. The buffer will be maintained and checked regularly until the nest is no longer active.	Mitigation	Ecologist survey records	Once, prior to clearance (if within nesting season)	EPC Contractor / Developer's Biodiversity Team
		Strict waste management will be put in place, with all waste disposed of in appropriate bins and covered to prevent scavenging. Regular waste collection will be carried out by licenced waste carriers and disposed of in designated dump areas away from the Project site.	Mitigation	Visual inspections	Continuous	EPC Contractor
	Mammals	All site workers will undertake a Project induction before working on site. The induction will include a comprehensive biodiversity element where the baseline ecological value and sensitivity of the receptors within the AoI will be discussed.	Mitigation	Submission of induction records	Once per worker	EPC Contractor
		Any site clearance works will be completed following a check by a suitably qualified ecologist. If active burrows or nests are identified they will be carefully dug out by hand, and any animals present within either captured and transported away from site, or allowed to disperse to areas outside of the proposed development area.	Mitigation	Ecologist inspection records	Prior to clearance	EPC Contractor / Developer's Biodiversity Team
		Regular checks of the Project area will be completed (at least once per fortnight) to ensure that no animals have moved back into the development area. If new burrows are encountered these will be dug out by hand and any animals either captured and transported away from site, or allowed to disperse as per the previous step.	Mitigation	Ecologist inspection records	Fortnightly during construction	EPC Contractor / Developer's Biodiversity Team
Archaeology and Cultural Heritage	Improper management could potentially disturb or damage potential archaeological remains on the surface as well as some of which could be buried in the ground (if	Driving will only be permitted on formal site roads and off-road driving is prohibited, unless it is driving within a working area (e.g. moving equipment or infrastructure around the site or for maintenance operations).	Mitigation	Visual Inspections	Continuous	EPC Contractor
		Workers are only permitted within authorized working areas and moving to any offsite area is prohibited.	Mitigation	Visual Inspections	Continuous	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
	any).	Ensure all workers read, understand and sign the worker code of conduct which includes specific requirements related to such an issue and which include: (i) Respect religious sentiments and customs and traditions of co-workers, (ii) Respect the local religious and/or traditional days of celebration and their restrictions, (iii) Respect the religious shrines and burial sites and practices of the local population, (iv) Do not disturb shrines and other religious monuments, and (v) Recognize that shrines and sacred sites may include trees, sheds, piles of pebbles, and piles of offerings.	Mitigation	Submission of signed worker code of conduct	Throughout entire construction phase	
		Induction training and Toolbox Talks (TBT) should be delivered to all workers to: (i) emphasize the presence and location of the sites and their overall importance; and (ii) explain chance find procedures to ensure clarity when archaeological and cultural heritage finds are encountered on site.	Mitigation	Submission of Induction Training records	Throughout entire construction phase	
		There is a chance that potential archaeological and/or cultural heritage remains in the ground might be discovered. It is expected that appropriate measures for such chance find procedures are implemented. Those mainly require that construction activities be halted, and the area fenced along with proper signage, while immediately notifying the National Center of Archaeology of the Republic of Uzbekistan. No additional work will be allowed before the Ministry of Culture and Tourism assesses the found potential archaeological site and grants a clearance to resume the work. Construction activities can continue at other parts of the site if no potential archaeological remains were found. If found, same procedures above apply.	Mitigation	A report submitted to the National Center of Archaeology of the Republic of Uzbekistan	Upon occurrence	Developer/EPC Contractor
Air Quality and Noise	Construction activities will likely result in an increased level of dust and particulate matter emissions to some extent, which in turn will directly and temporarily impact ambient air quality.	Undertake and document daily visual dust monitoring throughout the construction phase to verify the effectiveness of dust control measures and identify any excessive dust generation. Where excessive dust emissions are observed, appropriate mitigation measures shall be implemented and their effectiveness verified. In the event of dust-related complaints, or where visual monitoring indicates that dust emissions are not being adequately controlled, air quality monitoring (including TSP and PM10, as appropriate) shall be undertaken at representative locations by a qualified third party to assess compliance with applicable national ambient air quality standards and the IFC General EHS Guidelines, whichever is more stringent. Where exceedances are identified, the source of such emissions shall be investigated and additional mitigation measures implemented as necessary	Mitigation	Dust monitoring program	Quarterly	EPC Contractor
		Ensure stakeholder grievance mechanism is implemented fully and properly with the local communities (specifically those directly to the north) and nearby industries (specifically those directly to the south) , to addresses any grievances submitted in relation to dust. Please refer to the SEP for additional details on the grievance mechanism and its announcement.	Mitigation	Visual Inspections	Continuous	
		Apply basic dust control and suppression measures which could include: (i) regular watering of roads for dust suppression; (ii) proper planning of dust causing activities to take place simultaneously in order to reduce the dust incidents over the construction period; (iii) proper management of stockpiles and excavated material (e.g. watering, containment, covering, bundling); (iv) proper covering of trucks transporting aggregates and fine materials (e.g. through the use of tarpaulin); and (v) adhering to a speed limit of: (a) 20 km/h within the Project area; and (b) 10km/h within working areas; (vi) Where practical, compact the ground in areas that are heavily used by vehicles and machinery; (vii) Limit or suspend earthworks during extreme weather conditions; (viii) Ensure periodic washing of vehicles in order to remove any dusty material in a dedicated area.				

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		Take into account the prevailing weather conditions when scheduling dust generating activities, and increase the frequency of dust suppression measures during periods of high temperatures and unfavourable winds.				
		Comply with the Occupational Safety and Health Administration (OSHA) requirements and the Uzbekistan Codes as well as IFC standards as included within the General EHS Guidelines to ensure that for activities associated with high dust levels, workers are equipped with proper Personal Protective Equipment (e.g. eye glasses, breathing masks, etc.);				
		Develop a regular inspection and scheduled maintenance program for vehicles, machinery, and equipment to be used throughout the construction phase for early detection of issue to avoid unnecessary pollutant and noise emissions				
	Construction activities will likely include the use of machinery and equipment such as hammers, compressors, etc. and which are expected to be a source of noise and vibration generation within the Project site and its surroundings.	Undertake noise monitoring on a quarterly basis to verify levels and to define and implement on a case-by-case basis measures and systems in order to maintain noise levels within allowable limits. If noise levels were found to be excessive due to construction activities (i.e. higher than allowable limits specified within Uzbekistan legislations or IFC standards as included within the General EHS Guidelines, whichever is more stringent), the source of such exceedances should be identified, and adequate control measures must be implemented;	Mitigation	Noise monitoring program	Quarterly	EPC Contractor
		Ensure stakeholder grievance mechanism is implemented fully and properly with the local communities (specifically those directly to the north) and nearby industries (specifically those directly to the south), to addresses any grievances submitted in relation to noise. Please refer to the SEP for additional details on the grievance mechanism and its announcement.	Mitigation	Visual Inspections	Continuous	
		Apply adequate general noise suppressing measures. This could include the use of well-maintained mufflers and noise suppressants for high noise generating equipment and machinery, developing a regular maintenance schedule of all vehicles, machinery, and equipment for early detection of issues to avoid unnecessary elevated noise levels, etc.;				
		Comply with the Occupational Safety and Health Administration (OSHA) requirements and the Uzbekistan Codes to ensure that for activities associated with high noise levels, workers are equipped with proper Personal Protective Equipment (e.g. Earmuffs).				
Infrastructure and Utilities	Waste Utilities. Ensure that waste utilities will be able to handle the waste requirements that are generated from the Project	Develop a Waste Management Plan. The plan should include the following: waste reduction strategies, recycling and reuse, and appropriate disposal methods, in line with the Project standards, etc. This should be part of the EPC Contractor and Project Operator HSSE.	Additional Requirement	Visual Inspections	Daily HSE monitoring Weekly site inspections Monthly water consumption reports	EPC Contractor
		Coordinate with the State Unitary Enterprise and obtain a list of authorized contractors for the collection of wastewater from the site to the closest authorized wastewater treatment plant.	Additional Requirement	Submit formal communication letters from the relevant entities.	Once before commencement of construction	
		Coordinate with State Unitary Enterprise for the collection of solid waste from the site to the closest authorized landfill (or obtain a list of authorized private contractors).				
		Coordinate with State Unitary Enterprise to obtain a list of authorized contractors for collection of hazardous waste from the site to the closest approved facility for final disposal.				
	Water Resources. Water requirements of the Project could	Document monthly water consumption of the Project during construction.	Additional Requirement	Visual Inspections	Daily HSE monitoring	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
	entail constraints on existing users such as local communities or industrial establishments.	Develop a water management plan. The plan should emphasize on water conservation and efficiency such as the following in particular: (i) Utilizing the dry-cleaning methods wherever applicable; (ii) Utilizing water saving fittings where applicable (taps, urinals, toilets, trigger guns, etc.); (iii) Consider utilizing treated wastewater/grey water for dust suppression and any irrigation requirements as applicable; (iv) Ensure that washing/cleaning activities (e.g. vehicle and equipment washing, toilets flushing/cleaning, etc.) are carried out using appropriate methods requiring low water consumption or dry (water-less) cleaning techniques where possible; (v) Awareness about resource efficiency, in particular concerning water use, shall be reinforced to all workers through signage and posters as appropriate; and (vi) Undertake weekly inspections for potable and non-potable water storage tanks and water supply connections to ensure there are no leaks. If any are located, they will be fixed immediately.			Weekly site inspections Monthly water consumption reports	
		Water for the Project shall be sourced only from authorized water suppliers. It is prohibited to source water from third-party facilities to include the Muruntau Gold Mining Facility or its allied facilities.	Mitigation	Submission of records confirming the authorization of the water supplier	Throughout entire construction period	EPC Contractor
	Traffic and Transport. Transportation requirements of the Project could affect level of service and capacity of existing highways and road networks. Traffic and Transport. Improper transportation activities could result in traffic related accidents on roads which in turn could affect the health and safety of users on the roads, workers and other.	Develop a Traffic and Transport Plan that must take into account the following: (i) local legislations related to traffic and transport; (ii) consultation, discussion, and engagement with the Ministry of Transport and coordination of any requirements as identified under “Section 6.2”; (iii) obtain transportation permits for heavy and abnormal loads if applicable; ; (v) develop the Traffic and Transport Management Plan based on the final Project logistics requirements, including transportation routes, vehicle types, traffic volumes, load requirements, delivery schedules, and any required permits or approvals (vi) confirm the transportation routes to be used for the delivery of Project personnel, equipment, materials, and oversized or heavy loads, taking into account road capacity, safety considerations, applicable restrictions, and any required approvals or permits; (vii) identification of types of vehicles to be utilized; (viii) define and implement procedures for onsite management of traffic, including optimization of internal traffic layout, access control (e.g., security checkpoint, registration), provision of lighting and segregation of pedestrian walkways, use of traffic signs (e.g., speed limits), barricading of open trenches and excavated pits, and use of banksmen, flaggers, and other personnel; (ix) define and implement procedures for the management of transportation activities during adverse weather conditions, including criteria for restricting, modifying, or suspending activities where necessary to ensure the safety of personnel, vehicles, loads, and other road users; (x) define and implement requirements applicable to all haulage contractors and suppliers, including licensing requirements, driver qualifications, driving instructions, code of conduct requirements, speed limits, incident management procedures, monitoring, and reporting requirements; (xi) define and implement a Driver Code of Conduct applicable to all personnel involved in Project-related transportation activities; (xii) define and implement site-specific speed limits, traffic control measures, and traffic signage requirements for all Project areas; (xiii) define and implement procedures for the management, reporting, investigation, and corrective action of on-site and off-site traffic incidents and accidents; (xiv) incorporate the traffic management requirements and procedures into induction training materials and refresher Toolbox Talks (TBTs); (xv) define Key Performance Indicators (KPIs) to monitor and evaluate the implementation and effectiveness of the plan; (xvi) define roles and responsibilities for the implementation of the plan; and (xvii) ensure all vehicles are subject to a regular inspection and maintenance program.	Additional requirement	Submit Traffic and Transport Plan	Once; before commencement of construction	EPC Contractor
			Additional requirement	Submit consultation record with Ministry of Transport	Once; before commencement of construction	
			Additional requirement	Submit detailed design	Once; before commencement of construction	
			Mitigation	Submit signed code of conduct for drivers	Throughout entire construction period	
			Mitigation	Submit TBT records	Throughout entire construction period	
			Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspections Monthly ESHS reports (including traffic / transport KPIs)	
			Mitigation	Submit abnormal load permits	For all abnormal loads	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
Socioeconomics	Employment and Procurement. If: (i) local community engagement is not implemented properly; OR (ii) if priority on all employment and procurement opportunities are not provided to local communities; OR (iii) if expectations are not properly managed and addressed – this could result distrust and resentment with the Developer and might eventually lead to other potential escalated events (e.g. demonstrations, blockage of access road, etc.).	Project updates to local communities must be provided in accordance with the identified measures in the Stakeholder Engagement Plan (SEP), which also includes measures related to management of local stakeholder expectations on jobs during both construction and operation phases. - Undertake periodic consultations in line with the SEP with local communities to: (i) manage expectations on employment and procurement opportunities for the Project; (ii) emphasize that job opportunities for this Project will be met throughout various entities that will include local communities; (iii) provide updates on Project implementation and overall schedule; and (iv) other as appropriate.; (II) provide updates on the implementation of the local recruitment and procurement procedure to date (e.g., number of locals employed to date); and (III) all communication and updates to the local communities should be provided through the following channels in particular: (i) Notifications and advertisements with Zarafshan and Tomdi Khokimiyat and the applicable Mahallas (including Mahalla Community Organization); and (ii) Telegram Channels of Muruntau Mahalla.	Additional requirement	Submission of stakeholder engagement log sheets	Monthly	Developer / EPC Contractor
		Implement local employment and recruitment measures as part of the Labor and Working Conditions Management Plan (LWCMP) (refer to "Section 17.2.3"). The recruitment process shall take into account the following: - Employment opportunities for skilled and unskilled workers will be communicated through the recruitment channels established under the LWCMP. Recruitment and selection processes will be fair, transparent and based on qualifications, competency and experience, while providing equal opportunities for all candidates, including women. The following order of priority with respect to employment, subject to availability of qualifications and skills will be promoted: (i) Muruntau community; (ii) Tomdi District/Zarafshan City; (iii) Navoiy Region; and (iv) Uzbekistan. - The local recruitment process will be conducted in an inclusive, fair, equitable and diverse manner, and it will be ensured that there is no bias or discrimination and will be open to all community members regardless of their class, race, color, gender, age, disability, civil status, etc. - Recruitment will be based on competency and skill. - Efforts and resources will be allocated to make sure that women are also fairly targeted and recruited and are provided opportunities to participate equally as men. - Gender inclusive advertising will be utilized in the announcement of job opportunities, , including language encouraging women to apply where appropriate. - Candidate selection (recruitment) will be conducted by a mixed-sex panel (comprising of at least two people). Candidate promotion selection be conducted by more than one person and never by a single-sex panel). - It will be prohibited to terminate the contract of a female worker during her maternity leave.	Additional requirement	Submission of Local Employment and Recruitment Procedure Submission of local community employment and procurement register by area/district/region along with evidence for announcements and selection process.		Developer/ EPC Contractor
		Considering implementing a Community Development Plan which aims to benefit the local communities to the greatest extent possible. It is recommended that a structured approach is developed for such a program that takes into account the community's needs and priority development projects which could benefit local communities (which logically should also take into account other factors such as allocated budget by the Developer, timeline for implementation of such projects, etc.)	Additional requirement	Submission of community development plan	Once; during 1st year quarter of construction	Developer / EPC Contractor
			Additional requirement	Submission of community development plan update report	Annually	Developer / EPC Contractor
		Stakeholder grievance mechanism should be implemented in relation to implementation of the requirements of the Stakeholder Engagement Plan (SEP) and the Local Employment and Recruitment Procedure. Any grievances submitted should be handled fully in accordance with the mechanism that is	Mitigation	Submission of stakeholder grievance log sheet	Monthly	Developer / EPC Contractor

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		included within the SEP.		Submission of grievance close-out forms		
Community, Health, Safety and Security	Community Health, Safety and Security. Trespassing of unauthorized personnel into active construction areas could result in health and safety impacts	Prepare and submit a security Management Plan (SMP) that will include: (i) Security personnel will be used at the access points to control the entry and exit of people and continuous security patrols will be implemented; (ii) BESS and substation area will be fenced off during construction and will have signs with warning notices in English, Russian, and Uzbek language. ; (iv) warning signs indicating the presence of the Project to inform local people of the dangers posed by the Project in English, Russian and Uzbek language.	Additional requirements	Submission of SMP	Once; before commencement of construction	EPC Contractor
		The Stakeholder Engagement Plan (SEP) that will be implemented will include measures to engage with local communities to inform them about the start of construction works in advance, to educate them on the dangers inside the fenced-off area, and the danger of approaching construction works at other locations and emphasize importance of avoiding trespassing at all times.	Mitigation	Submission of stakeholder engagement log sheets	Monthly	
		Stakeholder grievance mechanism should be implemented in relation to implementation of the requirements of the SMP. Any grievances submitted should be handled fully in accordance with the mechanism that is included within the SEP. Please refer to the SEP for additional details.	Mitigation	Submission of stakeholder grievance log sheet Submission of grievance close-out forms	Monthly	
	Community Health, Safety and Security. Inappropriate management of security issues (e.g. conduct of security personnel) could result in health and safety issues for local communities.	Based on the SRA, a Security Management Plan (SMP) to be implemented. The plan must identify appropriate measures for hiring, rules of conduct, training, equipping, and monitoring of unarmed security personnel to control and manage such issues. The plan must also adhere to IFC PS 4 (Community Health, Safety and Security), AIIB ESS 1: Environmental and Social Assessment and Management in relation to the security guards employed. This requires that that the behavior for the security personnel is guided by the Voluntary Principles on Security and Human Rights in terms of hiring, rules of conduct, training, equipping and monitoring of such personnel. It also requires making reasonable inquiries to satisfy itself that those providing security measures are not implicated in past abuses, will ensure they are trained adequately in the use of force and appropriate conduct towards the workers and the local community. Force should only be used when strictly necessary, and to an extent proportional to the threat.	Additional requirement	Submission of SMP	Once; before commencement of construction	
			Mitigation	Submission copies of clearance of security guards in past abuses	Throughout entire construction period	
			Mitigation	Submission of signed code of conduct for security personnel	Throughout entire construction period	
			Mitigation	Submission of training and TBT records for security personnel on security rules of conduct, use of force, etc.	Throughout entire construction period	
			Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspections Monthly ESHS reports (including SMP KPIs)	
		Stakeholder engagement activities with local communities must provide information on security control requirements and measures implemented. Stakeholder engagement activities are provided in further details in the SEP.	Mitigation	Submission of stakeholder engagement log sheets	Monthly	
		Stakeholder grievance mechanism should be implemented in relation to any grievances related to security incidents and/or security personnel code of conduct. Any grievances submitted should be handled fully in accordance with the mechanism that is included within the SEP. Please refer to the SEP for additional details.	Mitigation	Submission of stakeholder grievance log sheet Submission of grievance close-out	Monthly	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
				forms		
	Community Health, Safety and Security. Influx of huge number of workers to the area could result in community impacts such as pressure on infrastructure elements, increase in social vices, risk of spread of disease, and other.	Prepare and submit a Worker Accommodation Plan (WAP) and a Labor and Working Conditions Management Plan (LWCMP). The above plans should include specific sections on worker influx that should include the following measures: (i) in the case that worker accommodation / worker camps are not undertaken, it is recommended / preferred to manage workers in a centralized location / approach that are not located within local communities. If accommodation is to be located within local communities, then again it is highly recommended / preferred to manage in a centralized location / approach (e.g. within 1 apartment building or several located next to each other and not several apartments / hotels located in various dispersed areas).; (ii) Medical examination programs. All workers must be subject to a preliminary medical examination before commencement of any job tasks in accordance with local applicable requirements. In addition, routine medical examination for worker (bi-annually) must be undertaken. Such medical examinations must be undertaken at certified centers. Copies of medical examination results of all workers must be retained onsite. Medical examinations should be consistent amongst all worker to ensure no discriminatory implication; (iii) details and procedures for ensuring and maintaining hygienic conditions onsite at all times specifically related to the toilet and washing facilities, eating areas, etc. This should be applicable onsite and within worker accommodation; (iv) development of a code of conduct and associated disciplinary procedures for workers which takes into account appropriate behaviors by workers at all times, religious customs, traditional cultures and social norms in the area. In addition, it must include specific requirements for social vices including gender-based violence, sexual harassment, alcoholism, drug abuse, etc.; and (v) induction training and self-awareness raising sessions on risks associated to the most common contagious diseases (e.g. influenza virus), communicable diseases, general measures for hygiene, code of conduct expected to be implemented and other as appropriate.	Additional requirement	Submission of WAP and LWCMP	Once; before commencement of construction	
			Mitigation	Submission of medical examination records	Bi-annual	
			Mitigation	Submission of signed code of conduct and associated disciplinary measures	Throughout entire construction period	
			Mitigation	Submit induction training modules and Toolbox Talks on hygiene and code of conduct.	Throughout entire construction period	
			Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspections Monthly ESHS reports (including SMP KPIs)	
		Stakeholder engagement activities with local communities must provide information on worker influx expected and measures that will be undertaken to control such impacts. Stakeholder engagement activities are provided in further details in the SEP.	Mitigation	Submission of stakeholder engagement log sheets	Monthly	
		Stakeholder grievance mechanism should be implemented in relation to any grievances related to worker influx. Any grievances submitted should be handled fully in accordance with the mechanism that is included within the SEP. Please refer to the SEP for additional details.	Mitigation	Submission of stakeholder grievance log sheet Submission of grievance close-out forms	Monthly	
Worker Welfare, health and Safety	Worker Welfare, Health and Safety. Generic occupational health and safety risks to workers, as working onsite increases the risk of injury or death due to accidents	Prepare an Occupational Health and Safety Plan (OHSP). Adopt and implement the recommendations/provisions of the OHSP which includes: (i) Risk assessment and job safety planning procedure, (ii) PTW system procedure, (iii) LOTO procedure, (iv) Site control occupational health and safety procedure to include requirements for the following: personal Protective Equipment (PPE), requirements for site risks (fall protection, powered and hand tools, compressed air / gas cylinders, fire prevention, hot works, electrical works, material handling, machinery use and safety, excavation/concrete works/civil works, confined space activity, storage, medical requirements, and communicable disease management), (v) Occupational health and safety signage requirements, (vi) Identification of OHS training requirements, (vii) Identification of monitoring and reporting requirements, (viii) Identification of roles and responsibilities	Mitigation	Submit OHSP	Once before commencement of construction	
			Mitigation	Submission of OHS training records	Throughout construction period	
			Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspections Monthly ESHS reports (including OHSP KPIs)	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		A worker grievance mechanism should be implemented and that should handle any grievances related to OHSP.	Mitigation	Submit worker grievance sheet along with grievance close-out forms	Monthly	
		Lifting operations and the movement of high vehicles and mobile plant in proximity to the existing overhead transmission lines located adjacent to the Project site shall be undertaken under a permit to work. The permit shall confirm the minimum safe approach distances, the requirement for a banksman to be present, and any restrictions on crane orientation, boom radius and travel routes. Exclusion zones shall be established beneath and adjacent to the overhead transmission lines, physically demarcated using high visibility fencing or equivalent and provided with signage identifying the electrical hazard. Storage of materials, parking of plant and vehicles, and the erection of temporary structures within the exclusion zones shall be prohibited.	Mitigation	Submission of permits to work issued Visual Inspections	Daily HSE monitoring Weekly site inspection	
		Provide potable water to workers sourced only from authorized water suppliers. Potable water must meet the applicable national drinking water quality requirements. Undertake water quality testing and maintain records, and clearly mark non-potable water sources as unsuitable for drinking.	Mitigation	Submission of water quality testing records	Throughout entire construction period	
		Provide respiratory protective equipment to workers undertaking dust generating activities, taking into account the ambient dust conditions within the wider area.	Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspection	
	Worker Welfare, Health and Safety. Inappropriate accommodation facilities for workers will entail impacts on worker welfare as well as their overall health and safety.	Prepare a Worker Accommodation Plan (WAP) that must include the following components: (i) identify the workforce requirements including all subcontractor requirements; (ii) identify workforce transportation requirements to/from accommodation facilities; (iii) identify accommodation procedures to ensure that workers are provided with a decent accommodation which meets the basic worker's needs. In specific, onsite and/or offsite accommodation must be compliant with good international industry practices – mainly the "Workers' accommodation: process and standards" (EBRD/IFC Guidance Note, 2009). The document provides guidance notes on general living facilities, room facilities, medical facilities, management of accommodation units, etc.; (iv) worker accommodation must take into account climatic conditions of the area given the location (e.g. extreme heat and extreme cold) and it must be equipped with suitable measures such as air conditioning, heating, etc. (v) accommodation should consider the social and cultural backgrounds of the workers, providing spaces that respect cultural practices and promote social interaction in a positive manner. This includes considerations for gender segregation where culturally appropriate and facilities for religious practices (vi) accommodation facilities and specifications must take into account site-specific conditions to include in particular: (1) sand and salt storms, (2) windy conditions, (3) extreme hot and cold weather, and (4) conditions and low/high temperatures; (v) in relation gender requirement the following should be considered: (1) separate sleeping rooms for men and women will be provided in shared accommodations; (2) means of securing bedroom doors from inside and out will be provided; and (3) finally, female sanitary and toilet facilities will be kept separate from men; (v) identify housing rules and regulations including code of conduct; (vi) identify training requirements; (vii) identify monitoring and reporting requirements; and(viii) identify roles and responsibilities of the personnel involved in implementation of the plan.	Additional requirement	Submit WAP	Once; before commencement of construction	
			Mitigation	Submit detailed design for accommodation	Once; before commencement of construction	
			Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspections Monthly Audits Monthly ESHS reports (including WAP KPIs)	
		A worker grievance mechanism should be implemented and that should handle any grievances related to WAP.	Mitigation	Submit worker grievance sheet along with grievance	Monthly	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
				close-out forms		
	Worker Welfare, Health and Safety. Inappropriate management of the workforce could entail human rights violations (e.g. engaging child workers, confiscation of passports of foreign workers, unacceptable working hours, and others).	Prepare and submit a Labor and Working Conditions Management Plan (LWCMP) that should include: (1) an overview of the labor use on the Project throughout the construction and operation phases; (2) a Human Resources (HR) policy; (3) an HR management procedure for the workforce to ensure decent and humane working conditions, worker rights, and constructive workplace relations in line with the Local Labor Law, IFC Performance Standard 2, EBRD PR 2, and ILO Fundamental Labor Conventions. The plan should cover: (i) provision of signed contracts for all workers, including casual and temporary ones, with copies retained by both the worker and HR Manager; (ii) reasonable working conditions and terms of employment including working hours, wages, leave entitlements, and accommodation; (iii) recognition of workers' rights to form and join organizations and bargain collectively; (iv) prohibition of child labor; (v) management of young workers ensuring no illegal or hazardous work for those under 18, with specific rules if workers aged 15–18 are employed including parental consent, proof of age, limited hours, and no night or overtime work; (vi) prohibition of forced labor and human trafficking, including passport confiscation; (vii) non-discrimination in all employment stages; (viii) provision of equal opportunities for women and vulnerable groups; (ix) management of daily, migrant, and third-party workers under similar conditions to others; (x) inclusion of regular off-site rest breaks coordinated to avoid overlap with other nearby projects; (xi) fair wages meeting basic living standards, established based on qualifications and experience, ensuring equal pay for equal work and not below the national minimum wage; (xii) working hours not exceeding 40 hours per week with one-hour breaks every four hours, maximum 10 hours per day including overtime, and at least one 24-hour rest day per week; (xiii) leave entitlements including annual, sick, and social benefits as per Labor Law; (xiv) requirement for all workers to read, understand, and sign a Code of Conduct prohibiting harassment, abuse, and discrimination; and (xv) maintenance of worker privacy and data protection, with HR files, contracts, payment registers, grievance and disciplinary records securely stored and accessible only to the HR Manager. The plan should further (10) identify a disciplinary procedure; (11) establish welfare provisions for water, rest, and sanitary facilities; (12) define a grievance mechanism with clear escalation measures; (13) identify training requirements; (14) outline monitoring and reporting procedures; and (15) specify roles and responsibilities for implementation.	Additional Requirement	Submit LWCMP	Throughout entire construction period	
			Mitigation	Submit signed contracts for all workers		
			Mitigation	Submit signed worker code of conduct for all workers		
			Mitigation	Submit payment register		
			Mitigation	Submit disciplinary action register		
			Mitigation	Submit training and TBT records		
			Mitigation	Submit worker grievance logs with close-out forms		
			Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspections Monthly Audits Monthly ESHS reports (including KPIs for LWCMP)	
		The Worker Code of Conduct shall prohibit accessing third-party facilities in the vicinity of the Project site, including the facilities associated with the Muruntau Gold Mining Facility.	Mitigation	Submit signed worker code of conduct for all workers	Throughout entire construction period	
	Community and Worker Health and Safety. Inappropriate management of the workforce (which could be from the local community) as well as inappropriate conduct of workers within local community areas could entail gender related risk and impacts such as Gender based violence, and harassment (GBVH) or Sexual Exploitation, abuse, and harassment (SEBH)	Develop and implement a Labor and Working Conditions Management Plan (LWCMP). The Plan should include at a minimum the following: (1) safe transport will be provided to female and male workers, given the remote area of the Project. The codes of conduct, which prohibit gender-based violence, harassment and abuse, will apply to transportation modes; (2) all workers should be required to read and sign a Worker Code of Conduct which will be explained verbally. The code of conduct should prohibit be subject to disciplinary action and should prohibit harassment, gender-based violence and abuse of any kind; (3) all workers should be provided with a copy of the Gender Based Violence and Harassment (GBVH) Code of Conduct and will be required to sign it; (4) identify a worker welfare procedure related to drinking water, rest areas, sanitary facilities, changing rooms and other that should include	Additional requirement	Submit LWCMP	Once; before commencement of construction	
			Mitigation	Submit signed GBVH Code of conduct for all workers	Throughout construction period	
			Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspections Quarterly Audits	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		take into account the following in particular: (i) female sanitary, toilet facilities, and prayer rooms will be kept separate from men; (ii) all such facilities will have lockable doors with adequate numbers provided; (iii) separate changing rooms and cabinets will be provided for men and women both of which have locking mechanisms.			Monthly ESHS reports (including KPIs for LWCMP)	
		Identify a worker grievance procedure to manage all worker related complaints and grievances that should consider the following: (i) prohibiting gender-based violence and harassment in the workplace and will outline that a suitably trained male and female person is designated to process grievances in which male / female workers might feel uncomfortable discussing with a person of the opposite sex. The grievance mechanism also includes a procedure to deal with Gender Based Violence and Harassment (GBVH) grievances.	Mitigation	Submission of worker grievance logs with close-out forms	Monthly	
		Stakeholder Grievance Mechanism as part of the SEP also includes a procedure for GBVH grievances. This should be implemented entirely to handle any grievances related to GBVH Please refer to the SEP for additional details.	Mitigation	Submission of stakeholder grievance logs with close-out forms	Monthly	
Subcontractor and Supplier Management	Improper management of subcontractors and supplier poses risks of major environmental impacts, human right abuses, criminal abuses or other	Develop a Subcontractor and Supplier Management Plan which should: (i) identify the key subcontractors and suppliers that will be involved, (ii) identify a screening process where during the tendering process the key E&S requirements should be identified and included within the tender documents. This may include adherence to International Financial Institution (IFI) E&S requirements, national E&S regulations, ESIA and HSSE requirements and other. In addition, tenders will be required as part of the tender to specify how they intend to comply with such requirements as part of their scope of work. In the case there is no tendering process subcontractor/supplier will be required to respond to an E&S prequalification questionnaire and will be required to submit company HSE policies. Finally, as part of the screening process, an online desktop review (including media research) on the list of companies bidding, their owners and shareholders on E&S reputational issues; (ii) selection process where selected subcontractor / supplier risks have been identified, Developer / EPC Contractor will assess these risks further with the subcontractor / supplier concerned to understand their capacity to avoid and manage such risks and to understand the controls the subcontractor / supplier has in place. This could include but not limited to submission of E&S policies and procedures as relevant for subcontractor / supplier (e.g. for supplier's focus would be on human resources and labor policies and procedures), traceability, cascading E&S requirements, undertaking auditing protocols, etc. Where this is not possible, alternative suppliers will be sought; (iii) contractual control will put in place controls to avoid and manage potential risks. This will include but not limited to contractual controls, including corrective actions and exit mechanisms, to avoid and manage potential risks. This would depend on the level of risk identified and the leverage over the subcontractor / supplier concerned. Contractual controls could include but not limited to the following: requirement to comply with IFI E&S requirements and national E&S requirement as applicable; requirements to comply with the project HSSE MS and associated manual; include clauses that enable the undertaking of inspections and/or audits to ensure compliance with the requirement above; include clauses allowing imposition of contractual penalties as applicable; (iv) proactive management and a system of contractor accountability.	Mitigation	Submit Subcontractor and Supplier Management Plan	Once before commencement of construction	Developer / EPC Contractor
			Mitigation	Submission of outcomes of screening processes for all selected subcontractors and suppliers (e.g. tender E&S requirements, reputational assessments)	Throughout entire construction period	
			Mitigation	Submission of risk assessment for subcontractor / supplier selected and E&S controls for risks identified	Throughout entire construction period	
			Mitigation	Submission of E&S contractual controls	Throughout entire construction period	
			Mitigation	For subcontractors - Visual Inspections	Daily HSE monitoring Weekly site inspections Quarterly Audits Monthly ESHS reports (including KPIs for SMP)	
			Mitigation	For suppliers and depending on the risks associated with a supply plan, put in place monitoring approach including	Throughout entire construction period	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
				reports from suppliers, ad hoc audits, etc. to the extent this is feasible. Monitoring will seek to ensure compliance with the mitigation defined, and in cases of non-compliance, help define corrective actions with the supplier concerned. Developer / EPC Contractor will maintain appropriate records of its supply chain assessment and risk management. Where this is conducted by EPC contractors it will be reported to Developer on a regular basis		
	Improper management of subcontractors and suppliers poses risks of major environmental impacts, occupational health and safety risks, and human rights abuses within suppliers' premises including discrimination, child labor and forced labor.	Undertake a supply chain due diligence or reputational risk assessment on the Original Equipment Manufacturer (OEM) of the BESS component, taking into account labor and human rights risks within the OEM's own supply chain.	Additional requirement	Submission of the supply chain due diligence / reputational risk assessment of the OEM	Once; prior to procurement of the BESS components	Developer

Table 39: ESMP for the Operation Phase

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
Geology, Hydrology and Hydrogeology	Risk of soil and groundwater contamination during the various operation activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Solid waste management	Coordinate with State Unitary Enterprise for the collection of solid waste from the site to the municipal approved landfill or for recycling	Mitigation	Submit contract	Once before commencement of operation	Project Operator
		Prevent fly-dumping of any solid waste to the land	Mitigation	Visual Inspections	Continuous	
		Establish a solid waste management area onsite that is of hard surface, properly secured, with appropriate labelling and signage. In addition, area should be equipped required containers for municipal and construction waste taking into account recycling measures as discussed in further points below; Distribute appropriate number of properly contained litter bins and containers properly marked as "Municipal Waste"				
		Adhere to waste hierarchy principles with associated mitigation measures to include prevent, minimize, reuse, recycle, recover and dispose				
		Implement proper housekeeping practices onsite at all times				
		Maintain records and manifests that indicate volume of waste generated onsite, collected by contractor, and disposed of at the landfill. The numbers within the records are to be consistent to ensure no illegal dumping at the site or other areas	Mitigation	Submit manifests	Throughout operational period	
	Risk of soil and groundwater contamination during the various operation activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Wastewater management	Coordinate with State Unitary Enterprise to hire a private contractor for the collection of wastewater from the site to the closest WWTP	Mitigation	Submit contract	Once before commencement of operation	
		Maintain records and manifests that indicate volume of wastewater generated onsite, collected by contractor, and disposed of at the WWTP. The numbers within the records are to be consistent to ensure no illegal discharge at the site or other areas	Mitigation	Submit manifests	Throughout operational period	
		Prevent uncontrolled disposal of wastewater to the land	Mitigation	Visual Inspections	Continuous	
		Ensure that septic tanks are emptied and collected by wastewater contractor at appropriate intervals to avoid overflowing.				
	Risk of soil and groundwater contamination during the various operation activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Hazardous waste management	Coordinate and hire a private contractor for the collection of hazardous waste from the site to the approved hazardous waste disposal facilities	Mitigation	Submit contract	Once before commencement of operation	
		Ensure that hazardous waste is disposed in a dedicated area that is enclosed; roofed and of hard surface; with proper signage and suitable containers as per hazardous waste classifications and that they are labelled for each type of hazardous waste	Mitigation	Visual Inspections	Continuous	
		Ensure hazardous waste storage area is equipped with spill kit, fire extinguisher and anti-spillage trays and a hazardous waste inventory is available				
		Prevent illegal uncontrolled disposal of hazardous waste to the land				
		Possibly contaminated water (e.g. runoff from paved areas) must be drained into appropriate facilities (such as sumps and pits). Contaminated drainage must be orderly disposed of as hazardous waste				
		Ensure that containers are emptied and collected by the contractor at appropriate intervals to prevent overflowing				
		Maintain records and manifests that indicate volume of hazardous waste generated onsite, collected by contractor, and disposed of at the hazardous waste disposal facilities. The numbers within the records are to be consistent to ensure no illegal discharge at the site or other areas				
	Risk of soil and groundwater contamination during the various	Ensure that any new equipment does not contain Polychlorinated Biphenyl (PCBs) or Ozone Depleting Substances (ODSs) to avoid having	Mitigation	Review of Data Sheet	Throughout operational period	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
	operation activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Hazardous Material Management	hazardous wastes. This includes in particular the substation component.				
		Ensure that hazardous materials are stored in proper areas and in a location where they cannot reach the land in case of accidental spillage. This includes storage facilities that are of hard impermeable surface, with a hard roof, flame-proof, accessible to authorized personnel only, locked when not in use, and prevents incompatible materials from coming in contact with one another.	Mitigation	Visual Inspections	Continuous	
		Maintain a register of all hazardous materials used and accompanying Material Safety Data Sheet (MSDS) must present at all times. Spilled material should be tracked and accounted for				
		Incorporate dripping pans at machinery, equipment, and areas that are prone to contamination by leakage of hazardous materials (such as oil, fuel, etc.)				
		Maintenance of all equipment and machinery used onsite. Maintenance activities and other activities that pose a risk for hazardous material spillage (such as refueling) must take place at a suitable location (hard surface) with appropriate measures for trapping spilled material				
		Ensure that a minimum of 1,000 liters of general-purpose spill absorbent is available at hazardous material storage facility. Appropriate absorbents include zeolite, clay, peat and other products manufactured for this purpose				
		If spillage on soil occurs, spill must be immediately contained, cleaned-up, and contaminated soil disposed as hazardous waste				
Biodiversity	Habitat and Flora	Post-construction monitoring will be completed across the Project site to record the presence and distribution of non-native and invasive plant species and a programme of mechanical control will be completed over the operation period to remove these species from the site. Chemical control will be avoided however, if necessary, will be used but in accordance with national and international guidelines . The programme of control will continue until the species are absent from the Project site, and resume if re-colonisation is identified during the monitoring.	Mitigation	Visual Inspections	Continuous	Project Operator
	Reptile and Amphibians	Regular monitoring by maintenance staff will be conducted throughout the operational period and if gaps large enough for tortoise are identified these will be repaired immediately.	Mitigation	Visual Inspections	Continuous	Project Operator
	Birds	Strict waste management will be put in place for the entirety of the Projects' operation, with all waste disposed of in appropriate bins and covered to minimize attracting carrion feeding birds and prevent scavenging. Regular waste collection will be carried out by licenced waste carriers and disposed of in designated dump areas away from the Project site.	Mitigation	Visual Inspections	Continuous	Project Operator
		The perimeter fence and other site infrastructure will be monitored as	Mitigation	Visual Inspections	Continuous	Project

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		part of the regular site maintenance routine. If high numbers of collisions are noted (>5 at a single location in a week), measures to increase the visibility of the fencing using barrier tape or equivalent will be completed in areas identified as higher collision risk. In addition, glazed surfaces shall be monitored as part of the regular site maintenance routine, and where collisions are recorded, adaptive measures such as the application of film or decals to the affected glazed surfaces shall be implemented.				Operator
	Mammals	Regular monitoring by maintenance staff will be conducted throughout the operational period and if fence gaps are identified these will be repaired and closed immediately to prevent access.	Mitigation	Visual Inspections	Continuous	Project Operator
Air Quality and Noise	BESS could be associated with Ozone Depleting Substances (ODSs)	Obtain confirmation by the Original Equipment Manufacturer (OEM) of the BESS that it does not include ODSs	Mitigation	N/A	N/A	Developer
Infrastructure and Utilities	Waste Utilities. Ensure that waste entities will be able to handle the waste requirements that are generated from the Project.	Develop a Waste Management Plan. The plan should include the following: waste reduction strategies, recycling and reuse, appropriate disposal methods, in line with the Project standards, etc. This should be part of the EPC Contractor and Project Operator HSSE MS Manual.	Additional Requirement	Visual Inspections	Daily HSE monitoring Weekly site inspections Monthly water consumption reports	Project Operator
		Coordinate with the State Unitary Enterprise and obtain list of authorized contractors for collection of wastewater from the site to closest authorized wastewater treatment plant	Additional Requirement	Submit formal communication letter with relevant entities	Once before commencement of operation	
		Coordinate with State Unitary Enterprise for the collection of solid waste from the site to the closest authorized landfill (or obtain list of authorized private contractors)				
		Coordinate with State Unitary Enterprise to obtain list of authorized contractors for collection of hazardous waste from the site to the closest approved facility for final disposal				
	Battery Waste Management. Potential generation and disposal of hazardous waste (BESS units) at the end of their operational life or in case of defects, with associated risks from improper handling or landfilling	A Disposal Plan should be prepared for the Project. The plan should consider the following: Evaluating recycling options for E-waste, including the identification of appropriate licensed waste processing facilities for this type of waste within the country, if available. Ensure that the recycling concept is in compliance with Basel Convention.	Additional Requirement	Submit Disposal Plan	One year prior to decommissioning of BESS components or one month prior to disposal in case of damage or defect.	
		Battery replacement and augmentation activities undertaken during the operation phase, including the handling, removal and disposal of replaced battery modules, shall be undertaken in accordance with the Disposal Plan and the Hazardous Material and Waste Management Plan. Battery packs identified as damaged or defective due to a quality issue attributable to the OEM shall be transferred from the Project site to an OEM designated central warehouse and shall not be retained on site or treated as Project waste.	Mitigation	Submission of records of battery replacement, removal and disposal	As required, throughout the operation period	
	Water Resources. Water requirements of the Project could entail constraints on existing users such as local communities or industrial establishments	Document annual water consumption of the Project during operation.	Additional Requirement	Visual Inspections	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting Monthly water consumption reports	
		Develop a water management plan. The plan should emphasize on water conservation and efficiency such as the following in particular: (i) Utilizing the dry-cleaning methods wherever applicable; (ii) Utilizing water saving fittings where applicable (taps, urinals, toilets, trigger guns, etc.); (iii) Consider utilizing treated wastewater/grey water for any irrigation requirements as applicable; (iv) Ensure that washing/cleaning activities (e.g. vehicle and equipment washing, toilets flushing/cleaning, etc.) are carried out using appropriate methods requiring low water consumption or dry (water-less) cleaning				

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		techniques where possible; (v) Awareness about resource efficiency, in particular concerning water use, shall be reinforced to all workers through signage and posters as appropriate; and (vi) Undertake weekly inspections for potable and non-potable water storage tanks and water supply connections to ensure there are no leaks. If any are located, they will be fixed immediately.				
		Water for the Project shall be sourced only from authorized water suppliers. It is prohibited to source water from third-party facilities to include the Muruntau Gold Mining Facility or its allied facilities.	Mitigation	Submission of records confirming the authorization of the water supplier	Throughout entire operation period	Project Operator
Socioeconomics	Employment and Procurement. If: (i) local community engagement is not implemented properly; OR (ii) if priority on all employment and procurement opportunities are not provided to local communities; OR (iii) if expectations are not properly managed and addressed – this could result in distrust and resentment with the Developer and might eventually lead to other potential escalated events (e.g. demonstrations, blockage of access road, etc.).	Project Updates to local communities in accordance with identified measures in the SEP which also includes measures related to management of local stakeholder expectations on jobs during operation phase. This should include the following: - periodic consultations in line with the SEP with local communities to: (i) manage expectations on employment and procurement opportunities for the Project; (ii) emphasize that job opportunities for this Project will be met throughout various entities that will include local communities; (iii) provide updates on Project implementation and overall schedule; and (iv) other as appropriate. - communication / updates to the local communities provided through the following channels: (i) Notifications and advertisements with Zarafshan and Tomdi Khokimiyat and the applicable Mahallas (including Mahalla Community Organization); and (ii) Telegram Channels of Muruntau Mahalla.	Additional requirement	Submission of stakeholder engagement log sheets	Quarterly	Developer / Project Operator
		Implement local employment and recruitment measures as part of the Labor and Working Conditions Management Plan (LWCMP) including a recruitment process taking into account the following: - Employment opportunities for skilled and unskilled workers will be communicated through the recruitment channels established under the LWCMP. Recruitment and selection processes will be fair, transparent and based on qualifications, competency and experience, while providing equal opportunities for all candidates, including women. The following order of priority with respect to employment, subject to availability of qualifications and skills will be promoted: (i) Muruntau community; (ii) Tomdi District/Zarafshan City; (iii) Navoiy Region; and (iv) Uzbekistan. - The local recruitment process will be conducted in an inclusive, fair, equitable and diverse manner, and it will be ensured that there is no bias or discrimination and will be open to all community members regardless of their class, race, color, gender, age, disability, civil status, etc. - Recruitment will be based on competency and skill. - Efforts and resources will be allocated to make sure that women are also fairly targeted and recruited and are provided opportunities to participate equally as men. - Gender inclusive advertising will be utilized in the announcement of job opportunities, , including language encouraging women to apply where appropriate. - Candidate selection (recruitment) will be conducted by a mixed-sex panel (comprising of at least two people). Candidate promotion selection be conducted by more than one person and never by a single-sex panel).	Additional requirement	Submission of Local Employment and Recruitment Procedure	Once; before commencement of construction	
			Additional requirement	Submission of local community employment and procurement register by area/district/region along with evidence for announcements and selection process.	Semi-annual	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		- It will be prohibited to terminate the contract of a female worker during her maternity leave.				
		Considering implementing a Community Development Plan which aims to benefit the local communities to the greatest extent possible. It is recommended that a structured approach is developed for such a program that takes into account the community's needs and priority development projects which could benefit local communities (which logically should also take into account other factors such as allocated budget by the Developer, timeline for implementation of such projects, etc.)	Additional requirement	Submission of community development plan	Once; during 1st year quarter of operation	
		Stakeholder grievance mechanism should be implemented in relation to implementation of the requirements of the Stakeholder Engagement Plan (SEP) and the Local Employment and Recruitment Procedure. Any grievances submitted should be handled fully in accordance with the mechanism that is included within the SEP. Please refer to the SEP for additional details.	Mitigation	Submission of stakeholder grievance log sheet Submission of grievance close-out forms	Monthly	
Community Health, Safety and Security	BESS facilities could be associated with some emergency incidents and risks including fire, explosions, arc flash and electric shock; and toxic chemical release	Development of a Project and site-specific Emergency Preparedness and Response Plan (EPRP). The plan will consider the following: Identify emergency response procedures to be implemented with the objective of establishing a series of organization, operational and preventive measures Ensure emergency controls are established for each identified risk Ensure onsite emergency responders are available onsite at all times and which have received certified training for the BESS risks to include fire, explosions, arc flash and electric shocks, toxic chemical release Ensure appropriate emergency signs are established within and near the BESS Undertake annual emergency drills for the BESS Identify requirement for emergency kits Identification of onsite assembly points Identification of emergency signs Identify training requirements to include but not limited to induction training, emergency responders training, and emergency drills Identify monitoring and reporting requirements Identify roles and responsibilities of the personnel involved in implementation of the plan; Undertake consultation with emergency service providers prior to commencement of any operational activities to ensure they are aware and can respond to above risks (e.g. hospital, civil defense, etc.); Identify of a communication and management process with external authorities to include in particular firefighting services and health providers; Submit required documentation and obtain approval from Ministry of Emergency Situations; and Include requirements in particular on updating local communities on the above system and control measures and emergency preparedness plans and requirements as part of the Stakeholder Engagement Plan (SEP) to be developed. Please refer to SEP for additional details.	Mitigation	Inspections and audits on EPRP requirements identified earlier; Submission of drill reports and training records and certifications; Submission of approval / permit from Ministry of Emergency Situations; Submission of stakeholder consultation logs as part of SEP activities with nearby receptors; and Reporting on the following: (i) number of emergency responders assigned with required certification; (ii) number of emergency drills conducted; (iii) number of emergency incidents triggered.	Once; before commencement of operation	Project Operator
		Review the option of cooperation with the nearby NMMC fire station through a formal service agreement, rather than the construction of a separate facility, during detailed design and permitting, in	Additional requirement	Submission of the outcome of the assessment	Once; prior to commencement of operation	Developer / Project Operator

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		coordination with the Ministry of Emergency Situations and in accordance with Clause 64 of SHNQ 2.09.17-21.				
	Community Health, Safety and Security. Electric and magnetic fields (EMF) generated by the BESS facility, the onsite substation and the underground transmission line could result in occupational exposure of personnel undertaking operation and maintenance activities.	Confirm through measurement that electric and magnetic field levels within the BESS facility, the onsite substation and along the route of the underground transmission line, including at the road crossing, are within the applicable occupational and general public exposure limits, prior to commencement of operation.	Mitigation	Submission of the results of the EMF measurements	Once; prior to commencement of operation	Project Operator
		Install cable route markers along the route of the underground transmission line, including at the road crossing. Undertake excavation and other intrusive works within the right-of-way of the underground transmission line only under a permit to work.	Mitigation	Submission of records of the permits to work issued	Throughout entire operation period	Project Operator
		Restrict access to the BESS facility and the onsite substation to authorized personnel only, and include EMF awareness within the induction training for personnel undertaking operation and maintenance activities, including the applicable exposure limits and the requirement to limit the duration of exposure in proximity to energized equipment.	Mitigation	Submission of induction training records Visual Inspections	Throughout entire operation period	Project Operator
		Confirm the arrangements applicable to the operation and maintenance of the underground transmission line following handover to NEGU, including responsibilities for right-of-way management, maintenance of route markers, warning signage and access control.	Additional requirement	Submission of the confirmed handover arrangements	Once; prior to handover of the underground transmission line	Developer / NEGU
	Community Health, Safety and Security. Trespassing of unauthorized personnel into Project area could result in health and safety impacts.	Prepare and submit a Security Management Plan (SMP) that will include: (i) Security personnel will be used at the access points to control the entry and exit of people and continuous security patrols will be implemented; (ii) BESS and substation will be fenced off and will have signs with warning notices in English, Russian and Uzbek language; (iii) warning signs indicating the presence of the Project to inform local people of the dangers posed by the Project in English, Russian, and Uzbek language.	Additional requirements	Submission of SMP	Once; before commencement of operation	Project Operator/ EPC Contractor
		The Stakeholder Engagement Plan (SEP) that will be implemented will include measures to engage with local communities to inform them about the start of operational works in advance, to educate them on the dangers inside the fenced-off area, and the danger of approaching works at other locations, and emphasize importance of avoiding trespassing at all times.	Mitigation	Submission of stakeholder engagement log sheets	Quarterly	
		Stakeholder grievance mechanism should be implemented in relation to implementation of the requirements of the SMP. Any grievances submitted should be handled fully in accordance with the mechanism that is included within the SEP. Please refer to the SEP for additional details.	Mitigation	Submission of stakeholder grievance log sheet Submission of grievance close-out forms	Monthly	
	Community Health, Safety and Security. Inappropriate management of security issues (e.g. conduct of security personnel) could result in health and safety issues for local communities. towards the local communities.	The SMP shall identify appropriate measures for hiring, rules of conduct, training, equipping, and monitoring of unarmed security personnel to control and manage such issues. The plan must also adhere to IFC PS 4 (Community Health, Safety and Security), and AIIB ESS 1: Environmental and Social Assessment and Management, specifically the Health and Safety requirements, in relation to the security guards employed. This requires that that the behavior for the security personnel is guided by the Voluntary Principles on Security and Human Rights in terms of hiring, rules of conduct, training, equipping and monitoring of such personnel. It also requires making reasonable inquiries to satisfy itself that those providing security measures are not implicated in past abuses, will ensure they are	Additional requirement	Submission of SMP	Once; before commencement of construction	Project Operator/ EPC Contractor
			Mitigation	Submission copies of clearance of security guards in past abuses	Throughout entire operation period	
			Mitigation	Submission of signed code of conduct for security personnel	Throughout entire operation period	
			Mitigation	Submission of training and TBT records for security personnel on	Throughout entire operation period	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		trained adequately in the use of force and appropriate conduct towards the workers and the local community. Force should only be used when strictly necessary, and to an extent proportional to the threat.		security rules of conduct, use of force, etc.		
			Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspections Monthly ESHS reports (including SMP KPIs)	
		Stakeholder engagement activities with local communities must provide information on security control requirements and measures implemented.	Mitigation	Submission of stakeholder engagement log sheets	Monthly	
		Stakeholder grievance mechanism should be implemented in relation to any grievances related to security incidents and/or security personnel code of conduct. Any grievances submitted should be handled fully in accordance with the mechanism that is included within the SEP.	Mitigation	Submission of stakeholder grievance log sheet Submission of grievance close-out forms	Monthly	
Worker Welfare, Health and Safety	Worker Welfare, Health and Safety. Generic occupational health and safety risks to workers, as working onsite increases the risk of injury or death due to accidents	Prepare an Occupational Health and Safety Plan (OHSP). Adopt and implement the recommendations/provisions of the OHSP which includes: (i) Risk assessment and job safety planning procedure, (ii) PTW system procedure, (iii) LOTO procedure, (iv) Site control occupational health and safety procedure to include requirements for personal Protective Equipment (PPE), requirements for site risks (fall protection, powered and hand tools, compressed air / gas cylinders, fire prevention, hot works, electrical works, material handling, machinery use and safety, excavation/concrete works/civil works, confined space activity, storage, medical requirements, and communicable disease management), (v) Occupational health and safety signage requirements, (vii) Identification of OHS training requirements, (viii) Identification of monitoring and reporting requirements, and (ix) Identification of roles and responsibilities.	Mitigation	Submit OHSP	Once before operation of construction	Project Operator
			Mitigation	Submission of OHS training records	Throughout operation period	
			Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspections Monthly ESHS reports (including OHSP KPIs)	
		A worker grievance mechanism should be implemented and that should handle any grievances related to OHSP.	Mitigation	Submit worker grievance sheet along with grievance close-out forms	Monthly	
	Worker Welfare, Health and Safety. Inappropriate accommodation facilities for workers will entail impacts on worker welfare as well as their overall health and safety.	Prepare a Worker Accommodation Plan (WAP) including the following components: (i) identify the workforce requirements including all subcontractor requirements; (ii) identify workforce transportation requirements to/from accommodation facilities; (iii) identify accommodation procedures to ensure that workers are provided with a decent accommodation which meets the basic worker's needs. In specific, onsite and/or offsite accommodation must be compliant with good international industry practices – mainly the "Workers' accommodation: process and standards" (EBRD/IFC Guidance Note, 2009). The document provides guidance notes on general living facilities, room facilities, medical facilities, management of accommodation units, etc.; (iv) worker accommodation must take into account climatic conditions of the area (e.g. extreme heat and extreme cold) and it must be equipped with suitable measures such as air conditioning, heating, etc. (v) accommodation should consider the social and cultural backgrounds of the workers, providing spaces that respect cultural practices and promote social interaction in a positive manner. This includes considerations for gender segregation where culturally appropriate and facilities for religious practices (vi) accommodation facilities and specifications must take into account	Additional requirement	Submit WAP	Once before commencement of operation	Project Operator
			Mitigation	Submit detailed design for accommodation	Once before commencement of operation	
			Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspections Monthly ESHS reports (including WAP KPIs)	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		site-specific conditions to include in particular: (1) sand and salt storms, (2) windy conditions, (3) extreme hot and cold weather, and (4) conditions and low/high temperatures; (v) in relation gender requirement the following should be considered: (1) separate sleeping rooms for men and women will be provided in shared accommodations; (2) means of securing bedroom doors from inside and out will be provided; and (3) finally, female sanitary and toilet facilities will be kept separate from men; (v) identify housing rules and regulations including code of conduct; (vi) identify training requirements; (vii) identify monitoring and reporting requirements; and(viii) identify roles and responsibilities of the personnel involved in implementation of the plan.				
		A worker grievance mechanism should be implemented and that should handle any grievances related to WAP.	Mitigation	Submit worker grievance sheet along with grievance close-out forms	Monthly	
	Worker Welfare, Health and Safety. Inappropriate management of the workforce could entail human rights violations (e.g. engaging child workers, confiscation of passports of foreign workers, unacceptable working hours, and others).	Prepare and submit a Labor and Working Conditions Management Plan (LWCMP) that should include: (1) an overview of the labor use on the Project throughout the operation phase; (2) a Human Resources (HR) policy; (3) an HR management procedure for the workforce to ensure decent and humane working conditions, worker rights, and constructive workplace relations in line with the Local Labor Law, IFC Performance Standard 2, AIIB ESS 1 Section E: Health and Safety and Section F: Labor and Working Conditions, and ILO Fundamental Labor Conventions. The plan should cover: (i) provision of signed contracts for all workers, including casual and temporary ones, with copies retained by both the worker and HR Manager; (ii) reasonable working conditions and terms of employment including working hours, wages, leave entitlements, and accommodation; (iii) recognition of workers' rights to form and join organizations and bargain collectively; (iv) prohibition of child labor; (v) management of young workers ensuring no illegal or hazardous work for those under 18, with specific rules if workers aged 15–18 are employed including parental consent, proof of age, limited hours, and no night or overtime work; (vi) prohibition of forced labor and human trafficking, including passport confiscation; (vii) non-discrimination in all employment stages; (viii) provision of equal opportunities for women and vulnerable groups; (ix) management of daily, migrant, and third-party workers under similar conditions to others; (x) inclusion of regular off-site rest breaks coordinated to avoid overlap with other nearby projects; (xi) fair wages meeting basic living standards, established based on qualifications and experience, ensuring equal pay for equal work and not below the national minimum wage; (xii) working hours not exceeding 40 hours per week with one-hour breaks every four hours, maximum 10 hours per day including overtime, and at least one 24-hour rest day per week; (xiii) leave entitlements including annual, sick, and social benefits as per Labor Law; (xiv) requirement for all workers to read, understand, and sign a Code of Conduct prohibiting harassment, abuse, and discrimination; and (xv) maintenance of worker privacy and data protection, with HR files, contracts, payment registers, grievance and disciplinary records securely stored and accessible only to the HR Manager. The plan should further (10) identify a disciplinary procedure; (11) establish welfare provisions for water, rest, and sanitary facilities; (12) define a grievance mechanism with clear escalation measures; (13) identify training requirements;	Additional Requirement	Submit LWCMP	Once; before commencement of operation	Project Operator
			Mitigation	Submit signed contracts for all workers		
			Mitigation	Submit signed worker code of conduct for all workers		
			Mitigation	Submit payment register		
			Mitigation	Submit disciplinary action register		
			Mitigation	Submit training and TBT records		
			Mitigation	Submit worker grievance logs with close-out forms		
			Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspections Quarterly Audits Monthly ESHS reports (including KPIs for LWCMP)	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		(14) outline monitoring and reporting procedures; and (15) specify roles and responsibilities for implementation.				
	Community and Worker Health and Safety –Inappropriate management of the workforce (which could be from the local community) as well as inappropriate conduct of workers within local community areas could entail gender related risk and impacts such as Gender based violence, and harassment (GBVH) or Sexual Exploitation, abuse, and harassment (SEBH)	Develop and implement a Labor and Working Conditions Management Plan (LWCMP). The Plan shall include the following: (1) safe transport will be provided to female and male workers, given the remote area of the Project. The codes of conduct, which prohibit gender-based violence, harassment and abuse, will apply to transportation modes. (2) all workers should be required to read and sign a Worker Code of Conduct which will be explained verbally. The code of conduct should prohibit be subject to disciplinary action and should prohibit harassment, gender-based violence and abuse of any kind; (3) all workers should be provided with a copy of the Gender Based Violence and Harassment (GBVH) Code of Conduct and will be required to sign it; (4) identify a worker welfare procedure related to drinking water, rest areas, sanitary facilities, changing rooms and other that should include take into account the following in particular: (i) female sanitary, toilet facilities, and prayer rooms will be kept separate from men; (ii) all such facilities will have lockable doors with adequate numbers provided; (iii) separate changing rooms and cabinets will be provided for men and women both of which have locking mechanisms.	Additional requirement	Submit LWCMP	Once; before commencement of operation	Project Operator
			Mitigation	Submit signed GBVH Code of conduct for all workers	Throughout operation period	
			Mitigation	Visual Inspections	Daily HSE monitoring Weekly site inspections Quarterly Audits Monthly ESHS reports (including KPIs for LWCMP)	
		Identify a worker grievance procedure to manage all worker related complaints and grievances that should consider the following: (i) prohibiting gender-based violence and harassment in the workplace and will outline that a suitably trained male and female person is designated to process grievances in which male / female workers might feel uncomfortable discussing with a person of the opposite sex. The grievance mechanism also includes a procedure to deal with Gender Based Violence and Harassment (GBVH) grievances.	Mitigation	Submission of worker grievance logs with close-out forms	Monthly	
		Stakeholder Grievance Mechanism as part of the SEP also includes a procedure for GBVH grievances. This should be implemented entirely to handle any grievances related to GBVH Please refer to the SEP for additional details.	Mitigation	Submission of stakeholder grievance logs with close-out forms	Monthly	
Subcontractor and Supplier Management	Improper management of subcontractors and supplier poses risks of major environmental impacts, human right abuses, criminal abuses or other	Develop a Subcontractor and Supplier Management Plan which should: (i) identify the key subcontractors and suppliers that will be involved, (ii) identify a screening process where during the tendering process the key E&S requirements should be identified and included within the tender documents. This may include adherence to International Financial Institution (IFI) E&S requirements, national E&S regulations, ESIA and HSSE requirements and other. In addition, tenders will be required as part of the tender to specify how they intend to comply with such requirements as part of their scope of work. In the case there is no tendering process subcontractor/supplier will be required to respond to an E&S prequalification questionnaire and will be required to submit company HSE policies. Finally, as part of the screening process, an online desktop review (including media research) on the list of companies bidding, their owners and shareholders on E&S reputational issues; (ii) selection process where selected subcontractor / supplier risks have been identified, Developer / Operator will assess these risks further with the subcontractor / supplier concerned to understand their capacity to avoid and manage such risks and to understand the controls the subcontractor / supplier has in place. This could include but not limited to submission of E&S policies and procedures as relevant for subcontractor / supplier (e.g. for supplier's focus would be on human resources and labor policies	Mitigation	Submit Subcontractor and Supplier Management Plan	Once before commencement of operation	Developer /Operator
			Mitigation	Submission of outcomes of screening processes for all selected subcontractors and suppliers (e.g. tender E&S requirements, reputational assessments)	Throughout entire operation period	
			Mitigation	Submission of risk assessment for subcontractor / supplier selected and E&S controls for risks identified	Throughout entire operation period	
			Mitigation	Submission of E&S contractual controls	Throughout entire operation period	
			Mitigation	For subcontractors - Visual Inspections	Daily HSE monitoring Weekly site inspections	

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Frequency	Responsible Entity
		and procedures), traceability, cascading E&S requirements, undertaking auditing protocols, etc. Where this is not possible, alternative suppliers will be sought; (iii) contractual control will put in place controls to avoid and manage potential risks. This will include but not limited to contractual controls, including corrective actions and exit mechanisms, to avoid and manage potential risks. This would depend on the level of risk identified and the leverage over the subcontractor / supplier concerned. Contractual controls could include but not limited to the following: requirement to comply with IFI E&S requirements and national E&S requirement as applicable; requirements to comply with the project HSSE MS and associated manual; include clauses that enable the undertaking of inspections and/or audits to ensure compliance with the requirement above; include clauses allowing imposition of contractual penalties as applicable; (iv) proactive management and a system of contractor accountability.			Quarterly Audits Monthly ESHS reports (including KPIs for SMP)	
			Mitigation	For suppliers and depending on the risks associated with a supply plan, put in place monitoring approach including reports from suppliers, ad hoc audits, etc. to the extent this is feasible. Monitoring will seek to ensure compliance with the mitigation defined, and in cases of non-compliance, help define corrective actions with the supplier concerned. Developer / Operator will maintain appropriate records of its supply chain assessment and risk management. Where this is conducted by Operator it will be reported to Developer on a regular basis.	Throughout entire operation period	

21. ANNEXES

21.1 Annex 1 – Project Targeted Consultation Letters

IJRO.GOV.UZ tizimi orqali ERI bilan tasdiqlangan, Hujjat kodi: ES05928152

O‘ZBEKISTON RESPUBLIKASI MADANIYAT VAZIRLIGI
MINISTRY OF CULTURE OF THE REPUBLIC OF UZBEKISTAN

100084, Toshkent shahri, Amir Temur shoh ko'chasi, 107B-uy. Tel.: (+998) 55 502 33 77
www.madaniyat.uz, info@madaniyat.uz, madaniyat.devon@exat.uz

2026-yil 4-may **02-12-34-3073-son**

“Green Business Innovation”
MChJ ga

2026-yil 16-apreldagi
ZAR_BESS_01_2026-xatga

O‘zbekiston Respublikasi Prezidentining “Yangi O‘zbekiston ma’muriy islohotlarini amalga oshirish chora-tadbirlari to‘g‘risida” 2022-yil 21-dekabrdagi 269-son Farmoni 4-ilovasi 17-bandi va O‘zbekiston Respublikasi Prezidentining “Ma’muriy islohotlar doirasida madaniy meros sohasida davlat boshqaruvini samarali tashkil qilish chora-tadbirlari to‘g‘risida” 2023-yil 1-iyundagi PQ-177-son qaroriga asosan moddiy madaniy meros obyektlari Madaniy meros agentligi faoliyatining asosiy yo‘nalishlari hisoblanadi.

Yuqoridagilarni inobatga olib, Navoiy viloyati Tomdi tumani hududidagi BASH-2 hududi yuzasidan ma’lumotlar olishda Madaniy meros agentligiga murojaat etishingiz maqsadga muvofiq.

Vazirning birinchi o‘rinbosari **A. Tadjixanov**

,jrochi: D. Boliqulov
Telefon: (55) 502-33-77 (1115)

IJRO.GOV.UZ tizimi orqali ERI bilan tasdiqlangan, Hujjat kodi: XI63877726

O‘ZBEKISTON RESPUBLIKASI KAMBAG‘ALLIKNI QISQARTIRISH VA BANDLIK VAZIRLIGI
NAVOIY VILOYAT KAMBAG‘ALLIKNI QISQARTIRISH VA BANDLIK BOSHQARMASI
210100, Navoiy viloyat, Navoiy shahar, Navoiy ko‘chasi, 43a-uy Telefon/Fax: (998 79) 224 23 00,
www.mehnat.uz, e-mail: bandlik@nv.uz e-xat: navoi.bandlik@exat.uz

1 may 2026 yil. **17/00-02/10-2476-son**

“Green Business Innovation”MChJga
Ma’lumot uchun:
Kambag‘allikni qisqartirish va bandlik vazirligiga

Navoiy viloyati Kambag‘allikni qisqartirish va bandlik boshqarmasi tomonidan Sizning 2026-yil 16-aprel kunidagi ZAR_BESS_02_2026-sonli xatingizga asosan, quyidagi mehnat muhofazasiga oid normati-huquqiy hujjatlarni ma’lum qilamiz.

Mehnat kodeksi (20-bob mehnatni muhofaza qilish);

O‘zbekiston Respublikasi Qonuni, 22.09.2016 yildagi **“Mehnatni muhofaza qilish to‘g‘risida”gi** O‘RQ-410-son;

O‘zbekiston Respublikasi Vazirlar Mahkamasining qarori, 24.12.2025 yildagi **“Mehnatni muhofaza qilish sohasiga oid ayrim nizomlarni tasdiqlash to‘g‘risida”** 819-son qarori;

Elektr energetikada nazorat bo‘yicha davlat agentligining qoidalari, 29.11.2001 yildagi **“Elektr uskunalaridan foydalaniladigan himoya vositalarini qo‘llash va sinash qoidalari”** 374-son;

“Elektr priborlari va tashkiliy texnika bilan ishlashda, ularni ta’mirlash va ularga xizmat ko‘rsatishda mehnatni muhofaza qilish qoidalarini tasdiqlash to‘g‘risida” O‘zbekiston Respublikasi mehnat va aholini ijtimoiy muhofaza qilish vazirining buyrug‘i, 07.06.2013 yilda ro‘yxatdan o‘tgan, ro‘yxat raqami 2466;

SHNQ 3.01.02-23 “**Qurilishda xavfsizlik texnikasi”** (Adliya vazirligi tomonidan 2023-yil 14-dekabrda hisob olingan, hisob raqami 222);

SHNQ 2.09.02-23 **“Korxonalarning ishlab chiqarish hamda ma’muriy-maishiy bino va inshootlari. Loyihalash talablari”** (Adliya vazirligi tomonidan 2024-yil 2-oktyabrda hisobga olindi, hisob raqami 301);

Mehnat muhofazasiga oid qo‘shimcha normativ-huquqiy hujjatlar oid tushuntirish va tafsiyalar berish yuzasidan hamkorlikda ishlashni ma’lum qilamiz.

Boshqarma boshlig‘ining birinchi o‘rinbosari: **U.Mirsanov**

tel:79-224-43-91

IJRO.GOV.UZ tizimi orqali ERI bilan tasdiqlangan, Hujjat kodi: YC75897322

O‘ZBEKISTON RESPUBLIKASI FANLAR AKADEMIYASI
ZOOLOGIYA INSTITUTI

100053, Toshkent sh. Bog'ishamol ko'chasi, 232 b uy.Tel.: (998-71) 289 04 65, (998-71) 289-10-60
E-xat: zoology@exat.uz E-mail: zoology@academy.uz https://izoology.uz

№ 01-09/361
17-iyun 2026-yil

“Green Business Innovation”
kompaniyasi direktori Saida Yusupovaga

Sizning 2026-yil 16-apreldagi
ZAR_BESS_03_2026- sonli xatingizga javoban

O‘zbekiston respublikasi Zoologiya instituti Navoiy viloyatining Tandim tumanida, Navoiy shahridan 170 km shimoli-g'arbda qurilishi rejalashtirilayotgan 600 MVt quvvatdagi **Energiya saqlash sistemasi (BESS)** loyihaning amalga oshirilishi borasida e’tirozlar mavjud emas.

Loyihani bajarish jarayonida hayvonot dunyosi va uning muhofazasi bilan bog‘liq ilmiy tadqiqotlarni amalga oshirilishi zarur deb hisoblangan hollarda, Zoologiya institutining hamkorlikda ishlash uchun ilmiy imkoniyatlari mavjudligini bildiramiz.

Institut direktori v.v.b. **B.Xolmatov**

Bajardi U.T.Mirzayev
Tel: 71 289-12-07

O'ZBEKISTON QUSHLARNI MUHOFAZA QILISH JAMIATI

O'zbekiston, 100053 Toshkent, Bogi shamol ko'chasi, 232 B, O'zRFA Zoologiya instituti, 51 xona
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O'zbekiston Respublikasi TIF Milliy Banki, Toshkent sh. Bosh Boshqarmasi Qoshidagi:
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ОБЩЕСТВО ОХРАНЫ ПТИЦ УЗБЕКИСТАНА

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ОПЕР при ТГУ НБ ВЭДРУз
МФО-00451: ИНН 206938959

№ 814 - 2026

GREEN BUSINESS INNOVATION, LLC

"14" июля 2026yil

В ответ на Ваше письмо № BESS_04_2026 от 16 апреля 2026 г. сообщаем следующее:

Территория проекта системы хранения энергии (BESS) мощностью 600 МВт·ч расположена в Тандымском районе Навоийской области, в 170 км северо-западнее города Навои.

Строительство станции BESS не приведет к существенным изменениям ландшафта и природных условий данной территории.

Однако, следует обратить внимание на ряд возможных косвенных воздействий проекта:

1. Система хранения может стать источникам света в темное время суток и привлекать насекомых, а следовательно, летучих мышей и ночных насекомоядных птиц.

2. Стеклянные поверхности (если таковые предусмотрены) могут представлять угрозу гибели птиц при ударе об освещенные окна, или стекла отражающие ландшафт (деревья и т.д.).

3. В процессе работы строительной техники возможны угрозы обитающим на участке различным видам рептилий.

В связи с вышесказанным, рекомендуем:

Предусмотреть меры, обеспечивающие максимальную безопасность среднеазиатских черепах при движении строительной техники и автотранспорта на всех этапах выполнения работ.

организовать ежесезонные наблюдения на территории объекта за видовым составом «посетителей» объекта - птиц и летучих мышей, и возможным для них угрозам;

для сокращения риска гибели птиц при ударе о стекла использовать методологию Общества охраны птиц Узбекистана (https://www.facebook.com/UzSPB/videos/международный-день-птиц-в-ташкенте/2124993341124543/).

Необходимо уделить особое внимание утилизации пищевых отходов и не допускать появления открытых участков технической или бытовой воды в окрестностях строительных лагерей, т.к. это может привлекать к объекту различные виды животных и создавать дополнительные риски для них.

Исполнительный директор
Общества охраны птиц Узбекистана, к.б.н. Р.Д. Кашкаров

IJRO.GOV.UZ тизими орқали ЭРИ билан тасдиқланган, Ҳужжат коди: HR42672380

O‘ZBEKISTON RESPUBLIKASI
TRANSPORT VAZIRLIGI
HUZURIDAGI
AVTOMOBIL YO‘LLARI
QO‘MITASI

NAVOIY VILOYATI
AVTOMOBIL YO‘LLARI BOSH
BOSHQARMASI

КОМИТЕТ ПО
АВТОМОБИЛЬНЫМ ДОРОГАМ
ПРИ МИНИСТЕРСТВЕ
ТРАНСПОРТА РЕСПУБЛИКИ
УЗБЕКИСТАН

ГЛАВНОЕ УПРАВЛЕНИЕ ПО
АВТОМОБИЛЬНЫМ ДОРОГАМ
НАВОИЙСКОЙ ОБЛАСТИ

O‘zbekiston Respublikasi Navoiy viloyati Navoiy sh. *Tel: (79) 220-63-67*
Guliston qo‘rg‘oni Navruz ko‘chasi 29 uy *Faks: (79) 220-63-66* *e-mail: navoiy@uzavtoyul.uz*

№01-11/275 **“ 28 ” Aprel 2026 yil**

“Green business Innovation”
MCHJ ga

Ma’lumot uchun: **Avtomobil yo‘llari**
qo‘mitasiga

Sizning 2026-yil 16-apreldagi ZAR_BESS_06_2026-sonli xatingiz Navoiy viloyati Avtomobil yo‘llari bosh boshqarmasi tomonidan o‘rganib chiqildi.

MASDAR kompaniyasining Navoiy viloyati Tomdi tumani hududida qurilishi rejalashtirilayotgan 300/600 MVt·soat quvvatga ega batareyali energiya saqlash tizimi (BESS) loyihasi bilan bog‘liq muzokaralar doirasida so‘ralgan savollarga Navoiy viloyati Avtomobil yo‘llari bosh boshqarmasi tomonidan quyidagicha tavsiyalar beriladi:

1. Mazkur hududdan o‘tuvchi xalqaro ahamiyatga molik A379 “Navoiy – Uchquduq” avtomobil yo‘lining 0-200 kilometrlar oralig‘ida o‘rtacha harakat jadalligi 10 000-15 000 dona/sutkani tashkil etadi.

Avtomobil yo‘lida jami 8 dona, shundan 7 dona ko‘prik inshootlari va 1 dona yo‘l o‘tkazgichlar mavjud.

Bitta o‘qqa tushadigan o‘rtacha og‘irlik 10 tonnani tashkil etadi.

2. Loyihalanayotgan obyekt Sh.N.Q 2.05.02-23 ning 18-bandiga asosan ya’ni, umumiy foydalanishdagi xalqaro va davlat ahamiyatidagi avtomobil yo‘llarida bino inshootlarni qurilish chegarasigacha bo‘lgan masofa yo‘l o‘qidan har tomonga (chap va o‘ng) 57,5 metrdan kam bo‘lmagan masofada loyihalanishi lozim.

Loyiha maydonlariga kirish uchun zarurat tug‘ilgan taqdirda, loyihaning pudratchisi tomonidan yangi yo‘llar ya’ni umumiy foydalanishdagi avtomobil yo‘li bilan kesishuvchi va tutashuvchi yo‘llar amaldagi Sh.N.Q 2.05.02-23 ning 7-bobi 150,152 va boshqa bandlarida ko‘rsatib o‘tilgan talablarga asosan va tegishli yo‘l belgilari bilan jihozlangan, loyiha smeta hujjatlari kelishilgan holatda ruxsat etiladi.

3. Vazirlar Mahkamasining “O‘zbekiston Respublikasi hududidagi avtomobil yo‘llarida xavfsizlikni ta’minlash va tashkil etish chora-tadbirlari to‘g‘risida” 2011-yil 26-dekabrda 342-son qarori 2-ilovasi bilan tasdiqlangan “Katta hajmli va og‘ir vaznli yuklarni avtomobil transportida tashishda harakat xavfsizligini ta’minlash Qoidalari”ga

asosan transport vositalarining avtomobil yo‘llarida harakatlanishda vazn va hajm ko‘rsatkichlari bo‘yicha me’yorlar belgilangan. Ushbu me’yorlardan avtotransport vositasining biror parametri yuqori o‘lcham bilan farq qilsa, bunday transport vositasi (yuk bilan yoki yuksiz) katta hajmli va (yoki) og‘ir vaznli hisoblanadi va katta hajmli va (yoki) og‘ir vaznli yuklarni avtomobil transportida tashish, ularni bir necha qismlarga bo‘lish va boshqa transport vositasi bilan tashish imkoni bo‘lmagan holdagina maxsus ruxsatnoma orqali amalga oshiriladi.

Maxsus ruxsatnoma talab etilgan hollarda Vazirlar Mahkamasining “Maxsus elektron tizim orqali ruxsat etish xususiyatiga ega ayrim hujjatlarni berish tartib-taomillari to‘g‘risidagi yagona nizomni tasdiqlash haqida” 2022-yil 22-fevraldagi 86-sonli qaroriga muvofiq https://license.gov.uz elektron tizimi orqali onlayn rejimda ariza berish lozim.

Bosh muhandis **U.Raxmatov**

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2026-yil 21-aprel
02/25-1940-son

"Green Business Innovation"
MChJga

2026-yil 16-apreldagi
ZAR_BESS_07_2026-son xatga

Sizning, 2026-yil 16-apreldagi ZAR_BESS_07_2026-son xatingizga javoban Navoiy viloyati Tomdi tumanida "MASDAR" kompaniyasi tomonidan 300/600 MVt·soat quvvatga ega batareyali energiya saqlash tizimi (BESS)ni qurish rejalashtirilgan hududda suv xo'jaligi tashkilotlariga tegishli daryolar, kanallar hamda boshqa suv xo'jaligi obyektlari mavjud emasligi ma'lum qilinadi.

Ilova 1 varaqda.

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QUYI ZARAFSHON
IRRIGATSIYA TIZIMLARI
HAVZA
BOSHQARMASI

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BASIN ADMINISTRATION OF THE
LOWER ZARAFSHAN
IRRIGATION SYSTEMS

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21 aprel 2026 yil. **543/-son**

O‘zbekiston Respublikasi
Suv xo‘jaligi vazirligiga

O‘zbekiston Respublikasi Suv xo‘jaligi vazirligining 2026-yil 19-apreldagi 4-1895-sonli ust xati orqali bugungi kunda MASDAR kompaniyasi Navoiy viloyati Tomdi tumani hududida 300/600 MVt·soat quvvatga ega batareyali energiya saqlash tizimi (BESS) qurishni rejalashtirilganligi munosabati bilan loyiha hududiga yaqin bo‘lgan suv kanali uchun talab qilinadigan xavfsizlik yoki oraliq masofalar mavjudligi, loyiha hududi va 5 km radiusdagi mavjud yoki rejalashtirilgan suv havzalari va kanalizatsiya quvurlari, suv quvurlari uchun maxsus qoidalar yoki texnik spetsifikatsiyalar borligi hamda suv manbalari sifatiga oid ma’lumotlarni taqdim etish so‘ralgan.

Yuqoridagilarni inobatga olib Tomdi tumani hududida MASDAR kompaniyasi tomonidan 300/600 MVt·soat quvvatga ega batareyali energiya saqlash tizimi (BESS) bo‘yicha Tomdi tumani chorvachilik yo‘nalishida ixtisoslashgan bo‘lib, mazkur tumanda qishloq xo‘jaligi mahsulotlari yetishtirish imkoniyati mavjud emas. Shunga ko‘ra Tomdi tumanida Quyi Zarafshon irrigatsiya tizimlari havza boshqarmasi va tizim tashkilotlari balansida suv xo‘jaligi obyektlari mavjud emasligini ma’lum qilaman.

Boshqarma boshlig‘i **O.Sadinov**

IJRO.GOV.UZ tizimi orqali ERI bilan tasdiqlangan, Hujjat kodi: HY80654673

O‘ZBEKISTON RESPUBLIKASI
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2 may 2026 yil. **02-01/8-609-son**

“GREEN BUSINESS INNOVATION”
mas’uliyati cheklangan jamiyatiga

“Green Business Innovation” mas’uliyati cheklangan jamiyatining 2026-yil 16-apreldagi ZAR_BESS_08_2026-son xati yuzasidan quyidagilar ma’lum qilinadi.

Rejalashtirilayotgan yoki amalga oshirilayotgan xo‘jalik va boshqa xil faoliyatning atrof-muhit va fuqarolar sog‘lig‘iga ta’sirini baholash, ekologik talablarga muvofiqligi hamda obyektni ro‘yobga chiqarish mumkinligini aniqlash maqsadida Davlat ekologik ekspertizasidan o‘tkaziladi.

Ekologik ekspertiza – Davlat ekologik ekspertizasi markazi tomonidan “Ekologik ekspertiza, atrof-muhitga ta’sirni baholash va strategik ekologik baholash to‘g‘risida”gi O‘zbekiston Respublikasi Qonuni, Vazirlar Mahkamasining “Ekologik normativlar loyihalarini ishlab chiqish va kelishish tartibi to‘g‘risidagi nizomni tasdiqlash haqida” 2014-yil 21-yanvardagi 14-son va “Atrof-muhitga ta’sirni baholash mexanizmini yanada takomillashtirish to‘g‘risida” 2020-yil 7-sentabrdagi 541-son qarorlari asosida amalga oshiriladi.

Ma’lumot uchun: *“Ekologik ekspertiza, atrof-muhitga ta’sirni baholash va strategik ekologik baholash to‘g‘risida” (22-modda) hamda “Tabiatni muhofaza qilish to‘g‘risida”gi (25-modda) O‘zbekiston Respublikasi Qonunlariga asosan, Davlat ekologiya ekspertizasining ijobiy xulosasi bo‘lmay turib, loyihalarning ro‘yobga chiqarilishi taqiqlanadi.*

Soatiga 300/600 MVt quvvatiga ega bo‘lgan batareyali energiya saqlash tizimini qurishning atrof-muhitga ta’sir darajasi ularning ishlab chiqarish quvvatiga qarab toifalarga ajratiladi. Mazkur loyiha quvvatidan kelib chiqib atrof-muhitga ta’sir ko‘rsatishning I toifasi, 32-bandi (300 MVt yoki undan ortiq quvvatga ega bo‘lgan issiqlik, foto, shamol elektr stansiyalari va boshqa yondirish qurilmalari faoliyati)ga mos keladi.

Obyektlarga bo‘lgan sanitariya va himoya masofasi bo‘yicha, O‘zbekiston Respublikasi Sog‘liqni saqlash vazirligi huzuridagi Sanitariya-epidemiologik osoyishtalik va jamoat salomatligi qo‘mitasining 2025-yil 15-avgustdagi 24-son qarori talablaridan kelib chiqib, sanitariya-muhofaza zonasi belgilanadi *(0103-25-son SanQvaN).*

O‘zbekiston Respublikasi Vazirlar Mahkamasining “O‘zbekiston Respublikasi hududidagi suv obyektlarining suvni muhofaza qilish va sanitariya-muhofaza zonalarini belgilash tartibi to‘g‘risidagi nizomni tasdiqlash haqida” 2019-yil 11-dekabrdagi 981-son qarori talablariga asosan, ochiq suv havzalari muhofaza mintaqalari hisoblanadi.

Yuqoridagilardan kelib chiqqan holda, buyurtmachi tomonidan quvvati soatiga 300/600 MVt ga ega bo‘lgan batareyali energiya saqlash tizimlari (BESS) qurilishi uchun “Atrof-muhitga ta’siri to‘g‘risidagi bayonot loyihasi” ishlab chiqilib, elektron tizimi – eco-service.uz orqali kiritilganidan so‘ng, hujjat loyihasi ko‘rib chiqilib, tegishli davlat ekologik ekspertizasi xulosasi taqdim etilishi ma’lum qilinadi.

Rejalashtirilayotgan faoliyatning atrof-muhitga ta’siri to‘g‘risidagi materiallarida ishlab chiqarish (texnologik) jarayonidan kelib chiqib, qo‘shimcha ravishda uning atrof-muhitga ta’siri toifasiga aniqlik kiritish mumkinligini eslatib o‘tamiz.

Bosh direktorning
birinchi o‘rinbosari **T.Aytmuratov**

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O'ZBEKISTON RESPUBLIKASI FAVQULODDA VAZIYATLAR VAZIRLIGI NAVOIY VILOYATI FAVQULODDA VAZIYATLAR BOSHQARMASI

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"Green Business Innovation" MCHJ direktori S.Yusupovaga

2026-yil " 26 " may

3/20-4120-son

Sizning, 2026-yilning 16-aprel kuni O'zbekiston Respublikasi Favqulodda vaziyatlar vazirligiga yo'llagan Zar_Bess_09_2026-sonli xatingizda keltirilgan savollarga javoban quyidagilarni ma'lum qilamiz:

1. Loyihalanayotgan obyekt hududiga eng yaqin qutqaruv qismi Zarafshon shahar markazida joylashgan bo'lib, ushbu qutqaruv qismigacha bo'lgan masofa taxminan 65 kilometrni tashkil etadi. Biroq ushbu masofaning 50-kilometridan keyin qattiq qoplamali yo'llar mavjud emasligi sababli qutqaruv avtomobillarining berilgan koordinata manziligacha yetib borishi cheklangan.

Loyihalanayotgan obyektda sodir bo'lishi mumkin bo'lgan yong'inlarni samarali bartaraf etish maqsadida obyekt ishlab chiqarish toifasidan kelib chiqib ShNQ 2.09.17-21 "Sanoat korxonalarining bosh rejalarini loyihalash" shaharsozlik normalari va qoidalarining 64-bandida belgilangan radiusda Yong'in-qutqaruv deposini qurish maqsadga muvofiq.

2. Loyihalanayotgan obyekt hududiga eng yaqin joylashgan huquqni muhofaza qiluvchi organlar bo'linmalari haqidagi aniq ma'lumotlarni O'zbekiston Respublikasi Ichki ishlar vazirligi va uning hududiy bo'linmalaridan olishingiz maqsadga muvofiq.

3. Loyihalanayotgan obyekt koordinatalari joylashgan hudud asosan cho'l zonasi bo'lganligi sababli hududda o'rmon yong'inlari yoki yirik yong'inlar sodir bo'lmagan. Hududda sel yo'llari mavjudligi, sodir bo'lgan sel-suv toshqinlari, qurg'oqchilik kabi ma'lumotlar olish yuzasidan

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O'zbekiston Respublikasi Gidrometeorologiya xizmati markaziga murojaat qilishingiz maqsadga muvofiq.

4. Batareyali energiya saqlash tizimi (BESS) o'zida turli binolari va inshootlarini mujassamlashtirganligi uchun ularni loyihalashda bir nechta norma-talablarini inobatga olish zarur. Jumladan, ShNQ 2.09.17-21 "Binolar va inshootlarning yong'in xavfsizligi", ShNQ 2.09.17-21 "Sanoat korxonalarining bosh rejalarini loyihalash", ShNQ 2.09.02-23 "Korxonalarning ishlab chiqarish hamda ma'muriy maishiy bino va inshootlari. Loyihalash talablari", ShNQ 2.04.09-21 "Bino va inshootlarning yong'in avtomatikasi", ShNQ 2.04.02-19 "Suv ta'minoti. Tashqi tarmoqlar", ShNQ 2.04.01-22 "Binolarning ichki suv ta'minoti va oqava suvlarni chiqarib yuborish" shaharsozlik normalari va qoidalari, "Elektr uskunalarini o'rnatish qoidalari" va boshqa O'zbekiston Respubliksida amalda bo'lgan normalar va qoidalar talablarini inobatga olish maqsadga muvofiq.

Boshqarma boshlig'i o'rinbosari **M.Ergashev**

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2026-yil 20-iyul **03-4168-son**

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Kon-geologiya vazirligi Sizning 2026-yil 16-apreldagi ZAR_BESS_10_2026-sonli xatingizga javoban, MASDAR kompaniyasi tomonidan qurilishi rejalashtirilayotgan Navoiy viloyati Tomdi tumani hududida 300/600 MVt·soat quvvatga ega batareyali energiya saqlash tizimi (*BESS*) uchun so‘ralgan yer maydoni konturini Energetika vazirligiga ma’lum qilgan holatda kelishish uchun qayta kiritishingiz so‘raladi.

Vazir kotibiyati boshlig‘i **Z. Saidov**

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12 may 2026 yil. **04-04/1057-son**

"Green Business Innovation"
MCHJ direktori
Saida Yusupovaga

Tomdi tumani hokimligi tomonidan Sizning 2026 yil 16 apreldagi Zarafshon 300/600 MVt·soat quvvatga ega Batareyali Energiya Saqlash Tizimi (BESS) loyihasi yuzasidan yo'llagan murojaatingiz ko'rib chiqildi.

Ma'lumki, mazkur loyihaning amalga oshirilishi tumanda qayta tiklanuvchi energiya manbalarini rivojlantirish, zamonaviy energetika infratuzilmasini shakllantirish, yangi ish o'rinlari yaratish hamda investitsion jozibadorlikni oshirishda muhim ahamiyat kasb etadi.

Shu munosabat bilan, Tomdi tumani hokimligi tomonidan loyihani amalga oshirish jarayonlarida amaliy hamkorlik qilishga tayyor ekanligimiz ma'lum qilinadi.

Xususan:

Loyiha hududi Tomdi tumani hududida joylashgan bo'lib, unga eng yaqin aholi punkti sifatida "Sharq" OFY hududi hisoblanadi.

Shu munosabat bilan, loyiha doirasida mahalliy aholi va manfaatdor tomonlar bilan hamkorlik ishlarini tashkil etishda "Sharq" OFY bilan hamkorlik qilish maqsadga muvofiq hisoblanadi.

"Sharq" OFY raisi: Aqberdiyev Beren

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Loyiha hududiga oid qo'shimcha ma'lumotlar, joylashuv xaritalari hamda mahalliy aholi bilan ishlash jarayonlarida tuman hokimligi tomonidan amaliy yordam ko'rsatiladi.

Loyihaning qurilish bosqichida vaqtinchalik bandlik hamda mahalliy tadbirkorlik subyektlari uchun tovar va xizmatlar xaridi bo'yicha imkoniyatlar yaratilishi kutilmoqda.

Shuningdek, loyihani ekspluatatsiya qilish bosqichida ham ma'lum miqdorda doimiy ish o'rinlari tashkil etilishi rejalashtirilgan.

Mazkur masalalar bo'yicha mahalliy mehnat bozori, ishsiz aholini ishga jalb qilish, munosib nomzodlarni tavsiya etish hamda bandlik yo'nalishida

hamkorlik ishlarini tashkil qilish uchun Tomdi tumani Kambag‘allikni qisqartirish va bandlik bo‘limi bilan hamkorlik qilish tavsiya etiladi.

Mas’ul shaxs: Tomdi tumani Kambag‘allikni qisqartirish va bandlik bo‘limi boshlig‘i Aytbayev Sayran

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Mahalliy hamjamiyatlar va asosiy manfaatdor tomonlarni loyiha haqidagi ma’lumotlar bilan doimiy ta’minlab borishning eng maqbul usuli sifatida ochiq jamoatchilik muhokamalari, uchrashuvlar va tushuntirish ishlarini muntazam tashkil etish tavsiya etiladi.

Loyihaga oid yangilanishlar, hujjatlar, muhokama jarayonlari hamda e’lonlarni:

mahalla fuqarolar yig‘inlari binolarida,

tuman hokimligining rasmiy axborot manbalari va ijtimoiy tarmoqlari orqali,

jamoatchilik yig‘ilishlari va davra suhbatlari orqali e’lon qilib borish maqsadga muvofiq hisoblanadi.

Shuningdek, aholi fikri va takliflarini inobatga olish maqsadida mahalliy faollar, tadbirkorlar, chorvadorlar hamda yerdan foydalanuvchilar ishtirokida muntazam muloqotlar o‘tkazish tavsiya etiladi.

Ish hajmini aniqlash (scoping) hamda ma’lumotlarni oshkor etish jarayonlarida mahalliy hamjamiyatlar va asosiy manfaatdor tomonlar ishtirokini ta’minlashning eng maqbul usuli sifatida mahallalarda ochiq jamoatchilik muhokamalari, davra suhbatlari va tushuntirish uchrashuvlarini tashkil etish maqsadga muvofiq hisoblanadi.

Mazkur jarayonlarda aholi, mahalla fuqarolar yig‘inlari, yoshlar va xotin-qizlar faollari, chorvadorlar, yerdan foydalanuvchilar hamda tadbirkorlik subyektlarining fikr va takliflarini inobatga olish tavsiya etiladi.

Loyihaga oid ma’lumotlarni aholiga yetkazishda mahalla binolarida e’lonlar joylashtirish, ommaviy yig‘ilishlar o‘tkazish, ijtimoiy tarmoqlar va mahalliy axborot resurslaridan foydalanish maqsadga muvofiq.

Ushbu jarayonlarni samarali tashkil etish maqsadida quyidagi tashkilot va idoralar bilan hamkorlik qilish tavsiya etiladi:

- Tuman hokimligi;
- Ovul fuqarolar yig‘inlari;
- Tuman ekologiya bo‘limi;
- Tuman qurilish va kadastr bo‘limlari;
- Veterinariya va chorvachilikni rivojlantirish bo‘limi;
- Yoshlar ishlari agentligi hamda xotin-qizlar faollari.

Mahalliy hamjamiyatlar va asosiy manfaatdor tomonlarni ishga joylashish hamda xarid imkoniyatlariga jalb etishning eng maqbul usuli sifatida ochiq tanlovlar, jamoatchilik uchrashuvlari va mahalliy aholi o‘rtasida tushuntirish ishlarini tashkil etish tavsiya etiladi.

Mavjud bo‘sh ish o‘rinlari va xarid imkoniyatlari haqidagi ma’lumotlarni:

mahalla fuqarolar yig‘inlari orqali,

tuman hokimligining rasmiy axborot manbalari va ijtimoiy tarmoqlarida,

Kambag‘allikni qisqartirish va bandlik bo‘limi orqali,

jamoatchilik yig‘inlari va e’lon taxtalarida muntazam e’lon qilib borish maqsadga muvofiq hisoblanadi.

Shuningdek, ishga qabul qilish jarayonlarida mahalliy aholi, ayniqsa yoshlar, xotin-qizlar va ishsiz fuqarolarga ustuvor ahamiyat qaratish tavsiya etiladi.

Ushbu yo‘nalishda quyidagi tashkilotlar bilan hamkorlik qilish maqsadga muvofiq:

- Tomdi tumani hokimligi;
- Kambag‘allikni qisqartirish va bandlik bo‘limi;
- mahalla fuqarolar yig‘inlari;
- Yoshlar ishlari agentligi;
- xotin-qizlar faollari;
- mahalliy tadbirkorlik subyektlari.

Shu bilan birga, loyihani amalga oshirish jarayonlarida amaldagi yer, ekologiya va shaharsozlik qonunchiligi talablariga qat’iy rioya qilinishi lozimligi ma’lum qilinadi.

Sizning murojaatingizda ko‘rsatilgan tegishli bo‘lim va mas’ul tashkilotlar ishtirokida onlayn uchrashuvlarni (Zoom platformasi orqali) tashkil etish bo‘yicha Tomdi tumani hokimligi tomonidan amaliy yordam ko‘rsatilishi ma’lum qilinadi.

Tomdi tumani hokimligi ushbu investitsiya loyihasini har tomonlama qo‘llab-quvvatlashga tayyor ekanligini bildiradi hamda kelgusida o‘zaro samarali hamkorlik davom etishiga ishonch bildirib qoladi.

Tuman hokimining o‘rinbosari **S.Eshnazarov**

AWB1463

IJRO.GOV.UZ тизими орқали ЭРИ билан тасдиқланган, Ҳужжат коди: JI31118335

O'ZBEKISTON RESPUBLIKASI RAQAMLI TEXNOLOGIYALAR VAZIRLIGI
MINISTRY OF DIGITAL TECHNOLOGIES OF THE REPUBLIC OF UZBEKISTAN
МИНИСТЕРСТВО ЦИФРОВЫХ ТЕХНОЛОГИЙ РЕСПУБЛИКИ УЗБЕКИСТАН
100164, Toshkent shahri, Mirzo Ulug'bek tumani, Ibrohim Mo'minov ko'chasi, 4-uy Tel: (+998) 71-238-41-07, 71-238-43-63, Fax: (+998) 71-238-41-74 info@digital.uz, www.digital.uz, digital@exat.uz

2026-y. « 29 » aprel 28-8/3747 « » 2026 г.

"Green Business Innovation" MChJ

Raqamli texnologiyalar vazirligi Sizning 2026-yil 16-apreldagi ZAR_BESS 13 -2026-son xatingizga asosan, MASDAR kompaniyasi tomonidan Navoiy viloyati Tomdi tumani hududida qurilishi rejalashtirilayotgan 300/600 MVt/soat quvvatga ega batareyali energiya saqlash tizimi joylashtirilishi rejalashtirilgan hudud o'rganib chiqib, quyidagilarni ma'lum qiladi.

O'rganish natijalariga ko'ra, loyiha qurilishi rejalashtirilayotgan hududda "O'zbektelekom" AK G'arbiy filiali hamda "Ist Telekom" MChJga qarashli optik tolali aloqa kabellari mavjudligi aniqlandi.

O'zbekiston Respublikasida, xususan Navoiy viloyatining mazkur hududlarida yangi qurilishlar, rekonstruksiya qilish, yo'llar va ko'priklarni qurish kabi ishlarni bajarishda Vazirlar Mahkamasining 1998-yil 15-maydagi 210-son qarori bilan tasdiqlangan "Telekommunikatsiya liniyalari va inshootlarini muhofaza qilish qoidalari" talablariga rioya qilinishi lozim.

Shuningdek, aloqa kabellari hamda aloqa inshootlarini xavfsiz joyga ko'chirish yoki qayta qurish bo'yicha olib boriladigan ishlar O'zbekiston Respublikasining "Telekommunikatsiyalar to'g'risida"gi Qonuni 21-moddasi 9-qismiga asosan amalga oshirilishi lozim.

Qoshimcha ma'lumot va texnik shartlarni olish uchun "O'zbektelekom" AK hamda "Ist Telekom" MChJ ga o'rnatilgan tartibda murojaat qilishingiz zarurligini ma'lum qilamiz.

Bog'lanish uchun: "O'zbektelekom" AK ma'sul xodimi 71 100-07-30,
"Ist Telekom" MChJ ma'sul xodimi 95 770-71-22.

Vazir o'rinbosari **J. Maxsudov**

KYE1170
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71-238-43-27

KYE1170

UZTELECOM
O'ZBEKTELEKOM AKSIYADORLIK KOMPANIYASI
G'ARBIY FILIALI
200100, Buxoro shahar, I.Mo'minov ko'chasi, 2-A uy
garbiy@uztelecom.uz
(+998 65) 223 12 33
uztelecom.uz

Texnik shart № 422/26 23.04.2026-yil

Tashkilot: "Green Business Innovation" MChJ *(2026-yil 16-apreldagi ZAR_BESS_13_2026-son xatiga asosan)*

Obyekt nomi: "O'zbekistonda Zarafshaon 300/600 MWh quvvatga ega Batareyali Energiya Saqlash Tizimi (BESS) loyihasi" obyekti

1. Qurilish ishlarini olib borish rejalashtirilgan hududda yer osti magistral aloqa liniyalari mavjudligini inobatga olib, G'arbiy filiali To'qqizinchi bog'lamasi mas'ul xodimlari (murojaat uchun: 1133, 99-381-61-08, 99-795-12-25) xabardor qilinsin hamda ishlar ularning nazorati ostida boshlansin.

2. Yer osti kommunikatsiyalarini qurish va loyihalashtirish, shuningdek, har qanday qurilish-montaj ishlarini amalga oshirish, mexanizmlar yordamida yer qazish va tekislash jarayonida, yer osti kabel trassasidan yoki havo aloqa liniyalari eng chetidagi simlarning har tarafidan **2 metr masofada** parallel to'g'ri chiziqlar bilan aniqlanadigan yer uchastkasi aloqa liniyalarining muhofaza zonasi hisoblanishi inobatga olinsin (O'zbekiston Respublikasi Vazirlar Mahkamasining 1998-yil 15-maydagi 210-sonli qarori bilan tasdiqlangan "Telekommunikatsiya liniyalari va inshootlarini muhofaza qilish qoidalari"dan).

3. O'zbekiston Respublikasi Prezidentining 2019-yil 22-maydagi PQ-4329-son qarori 1-band 3-xatboshisiga asosan, obyekt hududidagi aloqa liniyasini ko'chirish zarurati tug'ilganda, belgilangan tartibda "O'zbektelekom" AK G'arbiy filialiga yozma murojaat qilinsin. Bunda aloqa liniyasini ko'chirish xarajatlari o'zgarishlarning tashabbuskori tomonidan to'liq hajmda qoplanishi inobatga olinsin.

4. Texnik shart asosida loyiha-smeta hujjatlari tayyorlansin hamda G'arbiy filial bilan kelishilsin.

5. Yer osti magistral aloqa liniyalarining muhofaza hududini inobatga olgan holda barcha loyihalashtirish va qurilish ishlari himoya hududidan tashqarida bajarilsin.

6. Ish boshlanishidan oldin tegishli xodimlar joyiga chiqib, aloqa liniyasining yo'nalishi va chuqurligini aniqlagandan so'ng ishlarni boshlashga ruxsat etiladi.

7. Yer osti aloqa liniyasining muhofaza hududida olib boriladigan barcha turdagi ishlar uchun qo'shimcha texnik shart olinishi inobatga olinsin.

8. Qurilish obyektining aloqa trassasiga yaqin hududida qazish ishlarini olib borish jarayonida grunt qatlami cho‘kishini inobatga olib, trambovka ishlari bajarilsin hamda qo‘shimcha mustahkamlash choralarini (maxsus metall konstruksiyalar o‘rnatish) ko‘rish ta’minlansin.

9. “Telekommunikatsiya liniyalari va inshootlarini qo’riqlash Qoidalari” ning 17-bandiga asosan ish bajarish jarayonida kommunikatsiyalarga keltirilgan moddiy zarar ish olib boruvchi tomonidan to‘liq qoplanishi ko‘zda tutilsin.

10. Ushbu texnik shart ishlarni boshlash va ekspluatatsiyaga qabul qilish uchun asos emas.

11. Texnik shart berilgan kundan boshlab bir yil muddatga qadar amal qiladi.

Direktorning texnik masalalari bo‘yicha birinchi o‘rinbosari A. Azimov

S. Xaydarov

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O‘ZBEKISTON RESPUBLIKASI MADANIY MEROS AGENTLIGI
AGENCY OF CULTURAL HERITAGE OF THE REPUBLIC OF UZBEKISTAN
Pochta manzili: 100029, Toshkent shahar, Taras Shevchenko ko‘chasi, 1-uy.
e-mail: info@madaniymeros.uz, tmma@exat.uz

2026-yil 24-aprel. 04-08/1950-sonli

“Green business innovation” MChJ

Sizning joriy yilning 16-aprelida Madaniy meros agentligiga yuborgan ZAR_BESS_14_2026-sonli xatingiz Navoiy viloyati madaniy meros boshqarmasi tomonidan o‘rganib chiqildi.

O‘rganish natijalari bo‘yicha ma’lumotlar ilovaga muvofiq yuborilmoqda. *Ilova___varaqda*

Direktor o‘rinbosari **Z.Valiyev**

Ijrochi: Raxmonov J.
Tel.: 946687679

IJRO.GOV.UZ тизими орқали ЭРИ билан тасдиқланган, Ҳужжат коди: SV12850558

O‘ZBEKISTON RESPUBLIKASI MADANIY MEROS AGENTLIGI
NAVOIY VILOYATI MADANIY MEROS BOSHQARMASI
DEPARTMENT OF NAVOI REGION OF AGENCY OF CULTURAL HERITAGE
OF THE REPUBLIC OF UZBEKISTAN
210100, Navoiy shahri, Nurafshon ko‘chasi 18-A uy, tel: 79 223 21 46
navoiymadaniymerosboshqarmasi@exat.uz

2026-yil 20-aprel **01-03/188-sonli**

Madaniy meros agentligiga

2026-yil 17-apreldagi
№05/817-sonli xatga

Bugungi kunda MASDAR kompaniyasi Navoiy viloyati Tomdi tumani hududida 300/600 MVt·soat quvvatga ega batareyali energiya saqlash tizimi (BESS) qurishni rejalashtirmoqda.

Shunga ko‘ra “Green Business Innavation” MCHJ tomonidan taqdim etilgan koordinatalarga *(KMZ filega)* hamda so‘ralgan ma’lumotlarga ko‘ra:

1.Loyiha hududi chegaralarida joylashgan arxeologiya va madaniy meros obyektlariga oid mavjud ikkilamchi ma’lumotlar yuqligini;

2.Loyiha hududi doirasida moddiy madaniy meros obyektlari mavjud emasligini;

3.Loyiha hududida (hamda undan 5 km radiusda) viloyat hududida joylashgan madaniy meros obyektlari mavjud emasligini ma’lum qilamiz.

Boshqarma boshlig‘i v.b **N.Qoldiqulov**

Ijrochi:F.Abdullayev
Tel: 94223505 1

O`ZBEKISTON RESPUBLIKASI FANLAR AKADEMIYASI
ANTROPOLOGIYA INSTITUTI
100170, Toshkent shahar, Mirzo Ulug`bek ko`chasi, 81 +998712626462
anthropology@academy.uz antropologiya-instituti@exat.uz
H/R:23402000300100001010 STIR:306816173 XKKM MB Toshkent sh. MFO:00014 IFUT:72200

Sana: 2026-yil 13-may; №: 01-212

GREEN BUSINESS
INNOVATION, MCHJ

Fanlar akademiyasi Antropologiya instituti (Milliy arxeologiya markazi) Sizning 2026-yil 27-martdagi O‘zbekistonda 200/800 MWh quvvatga ega Batareyali Energiya Saqlash Tizimi (BESS) loyihasi haqidagi xatingizga javoban quyidagilarni ma’lum qiladi.

1. Zarafshon 300/600 MWh quvvatga ega Batareyali Energiya Saqlash Tizimi (BESS) loyihasi amalga oshirilishi ko‘zlangan hududi Markaziy Qizilqum mintaqasida Tomditov va Muruntov tog‘lari hududida joylashgan. Markaziy Qizilqum va unga tutash Zarafshon vohasi arxeologiyasini o‘rganish XX asrning birinchi yarmidan boshlangan. Jumladan, akademik S.P. Tolstov boshchiligidagi Xorazm arxeologik-etnografik ekspedisiya 1937-yildan boshlab hududda tadqiqot ishlarini olib borgan. Keyingi tadqiqotlar A.V. Vinogradov, akademiklar Ya.G‘. G‘ulomov va U.I. Islamovlar tomonidan amalga oshirilgan.

Tadqiqotlar natijasida hududda neolit davriga oid yodgorliklar aniqlangan bo‘lib, ular umumiy tarzda Kaltaminor madaniyati yodgorliklari deb nomlanadi.

2. Loyiha hududi va 5 km radiusda arxeologik hamda madaniy yodgorliklar aniqlanmagan, ammo hududda arxeologik tekshiruv ishlarini olib borish lozim.

3. Zarafshon 300/600 MWh quvvatga ega BESS loyihasi amalga oshirilishi ko‘zlangan hudud yoki uning yaqinida arxeologik izlanishlar olib borilmagan.

4. Loyiha rejalashtirilgan hududlarda hozirgi kunda bir qator kichik tog‘ massivlari mavjud (1-rasm). Ushbu hududlarda ham tosh davridan to so‘nggi o‘rta asrlargacha bo‘lgan davrga oid yodgorliklar bo‘lishi mumkin. Lekin bu boradagi oxirgi xulosalarga arxeologik tekshiruvdan keyin aniqlik kiritiladi.

5. Loyihani amalga oshirishdan oldin ushbu hududda arxeologik qidiruv-tekshiruv ishlarini olib borish lozim. Ushbu hududda madaniy meros ob’yekti yoki arxeologik yodgorliklar mavjudligini aniqlash mutaxassislar tomonidan amalga oshirilishi mumkin. Loyiha hududini belgilangan smeta asosida arxeologik o‘rganish, xarajatlar smetasini tuzish, ilmiy xulosa berish bilan bog‘liq savollar O‘zR FA Antropologiya instituti katta ilmiy xodimi O.Askarov (+998901327227) tomonidan amalga oshiriladi.

Ilova – 1 bet.

Direktor F.Maksudov

Ijrochi: J. Adilov
Tel.: +998 97 157 58 88

Rasm. 1. Arxeologik yodgorliklar mavjud bo'lishi mumkin bo'lgan hududlar

O‘ZBEKISTON RESPUBLIKASI URBANIZATSIYA VA UY-JOY BOZORINI BARQAROR RIVOJLANTIRISH MILLIY QO‘MITASI HUZURIDAGI KADASTR AGENTLIGINING DAVLAT KADASTRLARI PALATASI NAVOIY VILOYATI BOSHQARMASI ZARAFSHON SHAHAR FILIALI

Zarafshon shahar, 4-kichik tuman 22A-y , tel: 79-573-21-42; 79-573-20-42.

28 aprel 2026 yil.
01-15/467-son

Toshkent, Yunus Rajabiy ko’chasi 62/42
"Green Business Inovation" MCHJ
direktori S.Yusupovaga

Davlat kadastrlari palatasi
Navoiy viloyati boshqarmasiga
(ma’lumot uchun)

Davlat kadastrlari palatasi Navoiy viloyati boshqarmasi Zarafshon shahar filiali, Sizning 2026-yil 16-apreldagi O‘zbekiston Respublikasi Kadastr agentligi direktoriga yo‘llagan murojaatingizga (raqami ZAR_BESS_17_2026) asosan quyidagilarni ma’lum qiladi.

Sizning murojaatingizda, Mazkur xat orqali sizni qayta tiklanuvchi energiya sohasida eng tez rivojlanayotgan kompaniyalardan biri bo‘lgan MASDAR kompaniyasining yangi loyihasi haqida xabardor qilamiz. Masdarning Markaziy Osiyodagi birinchi loyihasi O‘zbekistonda amalga oshirilgan. Bu IFC’ning Scaling Solar tashabbusi doirasidagi 100 MVt quvvatga ega quyosh elektr stansiyasi - Nur-Navoiy loyihasi edi. Hozirgi kunda esa MASDAR O‘zbekistonda allaqachon 2 GVt qayta tiklanuvchi energiya quvvatiga ega. Bunga quyosh va shamol elektr stansiyalari, jumladan mintaqadagi eng yirik - 500 MVtli Zarafshon shamol elektr stansiyasi ham kirishini ma’lum qilib bir nechta savollaringizga javob so’ragansiz.

Murojaatingiz Davlat kadastrlari palatasi Navoiy viloyati boshqarmasi Zarafshon shahar filiali xodimlari tomonidan o‘rganib chiqildi.

O‘rganish jarayonida, ushbu murojaatingizda keltirilgan savollaringizga asosan quyidagi ma’lumotlarni taqdim etamiz:

1.Loyiha hududi Navoiy viloyati Tomdi tumani Tomdibuloq Ovul fuqarolar yig‘ini hududida joylashgan.(1-ilova)

2.Loyiha hududiga eng yaqin mahalla Tomdi tumani Muruntau MFY hisoblanada.

3.Loyiha hududi «Veterinariya va chorvachilikni rivojlantirish qo‘mitasi huzuridagi Navoiy viloyati hududiy yaylov xo‘jaliklari boshqarmasi» davlat muassasasi tasarrufida.(2-ilovada)

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4.Loyiha hududida yerlardan chorvachilik maqsadida foydalaniladi.
5.Loyiha hududidan 5 km radiusda NGMK, Diamond HAUSE F/X hamda Veterinariya va chorvachilikni rivojlantirish qo‘mitasi huzuridagi Navoiy viloyati hududiy yaylov xo‘jaliklari boshqarmasi yerlari joylashgan.(3-ilova)
6. Loyiha hududida mavjud yoki avvalgi yer nizolari yoki ziddiyatlar mavjud emas.
7.Loyiha hududidagi yer yaylov maqsadida foydalanilmoqda.
8.Loyiha hududidagi yer «Veterinariya va chorvachilikni rivojlantirish qo‘mitasi huzuridagi Navoiy viloyati hududiy yaylov xo‘jaliklari boshqarmasi» davlat muassasiga tegishli.
9.Loyiha hududidagi yer «Veterinariya va chorvachilikni rivojlantirish qo‘mitasi huzuridagi Navoiy viloyati hududiy yaylov xo‘jaliklari boshqarmasi» davlat muassasiga tegishli
10. Mavjud emas.
11. Mavjud emas.

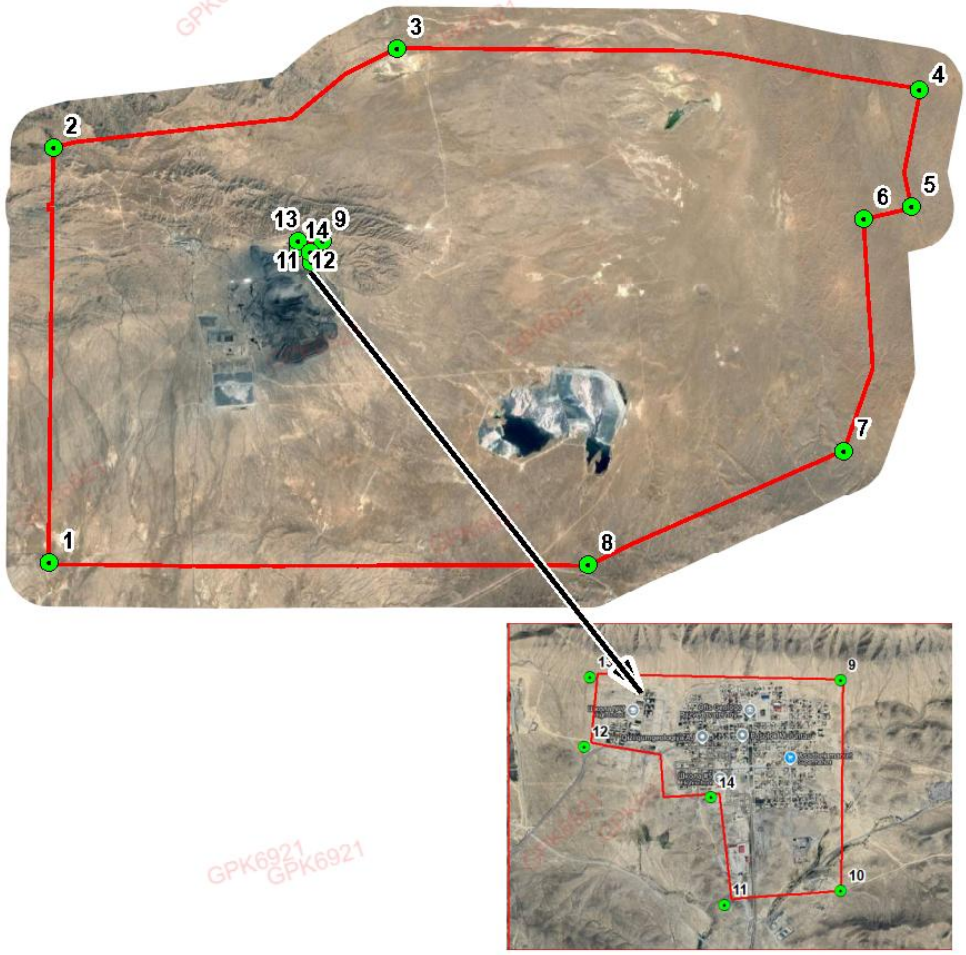
Mazkur javob xatidan norozi bo‘lsangiz, O‘zbekiston Respublikasining “Jismoniy va yuridik shaxslarning murojaatlari to‘g‘risida”gi Qonuniga asosan yuqori turuvchi organga yoki sudga murojaat qilish huquqiga ega ekanligingiz tushuntiriladi.

Ilova:elektron shaklda

Zarafshon shahar filiali boshlig‘i **U.Ochilov**

Navoiy viloyati Tomdi tumanidagi Tomdibuloq ovul fuqarolar yig'ini chegarasini belgilash

TARXI



Ushbu chegaralarni joyida to'g'ri va aniq kelishilganligini tasdiqlab imzolovchilar;

Tomdi tuman hokimligi vakili _____

Davlat kadastrlari palatasi
Zarafshon shahar filiali boshlig'i _____

O'zbekiston mahallalari uyushmasi
Tomdi tuman bo'limi _____

Tomdibuloq OFY raisi _____

Chegaradosh mahallalar fuqorolar yig'ini raislari:

Sharq OFY raisi _____

Aqtau OFY raisi _____

Keriz OFY raisi _____

Ayaggudug OFY raisi _____

Shartli belgilar

Chegaraning asosiy burilish nuqtalari

Chegara chizig'i

Masshtab 1:350 000

Urbanizatsiya va uy-joy bozori qo‘mitasi huzuridagi
Kadastr agentligining Davlat kadastrlari palatasi

Sana: 12.12.2025 № R-TOMT44820660

Ko‘chmas mulk obyektiga bo‘lgan huquqlarni davlat ro‘yxatidan o‘tkazilganligi to‘g‘risida
Davlat Reyestridan
KO‘CHIRMA

05.12.2025 yilda YaIDXP orqali kelib tushgan 233946611 - sonli buyurtma asosida ma‘lum qilamizki, Ko‘chmas mulk obyektlariga bo‘lgan huquqlarning davlat reyestriga ko‘chirma berilgan sana holatiga quyidagilarga bo‘lgan huquqlar davlat ro‘yxatidan o‘tkazilganligi haqida yozuvlar kiritilgan:

1. Ko‘chmas mulk obyekti:	
Ko'chmas mulk obyekti turi:	Noturar yer maydoni
Ko'chmas mulk obyektining nomi:	Yaylov yerlar
Yer uchastkasining toifasi:	Qishloq xo‘jaligiga mo‘ljallangan yerlar
Yer uchastkasining kichik toifasi:	Ipakchilik va jun sanoati yerlari
Joylashgan joyi:	Navoiy viloyati, Tomdi tumani, Tomdibuloq OFY, Tomdibuloq ko‘chasi

2. Ro‘yxatdan o‘tkazildi:		
2.1.Huquq egasi	**STIR(JSHSHIR)**	**Ulush**
"VETERINARIYA VA CHORVACHILIKNI RIVOJLANTIRISH QO‘MITASI HUZURIDAGI NAVOIY VILOYAT HUDUDIY YAYLOV XO‘JALIKLARI BOSHQARMASI" DAVLAT MUASSASASI	311926304	1/1

2.2. Yer uchastkasi:

Kadastr raqami	Reyestrda ro‘yxatdan o‘tgan sana	Reyestrda ro‘yxatdan o‘tgan raqami:	Huquq turi	Davlat ro'yhatidan o'tgan maydon (kv.m)
21:05:41:01:02:0708	12.12.2025	1712244/Y-25001166	Doimiy foydalanish	147 618 430.00
Huquqni belgilovchi hujjat rekvizitlari:	12.02.2025 yildagi 42-5-0-Q/25-sonli Viloyat hokimi qarori			
Jami				**147 618 430,00**

2.3. Bino va inshootlar:

Kadastr raqami	Reyestrda ro‘yxatdan o‘tgan sana	Reyestrda ro‘yxatdan o‘tgan raqami:	Huquq turi	Umumiy maydoni (kv.m.)	Umumiy foydalanish maydoni (kv.m.)	Shundan yashash maydoni (kv.m.)	Qurilish osti maydoni (kv.m.)
Jami							

2.4. Ko’p yillik dov-daraxtlar:

Kadastr raqami	Reyestrda ro‘yxatdan o‘tgan sana	Reyestrda ro‘yxatdan o‘tgan raqami:	Huquq turi	Turi	Ko‘p yillik dov-daraxtlar egallagan yer maydoni (kv.m)	Ko‘p yillik dov-daraxtlar soni (dona)
Jami						

3. Taqiq, xatlov yoki cheklovlar mavjudligi:

Ro‘yxatdan o‘tkazuvchi TUXTAYEV JAVOXIR VOHID O‘G‘LI

Mazkur hujjat Vazirlar Mahkamasining 2020-yil 2-sentabrdagi 535-son qarori bilan tasdiqlangan Ko‘chmas mulkka bo‘lgan huquqlarni davlat ro‘yxatidan o‘tkazish bo‘yicha davlat xizmatlari ko‘rsatishning ma’muriy reglamentiga muvofiq shakllantirilgan ko‘chirmaning elektron nusxasi hisoblanadi. Elektron hujjatning nusxasida ko‘rsatilgan ma’lumotlar to‘g‘riligini tekshirish uchun davreestr.uz portaliga o‘ting yoki mobil telefon yordamida QR-kodni skaner qiling. Diqqat! Davlat reyestridan elektron shaklda berilgan, shuningdek, qog‘ozda berilgan ko‘chirmalar teng yuridik kuchga ega. Davlat organlariga Davlat reyestridan shakllantirilgan elektron hujjatlarning nusxalarini qabul qilishni rad etishlari qat’iyan taqiqlangan.

3.1. Ipoteka, bino va inshootlar, shuningdek, yer uchastkasiga bo'lgan ashyoviy huquqlar ipotekasi to'g'risidagi shartnomalarni davlat ro'yxatidan o'tkazilganligi:				
Cheklov qo'yilgan ko'chmas mulk	Ro'yxatdan o'tgan sana	Reyestrda ro'yxatdan o'tgan raqami:	Kadastr raqami	Cheklov qo'yilgan obyektning maydoni (kv.m.)
Jami:				

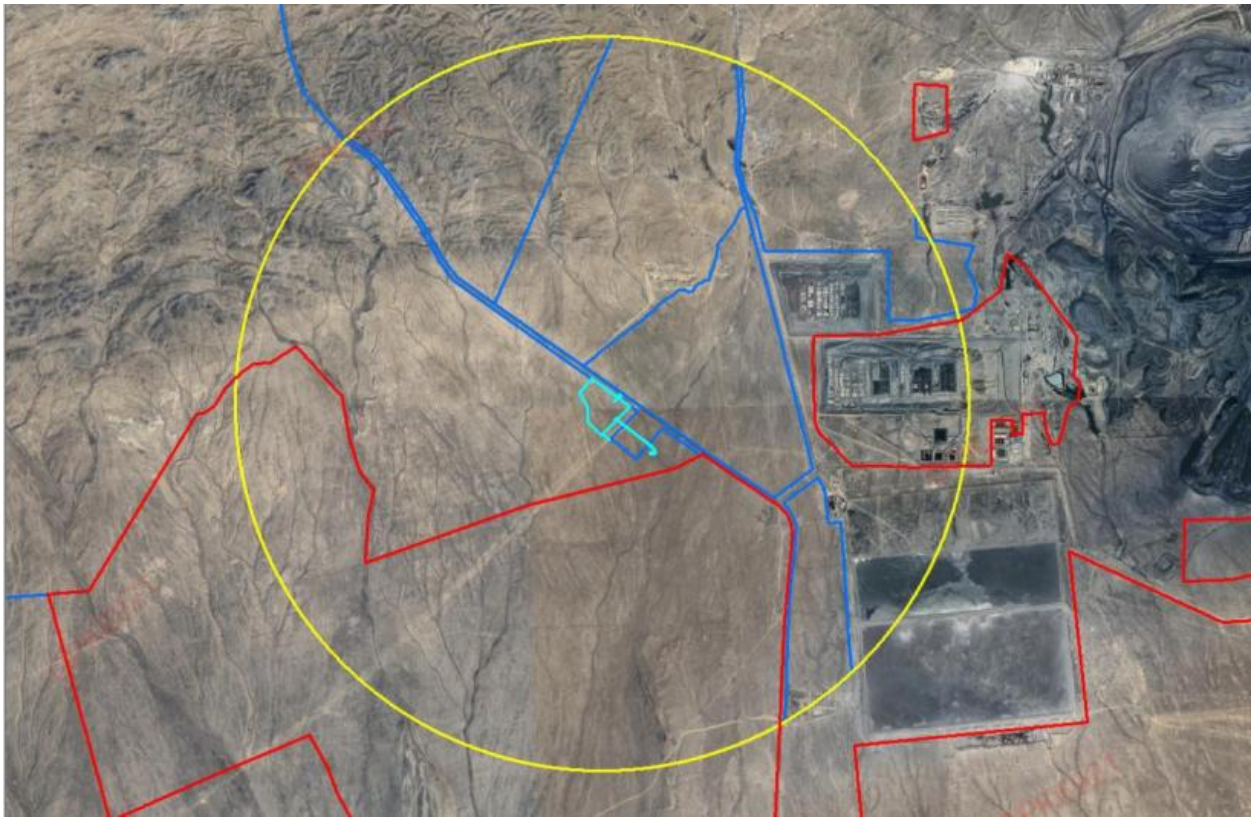
3.2. Bino va inshootlar ijarasi, bepul foydalanish, ko'chmas mulkni ishonchli boshqarish, shuningdek yer uchastkasiga bo'lgan ashyoviy huquqlar ijarasi to'g'risidagi shartnomalarni davlat ro'yxatidan o'tkazish:				
Cheklov qo'yilgan ko'chmas mulk	Ro'yxatdan o'tgan sana	Reyestrda ro'yxatdan o'tgan raqami:	Kadastr raqami	Cheklov qo'yilgan obyektning maydoni (kv.m.)
Jami:				

3.3. Servitut, yer uchastkasi bo'yicha servitut kelishuvi davlat ro'yxatidan o'tkazilganligi:				
Cheklov qo'yilgan ko'chmas mulk	Ro'yxatdan o'tgan sana	Reyestrda ro'yxatdan o'tgan raqami:	Kadastr raqami	Servitut belgilangan maydoni:

3.4. Taqiq:	
Asos bo'luvchi hujjat rekvizitlari:	

Ro'yxatdan o'tkazuvchi TUXTAYEV JAVOXIR VOHID O'G'LI

Mazkur hujjat Vazirlar Mahkamasining 2020-yil 2-sentabrdagi 535-son qarori bilan tasdiqlangan Ko'chmas mulkka bo'lgan huquqlarni davlat ro'yxatidan o'tkazish bo'yicha davlat xizmatlari ko'rsatishning ma'muriy reglamentiga muvofiq shakllantirilgan ko'chirmaning elektron nusxasi hisoblanadi. Elektron hujjatning nusxasida ko'rsatilgan ma'lumotlar to'g'riligini tekshirish uchun davreestr.uz portaliga o'ting yoki mobil telefon yordamida QR-kodni skaner qiling. Diqqat! Davlat reyestridan elektron shaklda berilgan, shuningdek, qog'ozda berilgan ko'chirmalar teng yuridik kuchga ega. Davlat organlariga Davlat reyestridan shakllantirilgan elektron hujjatlarning nusxalarini qabul qilishni rad etishlari qat'iyan taqiqlangan.



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IJRO.GOV.UZ tizimi orqali ERI bilan tasdiqlangan, Hujjat kodi: FA54318685

O'ZBEKISTON RESPUBLIKASI
VETERINARIYA VA CHORVACHILIKNI RIVOJLANTIRISH QO'MITASI
HUZURIDAGI NAVOIY VILOYATI HUDUDIY YAYLOV XO'JALIKLARI
BOSHQARMASI

210 500, Navoiy viloyati Konimex tumani Abay ko'chasi - 9 uy, telefaks 79-51-22-261

20 may 2026 yil. **337-son**

"GREEN BUSINESS
INNOVATION" MCHJ
direktori S.Yusupovaga

Sizning 2026 yil 06-maydagi murcjaat xatingizga javoban.

Navoiy viloyati Tomdi tumani hududida "MASDAR" kompaniyasining qayta tiklanuvchi energiya sohasidagi loyihalarni amalga oshirishda so'ralgan yaylov yer maydonlari O'zbekiston Respublikasi Prezidentining 2025 yil 30-yanvardagi "Yaylovlarni muhofaza qilish, ulardan samarali va oqilona foydalanishning zamonaviy mexanizmlarini joriy etish chora-tadbirlari tug'risida"gi PF-15-son Farmoniga asosan, Navoiy viloyat hududiy yaylov xo'jaliklari boshqarmasiga tegishliligini ma'lum qilamiz.

Belgilangan yaylov yer maydonlari bugungi kunda chorvachilik yoki boshqa maqsadlarda foydalanish uchun ijaraga ajratilmaganligi hamda O'zbekiston Respublikasi qonun xujjatlarida belgilangan tartibda, yer egalari va foydalanuvchilariga zarar miqdorini qoplab berish sharti bilan, tegishli tuman hokimliklari zahira yerlari fondiga qaytarilishiga va yer fondi toifalarini o'zgartirishga e'tirozimiz yo'qligini bildiramiz.

Boshqarma boshlig'i v.v.b. **S.Janxujayev**

YOH6267

IJRO.GOV.UZ tizimi orqali ERI bilan tasdiqlangan, Hujjat kodi: LR31877008

O‘ZBEKISTON RESPUBLIKASI
SOG‘LIQNI SAQLASH VAZIRLIGI HUZURIDAGI
SANITARIYA-EPIDEMIOLOGIK OSOYISHTALIK
VA JAMOAT SALOMATLIGI QO‘MITASI
SANITARY-EPIDEMIOLOGICAL WELFARE AND PUBLIC HEALTH COMMITTEE
UNDER THE MINISTRY OF HEALTH OF THE REPUBLIC OF UZBEKISTAN

100097, Toshkent shahri, Chilonzor tumani, Bunyodkor ko‘chasi, 46-uy
78/888-01-01 (010), 78/888-01-01 (050)
sanepidcommittee@sanepid.uz
sanepidxizmat@exat.uz
www.gov.uz/sanepid,
t.me/sanepidcommittee

"25" may 2026 yil. **02-16/5489-son**

“Green Business Innovation”
mas’uliyati cheklangan jamiyat direktori
S.Yusupovaga

Sanitariya-epidemiologik osoyishtalik va jamoat salomatligi qo‘mitasi Sizning 2026-yil 18-maydagi ZAR_BESS-23-2026-son xatingiz bo‘yicha quyidagilarni ma’lum qiladi.

O‘zbekiston Respublikasi Vazirlar Mahkamasining “Xodimlar mehnatini muhofaza qilish chora-tadbirlarini yanada takomillashtirish to‘g‘risida” 2014-yil 15-sentyabrdagi 263-son qaroriga muvofiq, mehnat sharoitlari, mehnat jarayonining og‘irligi va tig‘izligi, asbob-uskunalarning jarohatlash xavfliligi yuzasidan ish o‘rinlarini attestatsiyadan o‘tkazish belgilangan.

Attestatsiya natijalaridan xodimlarni ish joylaridagi mehnat sharoitlari, sog‘liqqa shikast yetkazishning mavjud xavfi, zararli va (yoki) xavfli ishlab chiqarish omillari ta’siridan himoya qilish chora-tadbirlari, kasbiy xavfni baholash, xodimlarni yakka tartibdagi va jamoaviy himoya vositalari bilan ta’minlash, kasb kasalligiga shubha tug‘ilganda kasallikning kasb bilan bog‘liqligi to‘g‘risidagi masalani hal etish, mehnatni muhofaza qilish bo‘yicha normalar, qoidalar va yo‘riqnomalar talablariga muvofiq xodimlarni sanitariya-maishiy va tibbiy ta’minlash maqsadlarda foydalaniladi

Sanitariya-muhofaza zonasi batareya energiyasini saqlash tizimi uskunalaridan eng yaqin turar-joy binosiga bo‘lgan masofa hisoblanadi. Shu bilan birga, “Sanitariya -muhofaza zonasiga doir sanitariya qoidalari, normalari va gigiena normativlari” 0103-25-son sanitariya qoidalari, normalari va gigiena normativlarida hosil bo‘ladigan elektr maydoni turar joy binolari ichida 0,5 kV/m, turar joy binolarining hududida 1 kV/m, avtomobil yo‘llarini kesib o‘tadigan joylarda 10 kV/m, aholi yashamaydigan hududlarda 20 kV/m, magnit maydon esa 80 A/mdan (100 mkTl) yuqori bo‘lmasligi nazarda tutilgan.

0103-25-son sanitariya qoidalari, normalari va gigiena normativlarida belgilangan talablarni inobatga olgan holda loyihani ishlab chiqish va amalga oshirilishiga e’tirozlar yo‘qligi bildiriladi.

Raisning birinchi o‘rinbosari **N. Atabekov**

Ijrochi: J.Tuychiyev,
tel: 78-888-01-01 (025)

21.2 Annex 2 – Project's Presentation and Handout

O’zbekistonda 300 MW / 600 MWh quvvatga ega Batareyali Energiya Saqlash Tizimi (BESS) loyihasi
Atrof-muhit va ijtimoiy ta’sirni baholash
MASDAR
ECO Consult
Green Business Innovation
Muhokama uchun tarqatma

Taqdimot Rejasi

1. Loyiha tarkibiy qismlarining qisqacha tavsifi
2. Atrof-muhit bo‘yicha ruxsatnoma talablari
3. ESIA uchun yondashuv va metodologiya
4. Fikr-mulohazalar va muhokama

1. LOYIHA TAVSIFINING QISQACHA MAZMUNI

Loyiha hududi

- O’zbekiston Respublikasi Navoiy viloyatida joylashgan
- Zarafshon shahridan taxminan 25 km Janubi-sharqda
- Eng yaqin aholi punkti “Muruntov” mahallasi
- Eng yaqin asfalt yo’ldan (A379) taxminan 50 m Shimoli-sharqda joylashgan
- Loyiha hududi tahminan 26.7 gektar

Loyiha Hududi

ESIA Consultant	Client	Project	Legend
ECO Consult Green Business Innovation	MASDAR	600 MWh BESS Project in Zarafshan	Project site Grid connection Acces road

5

Loyiha hududi va Navoiy shahri orasidagi masofa

6

Loyihaning tarkibiy qismlari

BESS tarkibiy qismlari

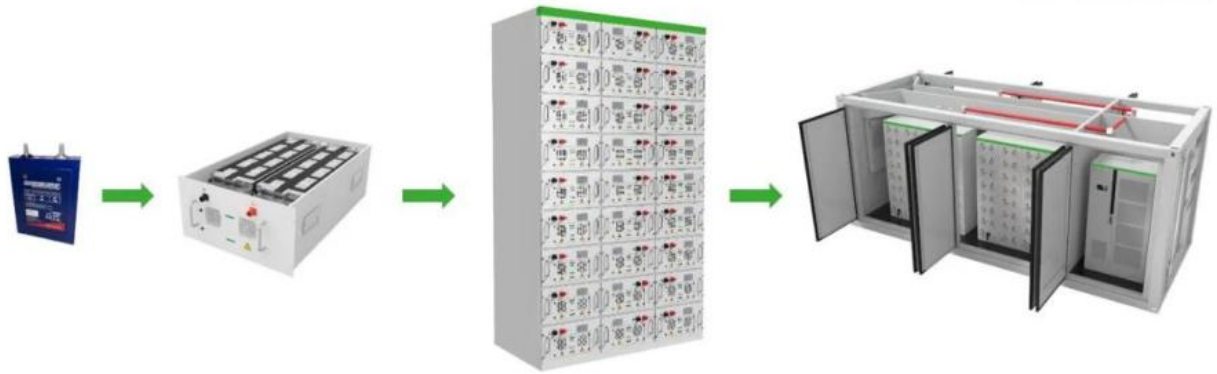
- Batareya konteyneri (batareya stendlari/racklari bilan)
- Past kuchlanish/o‘rta kuchlanish transformatori (LV/MV)
- Quvvatni o‘zgartirish tizimi (PCS)
- Batareyani boshqarish tizimi (BMS)
- Yong‘indan himoya va o‘chirish tizimlari
- Batareya elementlari haroratini saqlash uchun sovutish/isitish tizimi
- Monitoring sensorlari (masalan, tutun, issiqlik va gaz detektorlari)

Elektr uzatish liniyasi tarkibiy qismlari

- 500 kV yer osti kabellari
- Kabel ulanish joylari (zarur bo‘lsa)
- Kabel uchlari (terminatsiya)
- Kabel xandaqlari

Eslatma: Yer osti kabelining chuqurligi taxminan 1 metr yoki mahalliy standartlarga muvofiq belgilanadi.

BESS konteynerlarining ko'rinishi



Lithium cell Lithium module Lithium rack Lithium energy storage system

Loyiha Bosqichlari

- Rejalashtirish va Qurilish
- Ishlatish (ekspluatatsiya)
- Faoliyatdan to’xtatish

Loyiha Bosqichlari

- **Rejalashtirish va Qurilish:**
  - Batafsil loyihalash va rejalashtirish
  - Loyiha davomida ishlatiladigan jihozlarni tashish
  - Maydonni tayyorlash ishlari (chuqurlik qazish, tozalash va boshqalar)
  - Konteynerlarni yig‘ish va o‘rnatish
  - Boshqa infratuzilma elementlari uchun qo‘shimcha qurilish ishlari (kabel, ulanish va boshqalar)

Loyiha Bosqichlari

- **Ishlatishsh:**
  - Ishga tushirish va texnik xizmat ko‘rsatish uchun cheklangan operatsion faoliyat, jumladan muntazam va noodatiy texnik xizmat (masalan, batareyalarni kuzatish, sovutish tizimini tekshirish va invertorlarni ko‘zdan kechirish)
- **Faoliyatdan to’xtatish:**
  - Loyiha komponentlarini oxirgi utilizatsiya qilish uchun demontaj qilish

2. ATROF-MUHITGA TA’SIRNI BAXOLASH UCHUN TALABLAR
13

Atrof-muhit Bo'yicha Ruxsat Olish Talablari
Milliy Talablar

- **O'zbekistonning EIA talablari EIA jarayonini (OVOS deb ataladi) ishlab chiqishni o'z ichiga oladi.**

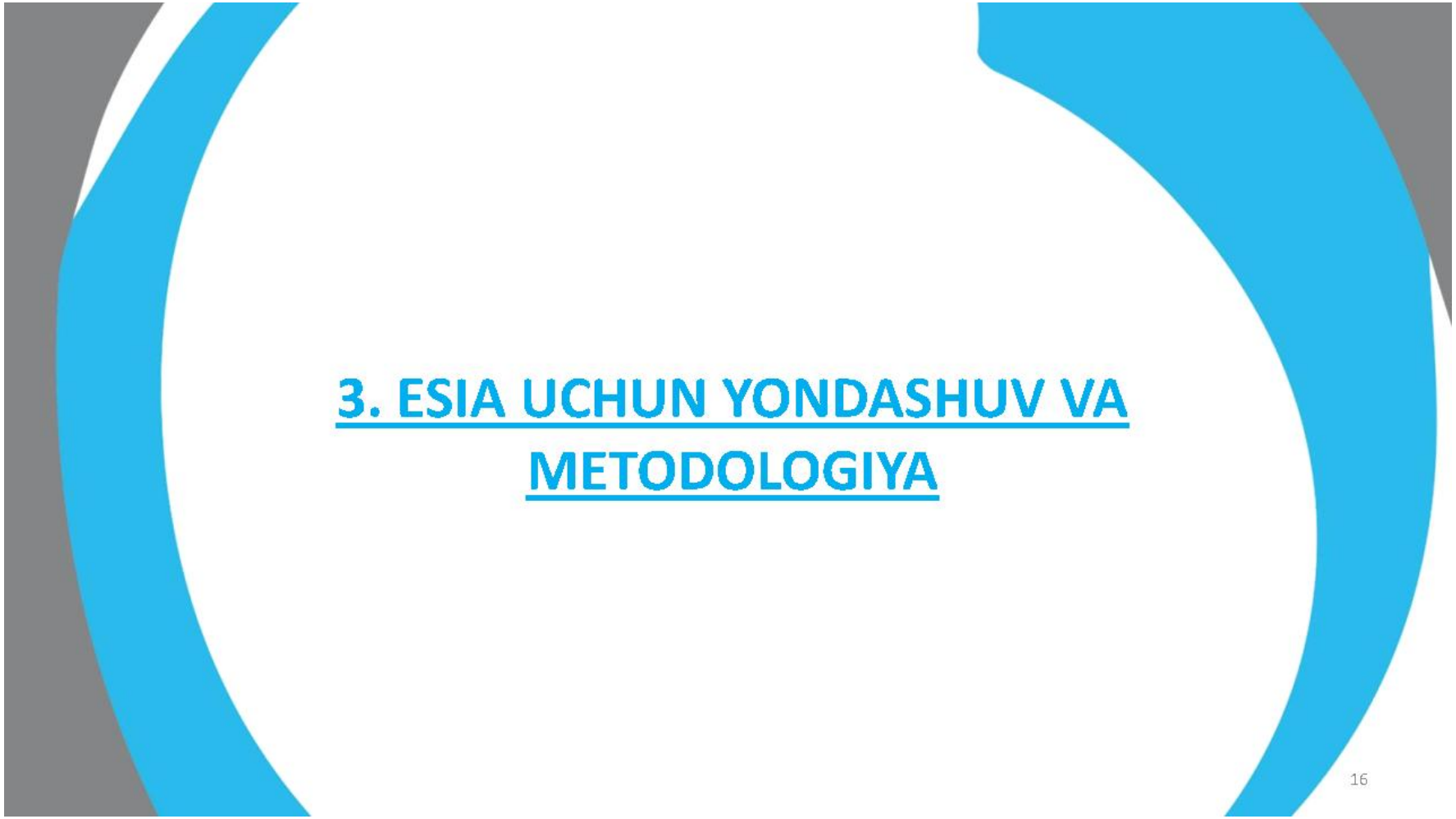
- **Milliy EIA talablari quyidagi hujjatlar bilan tartibga solinadi:**
  - **Atrof-muhit ekspertizasi to'g'risidagi Qonun (2000)**
  - **Davlat atrof-muhit ekspertizasi (DAE) Nizomi, 2001-yil 31-dekabrda Vazirlar Mahkamasining 491-son qarori bilan tasdiqlangan va 2005 hamda 2009-yillarda o'zgartirilgan**

Atrof-muhiT va ijtimoiy baholash hamda Litsenziyalash Tartiblari

- **MASDAR kompaniyasi ECO Consult & Green Business Innovation kompaniyalarini O‘zbekiston standartlari va Xalqaro sanoatning eng yaxshi amaliyotlari (GIIP)ga muvofiq ESIA o‘tkazish uchun tayinladi**

- **Loyiha Xalqaro moliyalashtirish institutlaridan (IFI) moliyalashtirish olishni rejalashtirmoqda, bu esa ESIAning GIIPga muvofiq bo‘lish jarayonidan o‘tishi talab etiladi, jumladan quyidagi asoslar va standartlar bilan cheklanmagan holda:**

  - AIIBning Atrof-muhit va ijtimoiy asoslari (ESF), 2024
  - IFCning faoliyat standartlari (IFC PS), 2012;À
  - Ekvator tamoyillari – EP4
  - Jahon banki guruhi (WBG)ning EHS bo‘yicha umumiy qo‘llanmalari (2007)
  - WBGning elektr energiyasini uzatish va taqsimlash bo‘yicha qo‘llanmalari (2007)


3. ESIA UCHUN YONDASHUV VA METODOLOGIYA
16

ESIAning Asosiy Tarkibiy Qismlari

- **Aniqlash jarayoni (Scoping Process) –** aniqlash tashrifi, asosiy manfaatdor tomonlar bilan maqsadli konsultatsiyalar va aniqlash sessiyalarini (joriy sessiya kabi) o‘z ichiga oladi.
- **Atrof-muhit va ijtimoiy boshlang‘ich holatlarni baholash** – loyiha hududiga xos so‘rovlar va/yoki ikkilamchi ma’lumotlar asosida.
- **Har bir bosqichdan kutilayotgan atrof-muhit va ijtimoiy ta’sirlarni baholash** – rejalashtirish va qurilish, ishlash, faoliyatdan to‘xtatish.
- **Atrof-muhit va Ijtimoiy boshqaruv rejasini** (ESMP) ishlab chiqish

O’rganiladigan asosiy yo’nalishlar

1. Arxeologiya va Madaniy Meros
2. Yer Ishlatilishi
3. Infratuzilma va Kommunal Xizmatlar
4. Landshaft va Vizual Ta’sir
5. Jamoat Sog’ligi va Xavfsizligi
6. Mehnat sog’ligi va Xavfsizligi
7. Ijtimoiy-iqtisodiy Holat
8. Biologik Xilma-xillik

1. ARXEOLOGIYA

Arxeologiyaga Ta’sirlarning Ehtimoliy Manbalari

- **Bosqich / Ehtimoliy Ta’sir: Faqat qurilish bosqichida** - maydonni tayyorlash va yer qazish (yerga ta’sir qiluvchi) ishlari avval aniqlanmagan yer yuzasidagi yoki yer yuzasiga yaqin joylashgan arxeologik va madaniy meros qoldiqlariga (agar mavjud bo‘lsa) salbiy ta’sir ko‘rsatish xavfini keltirib chiqarishi mumkin. **Ekspuatatsiya** bosqichida arxeologik ta’sirlar kutilmaydi.

Baholash Yondashuvi

- Mavjud boshlang‘ich (bazaviy) ma’lumotlarni ko‘rib chiqish va joriy holatni baholash orqali loyiha hududida mavjud yoki ehtimoliy arxeologik obyektlarni aniqlash hamda ularning madaniy ahamiyatini baholash.
- Madaniyat va turizm vazirligidan norozi emaslik xatini olish

2. YER ISHLATILISHI

Yer Foydalanishiga Ta’sirlarning Ehtimoliy Manbalari

- **Bosqich / Ehtimoliy Ta’sir**: Rejalashtirish va qurilish bosqichi – maydon hudud uchun belgilangan ruxsat etilgan yer ishlatilishi bilan ziddiyatga tushishi yoki hozirgi yer ishlatilishiga (masalan, mahalliy jamoalarga) ta’sir qilishi mumkin.

Baholash Yondashuvi

- Tegishli davlat organlari (masalan, Tabiiy resurslar vazirligi, Kadastr xizmatlari va boshqalar) tomonidan chiqarilgan yer foydalanish va hududiy rejalashtirish bo‘yicha rasmiy hujjatlarni ko‘rib chiqish.
- Yer egaligi va yer uchastkalaridan foydalanish (tenure) bo‘yicha ma’lumotlarni tahlil qilish orqali rasmiy huquqlar hamda norasmiy foydalanish shakllarini aniqlash.
- Loyiha hududida mavjud yer foydalanish shakllarini hujjatlashtirish maqsadida joyiga chiqib o‘rganish, jumladan rasmiy va norasmiy faoliyatlar, shuningdek jismoniy foydalanish (masalan, uylar, inshootlar) va iqtisodiy foydalanish (masalan, qishloq xo‘jaligi).

3. INFRATUZILMA VA KOMMUNAL XIZMATLAR

Infratuzilma va Kommunal Xizmatlarga Ta’sirlarning Ehtimoliy Manbalari

Bosqich / Ehtimoliy Ta’sir: **Rejalashtirish, qurilish va ekspluatatsiya bosqichlarida** – maydonning joylashuvi, qurilish ishlari va ekspluatatsiya mavjud infratuzilma va muhandislik tarmoqlari bilan o‘zaro ta’sir yoki nomuvofiqlik xavfini keltirib chiqarishi mumkin, jumladan havo elektr uzatish liniyalari (OHTL), telekommunikatsiya minoralari va yer osti kommunikatsiyalari. **Infratuzilma va muhandislik tarmoqlariga sezilarli ta’sirlar kutilmaydi**, ular faqat loyiha uchastkasiga xos o‘zaro ta’sirlar doirasida bo‘lib, loyiha dizayni va muvofiqlashtirish choralar orqali boshqariladi.

Baholash Yondashuvi

- Mavjud infratuzilma va muhandislik tarmoqlari bo‘yicha ma’lumotlar hamda xaritalarni olish uchun tegishli davlat organlari va kommunal xizmat ko‘rsatuvchi tashkilotlar bilan rasmiy muvofiqlashtirishni yo‘lga qo‘yish va axborot so‘rovlarini yuborish.
- Loyiha hududi + 100 m bufer zonasi, shuningdek uzatish liniyalari bo‘ylab + 100 m bufer doirasida mavjud infratuzilma va muhandislik tarmoqlarining joylashuvini aniqlash va tasdiqlash uchun dala (joyida) tadqiqotlarini o‘tkazish.

4. LANDSHAFT VA VIZUAL TA'SIR

Landshaft va Vizualga Ta’sirlarning Ehtimoliy Manbalari

- **Bosqich / Ehtimoliy Ta’sir**: **Faqat ekspluatatsiya bosqichida** - loyiha komponentlarining mavjudligi va ishlashi atrofdagi landshaft va ko‘rinish zonalari (viewshed) bilan o‘zaro ta’siri natijasida landshaft xususiyati hamda vizual qabul qilinishida (estetik ko‘rinishida) o‘zgarishlarga olib kelishi mumkin. **Qurilish bosqichida landshaft yoki vizual ta’sirlar kutilmaydi**, ular loyiha uchastkasiga xos bo‘lgan ta’sirlar bilan cheklanadi.

Baholash Yondashuvi

- **Dala tadqiqotlari va tegishli davlat organlari bilan konsultatsiyalar** – Mavjud landshaft va vizual muhitni tavsiflash hamda atrof hududda sezgir va vakillik qiluvchi vizual qabul qiluvchilarni aniqlash uchun.

5. JAMOAT SOG'LIGI VA XAVFSIZLIGI

Jamoat Sog'ligi va Xavfsizligiga Ta'sirlarning Ehtimoliy Manbalari

Bosqich / Ehtimoliy Ta'sir:

- **Qurilish bosqichi** – loyiha komponentlarini tashuvchi yuk mashinalari mavjud yo'llar, avtomagistrallar va ko'priklarga zarar yetkazishi mumkin, shuningdek, yo'ldagi boshqa transport vositalari uchun jamoat xavfsizligi muammosi tug'dirishi mumkin. Qurilish ishlari chang va shovqinning ortishiga sabab bo'lishi mumkin.
- **Ishlash bosqichi** – loyiha maydoniga ruxsatsiz kirish xavfi.

Baholash Yondashuvi

- EPC pudratchisi mahalliy talablar va xalqaro eng yaxshi amaliyotlarga muvofiq batafsil Transport rejasini tayyorlaydi.

6. MEHNAT SOG'LIGI VA HAVFSIZLIGI

Mehnat Sog'ligi va Xavfsizligiga Ta'sirlarning Ehtimoliy Manbalari

Bosqich / Ehtimoliy Ta'sir: **Qurilish bosqichi** – loyiha komponentlarini og'ir transport vositalari orqali tashish yo'l infratuzilmasi yaxlitligi va yo'l harakati xavfsizligiga potensial xavflarni keltirib chiqarishi mumkin, jumladan mavjud yo'llar, avtomobil yo'llari va ko'priklarning shikastlanishi, shuningdek boshqa yo'l foydalanuvchilari uchun jamoat xavfsizligi xavflarini yuzaga keltirishi mumkin. **Qurilish ishlari** vaqtinchalik chang va shovqin darajalarining oshishiga ham olib kelishi mumkin. **Ekspluatatsiya bosqichi** – loyiha hududiga ruxsatsiz kirish yoki noqonuniy kirib borish (trespassing) bilan bog'liq potensial xavflar mavjud.

Baholash Yondashuvi

- Loyiha komponentlari uchun rejalashtirilgan transport yo'nalishlari bo'ylab mavjud yo'l holati, transport oqimi hajmi va sezgir qabul qiluvchilarni tahlil qilish.
- Ma'lum yo'l harakati xavfsizligi muammolari, yo'l cheklovlari va rejalashtirilgan yo'l foydalanishini aniqlash uchun tegishli mahalliy organlar bilan maslahatlashish.
- Qurilish transporti, chang, shovqin va loyiha hududiga kirish bilan bog'liq, qurilish hamda ekspluatatsiya bosqichlarida yuzaga keladigan asosiy jamoat salomatligi va xavfsizligi risk yo'nalishlarini aniqlash.

7. IJTIMOIY – IQTISODIY HOLAT

Ijtimoiy-iqtisodiy Holatga Ta’sirlarning Ehtimoliy Manbalari

- **Bosqich / Ehtimoliy Ta’sir:** Qurilish va ekspluatatsiya bosqichlari – loyiha kichik miqyosda bo‘lgani sababli, cheklangan ijobiy ijtimoiy-iqtisodiy ta’sirlar keltirib chiqarishi mumkin, jumladan vaqtinchalik mahalliy bandlik imkoniyatlari va bilvosita iqtisodiy foydalar, bu esa mahalliy ijtimoiy-iqtisodiy sharoitlar va turmush darajasining biroz yaxshilanishiga hissa qo‘shishi mumkin.

Baholash Yondashuvi

- **Ikkilamchi ma’lumotlar orqali** loyiha hududiga tegishli ko‘rsatkichlarni yig‘ish hamda tahlil qilish.
- **Konsultatsiyalar.** Mavjud ma’lumotlar to‘plamlarini tasdiqlash va to‘ldirish maqsadida mahalliy davlat organlari va statistika tashkilotlari bilan maslahatlashish.
- **Hududning ijtimoiy-iqtisodiy holatini profillash:** jumladan demografiya, tirikchilik manbalari, bandlik, daromad darajalari va kambag‘allik ko‘rsatkichlarini o‘z ichiga olgan holda.

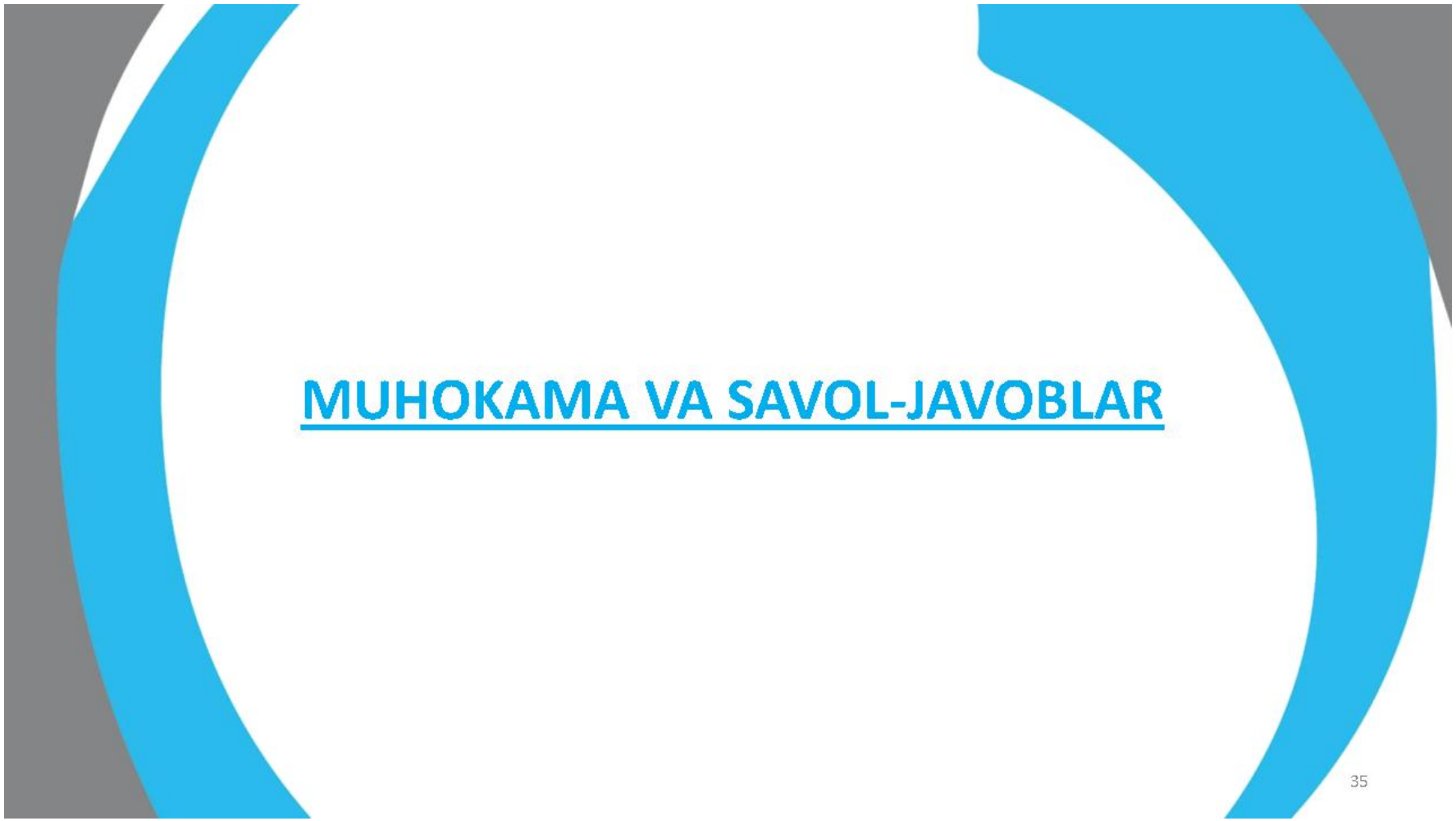
8. BIOXILMAXILLIK

Biologic Xilma-xillikka Ta’sirlarning Ehtimoliy Manbalari

- **Bosqich / Ehtimoliy Ta’sir:** Rejalashtirish va qurilish bosqichi – Maydonni tayyorlash va qurilish bilan bog‘liq ishlar mavjud yashash muhitlari (habitatlar) hamda flora va faunaga potensial salbiy ta’sir ko‘rsatishi mumkin, jumladan mavjud bo‘lsa, yo‘qolib ketish xavfi ostidagi yoki noyob turlarga.

Baholash Yondashuvi

- **Dala tadqiqoti** maydon hududi bo‘ylab piyoda ko‘zdan kechirish va bevosita dala kuzatuvlari asosida o‘tkazilgan
- Loyiha hududidagi mavjud ekologik holatni baholash, jumladan flora va fauna turlarini, yashash muhitlari (habitatlar) turlarini hamda har qanday sezgir, muhofaza qilinadigan yoki yo‘qolib ketish xavfi ostidagi turlar va yashash muhitlarini aniqlash.


MUHOKAMA VA SAVOL-JAVOBLAR
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MUHOKAMA VA SAVOL-JAVOBLAR

- Loyihaning kichik miqyosda ekanligi sababli, qurilish bosqichida bandlik va xarid (procurement) imkoniyatlari cheklangan bo‘lishi va ushbu bosqich uchun vaqtinchalik xarakterga ega bo‘lishi, shuningdek ekspluatatsiya bosqichida ham ayrim cheklangan imkoniyatlar mavjud bo‘lishi tushuntiriladi.
- Mahalliy jamoalar va asosiy manfaatdor tomonlarning loyiha haqidagi ma’lumotlarga (yangilanishlar, hujjatlarni ochiq e’lon qilish, ma’lumotlar va hokazo) doimiy kirishini qanday ta’minlash eng maqbul yo‘li nima?
- Bunday ma’lumotlar qayerda va qanday e’lon qilinishi kerak? Maxsus muvofiqlashtirish uchun biror guruh yoki tashkilot bormi?
- Mahalliy jamoalar va asosiy manfaatdor tomonlarning ish o‘rinlari va xarid imkoniyatlarida ishtirokini ta’minlashning eng maqbul yo‘li nima?
- Bunday imkoniyatlar qayerda va qanday e’lon qilinishi kerak? Maxsus muvofiqlashtirish uchun biror guruh yoki tashkilot bormi?
- Ularning e’tiborini talab qiladigan qo‘shimcha masalalari bormi?
- Ularning hisobga olinishi kerak bo‘lgan qo‘shimcha talab va ehtiyojlari bormi?

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O‘ZBEKISTONDA ZARAFSHON 300/600 MWH BATAREYALI ENERGIYA SAQLASH TIZIMI (BESS) LOYIHASI UCHUN ATROF-MUHIT VA IJTIMOIY TA’SIRNI BAHOLASH (ESIA)
Muhokama uchun tarqatma material
Aprel 2026

1. O'ZBEKISTONDA ZARAFSHON 300/600 MWH BATAREYALI ENERGIYA SAQLASH TIZIMI (BESS) LOYIHASI

1.1. Kirish

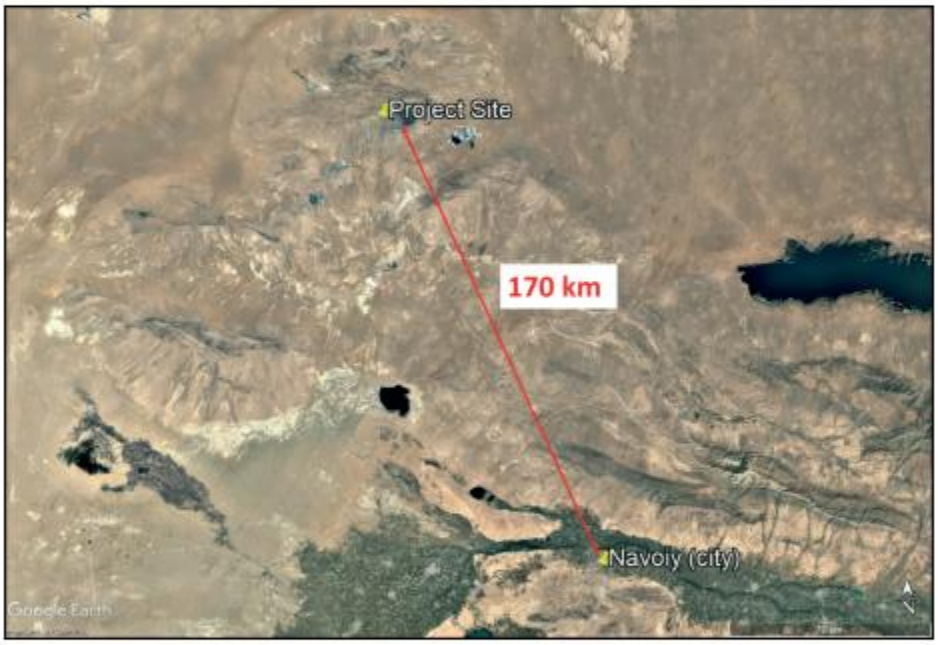
O'zbekiston aholisi sonining ortib borishi va energiyaga bo'lgan talabning oshishi natijasida jiddiy energetik muammolarga duch kelmoqda. arixan mamlakat o'z energiya ehtiyojlarini qondirish uchun asosan qazilma yoqilg'ilarga, jumladan tabiiy gaz va neftga tayanib kelgan. Biroq, bu strategiya iqtisodiy va ekologik jihatdan barqaror emasligi ayon bo'ldi. O'zbekiston energiya ehtiyojlarini qondirish bilan birga uglerod izini kamaytirish uchun qayta tiklanuvchi energiya manbalariga o'tish muhimligini anglab, yanada barqaror energiya kelajagi sari muhim qadamlar tashladi.

O'zbekiston qayta tiklanuvchi energiyani rivojlantirish va joriy etish yo'lida bir qator muhim choralarni ko'rdi, ulardan eng e'tiborlilaridan biri 2019-yilda qayta tiklanuvchi energiya to'g'risidagi qonunning qabul qilinishidir. Bundan tashqari, so'nggi yillarda mamlakatda shamol va quyosh elektr stansiyalarini o'z ichiga olgan bir nechta qayta tiklanuvchi energiya loyihalari ishga tushirildi.

MASDAR kompaniyasi Navoiy viloyatida, Navoiy shahridan 170 km shimoli-g'arbda joylashgan 300 MVt / 600 MVt·soat quvvatga ega batareyali energiya saqlash tizimini rivojlantirish uchun tanlab olindi. Loyiha Build-Own-Operate (BOO) mexanizmi asosida, uzoq muddatli elektr energiyasini xarid qilish shartnomasi (PPA) bilan amalga oshiriladi. Ushbu loyiha O'zbekistonning yanada barqaror energiya kelajagiga o'tishini qo'llab-quvvatlashga qaratilgan.

1.2. Loyihaning joylashuvi

Loyiha hududi O‘zbekistonning Navoiy viloyatida, viloyat markazi bo‘lgan Navoiy shahridan taxminan 170 km shimoli-g‘arbda joylashgan. Loyihaning umumiy maydoni taxminan 26,7 gektarni tashkil etadi. BESS (batareyali energiya saqlash tizimi) hududi strategik joylashuvi va mavjud elektr infratuzilmasiga (Muruntov podstansiyasi) yaqinligi sababli tanlab olingan bo‘lib, bu energiyani samarali saqlash va taqsimlashni ta’minlaydi. Loyiha hududi nisbatan tekis relyefga ega bo‘lib, dengiz sathidan balandligi taxminan 509–490 metr oralig‘ida. Quyidagi 1-rasmda loyiha hududining joylashuvi ko‘rsatilgan.



1-rasm: Loyiha hududining joylashuvi

1.3. Loyiha komponentlari

1.3.1. Batareyali energiya saqlash tizimi

Batareyali energiya saqlash tizimi (BESS) odatda batareya bloklari, invertorlar, transformatorlar, boshqaruv tizimi va sovutish tizimidan iborat bo'ladi. Elektr energiyasini saqlovchi batareya bloklari modulli konteynerlarda joylashtiriladi hamda zarur kuchlanish va sig'imni ta'minlash uchun ketma-ket yoki parallel tarzda ulanadi. Invertorlar batareyalarda saqlangan doimiy tok (DC) energiyasini o'zgaruvchan tokka (AC) aylantiradi va uni elektr tarmog'iga mos holga keltiradi. Boshqaruv tizimi esa zaryadlash va zaryadsizlanish jarayonlarini nazorat qiladi, tizimning samarali ishlashini ta'minlaydi hamda batareyalarni ortiqcha zaryadlanish yoki chuqur zaryadsizlanishdan himoya qiladi.

Optimal ishlash va uzoq xizmat muddatini ta'minlash uchun sovutish tizimi batareyalar haroratini tartibga soladi, ortiqcha qizib ketish va issiqlik bilan bog'liq nosozliklarning oldini oladi. Bundan tashqari, har bir BESS inshooti chiqish quvvatining kuchlanishini mahalliy elektr tarmog'i yoki uzatish tizimi talablariga moslashtirish uchun transformator bilan jihozlanadi.

Tizim energiyani boshqarish tizimi (EMS) bilan integratsiya qilingan bo'lib, u elektr oqimini optimallashtiradi, zaryadlash va zaryadsizlanish jarayonlarini rejalashtiradi hamda tizim ishlashini real vaqt rejimida monitoring qiladi. Saqlangan energiya yuqori talab davrida yoki qayta tiklanuvchi energiya ishlab chiqarish kamaygan paytlarda tarmoqqa uzatiladi, bu esa elektr tizimining barqarorligi va ishonchliligini oshiradi.

Quyidagi rasmda batareyali energiya saqlash tizimining odatiy tarkibiy qismlari ko'rsatilgan.

3 2-rasm: Batareya Energiya Saqlash Tizimining (BESS) tipik komponentlari

Hozirgi bosqichda BESS uchun dastlabki joylashuv (layout) ham ishlab chiqilgan. Ushbu joylashuv loyihaning asosiy komponentlari hamda BESS va elektr uzatish liniyalari uchun ajratilgan yer maydonini inobatga olgan holda tuzilgan.

a. BESS tarkibiy qismlariga quyidagilar kiradi: batareya stendlari joylashgan batareya konteyneri, past va o'rta kuchlanishli transformator (LV/MV), quvvatni o'zgartirish tizimi (PCS), batareyani boshqarish tizimi (BMS), yong'indan himoya va o'chirish tizimlari, batareya elementlari haroratini me'yorda ushlab turish uchun sovutish/isitish tizimi, shuningdek monitoring sensorlari.
b. Elektr uzatish liniyalarining tarkibiy qismlariga 220 kV yer osti uzatish kabellari, kabel ulanish joylari, kabel yakunlovchi qismlari (terminatsiya), hamda kabel transheyalari kiradi.

Shuni alohida ta'kidlash lozimki, BESSning yakuniy joylashuvi keyingi bosqichlarda taqdim etiladi. Bu joylashuv loyiha uchun o'tkaziladigan Atrof-muhit va ijtimoiy ta'sirni baholash (ESIA) natijalari hamda boshqa texnik mezonlarni hisobga olgan holda aniqlashtiriladi.

1.3.2. Infratuzilma va kommunal xizmatlar

a. BESS o'rta kuchlanishli yer osti kabellari orqali Muruntov 500 kV podstansiyasiga ulanadi. Podstansiyada kuchlanish mos darajaga o'zgartirilib, elektr energiyasi uzatish uchun tayyorlanadi va milliy elektr tarmog'iga uzatiladi.
b. Loyiha hududida kundalik faoliyatni ta'minlash uchun xizmat binolari, shuningdek saqlash ehtiyojlari uchun omborxona qurilishi ko'zda tutilgan.

1.4. Loyiha faoliyatlari haqida umumiy ma'lumot

Ushbu bo'limda loyiha amalga oshirilishi jarayonida bajarilishi kutilayotgan asosiy faoliyatlar keltiriladi. Loyiha uchta asosiy bosqichni o'z ichiga oladi: (i) qurilish, (ii) ekspluatatsiya (foydalanish) va (iii) demontaj (yopish) bosqichlari. Quyida har bir bosqich qisqacha bayon etilgan.

1.4.1. Qurilish bosqichi

Batareyali energiya saqlash tizimi (BESS) qurilish bosqichidagi odatiy faoliyatlar qisqa muddatli va mahalliy xarakterga ega bo'lib, quyidagilarni o'z ichiga oladi:

- BESS komponentlarini loyiha hududiga yetkazib berish. Komponentlar loyiha hududiga asosan avtomobil yo'llari orqali yetkazilishi kutilmoqda.
- Batareya konteynerlari va elektr infratuzilmasi uchun hududni tayyorlash hamda poydevor ishlarini amalga oshirish. Bunday ishlar odatda nisbatan kichik maydonlarda olib boriladi, chunki haqiqiy buzilish maydoni (masalan, batareya konteynerlari va transformatorlar joylashadigan hudud) umumiy loyiha maydonidan ancha kichik bo'ladi. Shunga qaramay, bu ishlar har bir alohida batareya konteyneri atrofida qazish va yer tozalash ishlarini o'z ichiga olishi mumkin.
- Batareya konteynerlari, invertorlar, transformatorlar va boshqaruv tizimlari kabi BESS komponentlarini o'rnatish.
- BESSni elektr tarmog'iga ulash uchun zarur bo'lgan qo'shimcha qurilish ishlari (jumladan, qazish va yer tozalash ishlari va boshqalar). Bu uzatish kabellarini o'rnatish va yotqizishni o'z ichiga olishi mumkin.
- Ichki kirish yo'llarini qurish.
- Ma'muriy binolar va omborlar kabi bino-inshootlarni qurish; va
- BESS obyektini mavjud podstansiyaga ulash uchun yer osti uzatish kabellarini qurish va o'rnatish. Bu ishlar belgilangan kabel yo'nalishlari bo'ylab xandaq qazish va keyinchalik ularni qayta to'ldirishni o'z ichiga olishi mumkin.

1.4.2. Ekspluatatsiya (foydalanish) bosqichi

Batareyali energiya saqlash tizimlari odatda asosan avtomatlashtirilgan va past intensivlikdagi faoliyatlarni o'z ichiga oladi. Doimiy ekspluatatsiya jarayonidagi faoliyatlar cheklangan bo'lib, asosan loyiha hududi doirasida amalga oshiriladi va quyidagilarni o'z ichiga oladi:

- BESSni ishga tushirish (comissioning) jarayoni batareya modullari, invertorlar, transformatorlar va boshqaruv tizimlarining xavfsizlik va samaradorlik standartlariga muvofiqligini ta'minlash uchun elektr sinovlarini o'z ichiga oladi. Shuningdek, qurilish va konstruktiv elementlar ham muntazam tekshiriladi. Ushbu bosqichda to'g'ri sinov o'tkazish tizimning ishonchliligi va samaradorligini ta'minlash uchun muhimdir. Bu jarayon vaqtinchalik bo'lib, qisqa muddat ichida amalga oshiriladi.
- BESSning odatiy kundalik ishlashi: BESS energiyani boshqarish tizimi (EMS) nazorati ostida avtonom tarzda ishlaydi va real vaqt rejimida elektr tarmog'i talablariga javob beradi. Tizim to'liq operatsion samaradorlikka erishishi uchun bir necha oy talab qilinishi mumkin, chunki uning ishlashi tarmoq sharoitlari va saqlash ehtiyojlariga qarab optimallashtiriladi.
- Texnik xizmat ko'rsatish (maintenance): maxsus jamoa muntazam ravishda hududga tashrif buyuradi. Muntazam texnik xizmat ko'rsatish batareya holatini monitoring qilish, sovitish va ventilyatsiya tizimlarini tekshirish, elektr ulanishlarini nazorat qilish hamda tizimni optimallashtirish uchun dasturiy yangilanishlarni o'z ichiga oladi. Odatda texnik xizmat talablari past bo'ladi, biroq ayrim hollarda uskunalarni almashtirish va tizimni qayta sozlash zarur bo'lishi mumkin.

1.4.3. Demontaj (yopish) bosqichi

Batareyali energiya saqlash tizimlari (BESS) uzoq muddatli ishlash uchun mo'ljallangan bo'lib, zarur hollarda texnologiyani yangilash va komponentlarni almashtirish orqali uzoq vaqt davomida elektr tarmog'ini qo'llab-quvvatlashni davom ettirishi mumkin. Loyihaning ekspluatatsiya muddati yakunida yoki to'liq demontaj qilish zarurati tug'ilganda, demon-

taj ishlari tegishli shartnomaviy, me'yoriy va texnik talablarga muvofiq rejalashtiriladi va amalga oshiriladi.

Ko'plab hollarda energiya saqlash obyektlari modernizatsiya (repowering) qilinishi mumkin, bunda eskirgan batareya modullari yangiroq va samaraliroq texnologiyalar bilan almashtiriladi, mavjud infratuzilma va elektr tarmog'i ulanishlari esa saqlab qolinadi. Bunday modernizatsiya ishlari obyektning xizmat muddatini uzaytiradi va qo'shimcha yer buzilishlarini minimallashtiradi.

Agar BESS obyektini to'liq demontaj qilish talab etilsa, ishlar batareya bloklari, elektr uskunalari, konteynerlar va tegishli infratuzilmani demontaj qilish hamda olib tashlashni o'z ichiga olishi mumkin. Barcha demontaj ishlari tarmoq operatori bilan tuzilgan kelishuvlarga, amaldagi milliy qonunchilikka va demontaj vaqtida amal qiluvchi tegishli xalqaro standartlarga muvofiq amalga oshiriladi.

Demontaj ishlari vakolatli organlar tomonidan tasdiqlanishi shart bo'lib, u hududni tiklash bo'yicha tegishli chora-tadbirlarni ham o'z ichiga oladi. Bu chora-tadbirlar kelishilgan standartlar va ilg'or xalqaro amaliyotlarga mos ravishda amalga oshiriladi.

2. LOYIHANING ATROF-MUHIT BILAN O'ZARO TA'SIRI

Ushbu loyihaning amalga oshirilishi atrof-muhit bilan bir qator o'zaro ta'sirlarni yuzaga keltiradi, ularni aniqlash skoping jarayonining bir qismi hisoblanadi. Quyida ushbu o'zaro ta'sirlarning dastlabki ro'yxati keltirilgan bo'lib, manfaatdor tomonlarning taklif va xavotirlarini, shuningdek ESIA jarayonida batafsil o'rganiladigan masalalarni inobatga olgan holda yanada kengaytiriladi. Loyihaning kutilayotgan asosiy ijobiy ta'sirlari quyidagilardan iborat:

- Elektr tarmog'ining barqarorligi, ishonchliligi va moslashuvchanligini oshirish orqali milliy energiya xavfsizligini mustahkamlash.
- Qayta tiklanuvchi energiya ishlab chiqarishni integratsiya qilishni qo'llab-quvvatlash, shu orqali energiyani cheklash (curtailment) holatlarini kamaytirish va shamol hamda quyosh resurslaridan yanada samarali foydalanish imkonini yaratish.
- Tizim samaradorligini oshirish va qazilma yoqilg'iga asoslangan energiya ishlab chiqarishni qisqartirish orqali milliy darajada issiqxona gazlari chiqindilari va havo ifloslanishini kamaytirishga hissa qo'shish.
- Elektr tarmog'i ishonchliligini yaxshilash hamda mahalliy va milliy rivojlanish maqsadlarini bilvosita qo'llab-quvvatlash orqali uzoq muddatli iqtisodiy foyda ta'minlash.

2.4.1. 1-jadval: Loyihaning tayyorgarlik va qurilish bosqichida kutilayotgan ta'sirlarning qisqacha mazmuni

Atribut	Loyiha Ta'sirlarining Ehtimoliy Manbalari
Arxeologiya va madaniy meros	■ Hududni tayyorlash ishlari, jumladan BESSni o'rnatish, uzatish kabellari va tegishli infratuzilmani qurish ishlari nisbatan kichik va mahalliy maydonlar bilan cheklanadi. Yer qazish va buzish bilan bog'liq faoliyatlar loyiha hududida mavjud bo'lishi mumkin bo'lgan ilgari aniqlanmagan yer usti yoki yer yuzasiga yaqin arxeologik qoldiqlarga ta'sir ko'rsatish xavfini yuzaga keltirishi mumkin.
Yer ishlatilishi	■ Loyiha hududda turli davlat organlari tomonidan rasmiy ravishda belgilangan yer foydalanish turlari bilan o'zaro ta'sirga kirishishi mumkin (masalan, yaylov hududlari, ekologik muhofaza zonalari, gaz qidiruv faoliyati va boshqalar).
Infratuzilma va kommunal xizmatlar	■ Hududni tayyorlash ishlari, jumladan BESSni o'rnatish, uzatish kabellari, binolar va boshqa infratuzilmani qurish ishlari nisbatan kichik alohida maydonlarda amalga oshiriladi, biroq ular yer maydonini tozalash, tekislash, qazish va boshqa yer ishlarini o'z ichiga olishi mumkin. Bunday faoliyatlar mavjud infratuzilmaga, jumladan elektr uzatish minoralariga ham ta'sir ko'rsatishi ehtimoli mavjud. ■ Og'ir yuklarni tashish uchun to'g'ri transport va logistika yechimlari talab etilishi mumkin. Agar bu jarayon noto'g'ri rejalashtirilsa va boshqarilmasa, og'ir yuklarni tashuvchi yuk mashinalari mavjud yo'llar, avtomobil yo'llari va ko'priklarni shikastlashi hamda yo'lda harakatlanayotgan boshqa transport vositalari uchun jamoat xavfsizligiga tahdid tug'dirishi mumkin.

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Atribut	Loyiha Ta'sirlarining Ehtimoliy Manbalari
Havo sifati/ Shovqin	■ Qurilish ishlari odatda yer tekislash, to'ldirish, qazish, transport va texnika harakati kabi ishlarni o'z ichiga oladi. Bu ishlar chang va qattiq zarrachalar chiqarilishiga olib kelishi mumkin va natijada atrof-muhit havo sifatiga to'g'ridan-to'g'ri ta'sir qilishi mumkin. Noto'g'ri boshqarilgan taqdirda, chang qurilish ishchilari va atrofdagi aholi uchun noqulaylik va sog'liq muammolariga sabab bo'lishi mumkin. ■ Qurilish ishlaridan shovqin chiqishi mumkin, bunda generatorlar, bolg'alar, kompressorlar va boshqa texnika ishlatiladi. Noto'g'ri boshqarilganda shovqin ishchilar va atrofdagi aholi uchun salbiy ta'sir ko'rsatishi mumkin.
Jamoat salomatligi va xavfsizligi	■ Qurilish ishlari chang, shovqin va transport tirbandligini oshirishi mumkin, bu esa kundalik hayot va jamoat farovonligiga ta'sir qiladi.
Mehnat salomatligi va xavfsizligi	■ Ishchilar uchun avariyalar xavfi mavjud. Ayniqsa, loyiha komponentlarini yig'ish va ajratish jarayonida qurilish/demontaj ishlarida balandlikda ishlash xavfi muhim ahamiyatga ega.
Chiqindilarni boshqarish	■ Qurilish ishlari davomida qattiq, suyuq va xavfli chiqindilar hosil bo'lishi mumkin. Chiqindilarni noto'g'ri boshqarish amaliyotlari tuproq va yer osti suvlari ifloslanishi xavfini keltirib chiqarishi mumkin.
Suv resurslari	■ Qurilish bosqichida suvga bo'lgan talab mavjud suv resurslari va foydalanuvchilari bilan o'zaro ta'sirga kirishishi mumkin, bu esa mahalliy suv resurslarining mavjudligi va boshlang'ich (bazaviy) sharoitlarga bog'liq bo'ladi. Biroq, loyihaning nisbatan kichik miqyosi hisobga olinganda, bunday ehtimoliy ta'sirlar cheklangan bo'ladi.

Atribut	Loyiha Ta'sirlarining Ehtimoliy Manbalari
Biologik xilma-xillik (flora/fauna)	■ Hududni tayyorlash ishlari nisbatan kichik maydonlarda va mahalliy darajada amalga oshirilishi kutiladi, biroq ular o'simlik qoplamini yo'qotish va yer yuzasini buzish ishlarini o'z ichiga olishi mumkin. Bunday faoliyatlar yashash muhitlari hamda flora va faunaga, jumladan loyiha hududida mavjud bo'lishi mumkin bo'lgan muhofaza qilinadigan yoki sezgir turlarga ham ta'sir ko'rsatish xavfini yuzaga keltirishi mumkin.

2.4.2. 2-jadval: Loyihaning ishga tushirish (ekspluatatsiya) bosqichida kutilayotgan ta'sirlari bo'yicha qisqacha ma'lumot

Atribut	Loyihaning kutilayotgan ta'sirlari (ishlash bosqichida)
Yaqin atrofdagi sezgir ob'ektlar	■ Batareyali energiya saqlash tizimlari (BESS) asosan sovitish tizimlari, invertorlar va boshqa elektr komponentlaridan kelib chiqadigan pastdan o'rtacha darajagacha bo'lgan shovqin hosil qiladi. Mexanik shovqin ventilyatorlar, transformatorlar va HVAC (isitish, ventilyatsiya va konditsioner) tizimlaridan kelib chiqsa, elektr shovqin invertorlar va kommutatsiya uskunalaridan yuzaga kelishi mumkin. ■ Ekspluatatsiya davridagi shovqin chiqindilari barqaror, oldindan bashorat qilinadigan va mahalliylashgan bo'lishi kutiladi hamda agar tegishli boshqaruv choralari ko'rilmasa, yaqin atrofdagi sezgir qabul qiluvchilarda (agar mavjud bo'lsa) noqulaylik tug'dirishi mumkin.
Yer ishlatilishi	■ Loyihaning ekspluatatsiya bosqichida yer foydalanishiga hech qanday ta'sir kutilmaydi.
Jamoat salomatligi va xavfsizligi	■ Loyiha hududiga ruxsatsiz kirib kelish elektr uskunalari bilan bog'liq xavflar, jumladan elektr toki urishi (elektroshok) hamda yong'in xavfsizligi bilan bog'liq xavflarni keltirib chiqarishi mumkin.

Atribut	Loyihaning kutilayotgan ta'sirlari (ishlash bosqichida)
Mehnat salomatligi va xavfsizligi	■ Ishchilar uchun saytga texnik xizmat va parvarishlash tashriflari vaqtida avariyalar xavfi mavjud, shuningdek chaqmoq urishi xavfi ham bo'lishi mumkin. Ayniqsa, ekspluatatsiya davrida texnik xizmat ishlari uchun balandlikda ishlash xavfi muhimdir.
Chiqindilarni boshqarish	■ Loyiha chiqindilari noto'g'ri boshqarilsa, tuproq va yer osti suvlarini ifloslantirishi mumkin. Bu qattiq chiqindi, chiqindi suv va xavfli chiqindilarni o'z ichiga oladi.
Suv resurslari	■ Ishlash bosqichida loyiha uchun suv talablari mavjud suv resurslariga va suv foydalanuvchilariga ta'sir qilishi mumkin (mavjud suv sharoitlariga bog'liq).

3. ALOQA MA'LUMOTLARI

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21.3 Annex 3 – DAFOR Scale

Plant Species List

№	latin name	Plants family	Life form	Phenological phase	Height (cm)	Status UzRed book/IUCN	Braun-Blanquet scale	DAFOR scale
1	*Alhagi pseudalhagi*	Fabaceae	Perennial	F&F	10-20	None/None	1	R
2	*Allium caspium*	Amaryllidaceae	Perennial	F&F	10-15	None/None	2	O
3	*Alyssum simplex*	Brassicaceae	Annual	F&F	15-25	None/None	3	F
4	*Amberboa turanica* Iljin.	Asteraceae	Annual	F&F	10-15	None/None	1	F
5	*Arnebia decumbens*	Boraginaceae	Annual	F&F	10	None/None	1	F
6	*Artemisia* sp.	Asteraceae	Perennial	Vegetation	30-50	None/None	3	R
7	*Atraphaxis spinosa*	Polygonaceae	Shrub	F&F	50-70	None/None	1	R
8	*Atriplex dimorphostegia*	Amaranthaceae	Annual	Fruiting	10-15	None/None	3	O
9	*Bromus scoparius*	Poaceae	Annual	Fruiting	10-20	None/None	3	F
10	*Carex physodes*	Cyperaceae	Perennial	F&F	5-15	None/None	3	A
11	*Carex stenophylla*	Cyperaceae	Perennial	F&F	10-15	None/None	2	F
12	*Ceratocarpus arenarius*	Amaranthaceae	Annual	Vegetation	5-10	None/None	4	A
13	*Chondrilla lejosperma*	Asteraceae	Perennial	F&F	10-15	None/None	2	O
14	*Chorispora tenella*	Brassicaceae	Annual	F&F	30-45	None/None	5	D
15	*Colchicum robustum*	Colchicaceae	Perennial	Fruiting	10-15	None/None	1	R
16	*Dracocephalum royleanum Benth.*	Lamiaceae	Annual	F&F	10-15	None/None	4	O
17	*Eremopyrum bonaepartis*	Poaceae	Annual	Fruiting	10-15	None/None	5	D
18	*Eremopyrum distans*	Poaceae	Annual	Fruiting	10-15	None/None	4	D
19	*Eremopyrum orientale*	Poaceae	Annual	Fruiting	10-15	None/None	4	D
20	*Euphorbia inderiensis*	Euphorbiaceae	Annual	F&F	5-10	None/None	2	R
21	*Ferula foetida*	Apiaceae	Perennial	Vegetation	30-45	None/None	1	R
22	*Ferula varia*	Apiaceae	Perennial	Flowering	45-55	None/None	+	R
23	*Haloxylon ammodendron* (C.A.Mey.)	Amaranthaceae	Tree	F&F	150-200	None/ Least Concern (LC), 2022	3	D

№	latin name	Plants family	Life form	Phenological phase	Height (cm)	Status UzRed book/IUCN	Braun-Blanquet scale	DAFOR scale
24	*Hypecoum pendulum*	Papaveraceae	Annual	F&F	10-15	None/None	5	D
25	*Iris songarica*	Iridaceae	Perennial	Flowering	15-35	None/None	+	R
26	*Ixiolirion tataricum*	Ixioliriaceae	Perennial	Flowering	10-15	None/None	1	F
27	*Koelpinia linearis*	Asteraceae	Annual	F&F	10-15	None/None	2	F
28	*Leontice incerta*	Berberidaceae	Annual	F&F	10-15	None/None	2	R
29	*Lepidium perfoliatum*	Brassicaceae	Annual	F&F	15-20	None/None	3	F
30	*Lepyrodiclis holosteoides*	Caryophyllaceae	Annual	F&F	20-30	None/None	2	R
31	*Microcephala lamellata*	Asteraceae	Annual	F&F	5-10	None/None	2	O
32	*Poa bulbosa*	Poaceae	Perennial	F&F	10-20	None/None	5	D
33	*Prangos didyma*	Apiaceae	Perennial	F&F	50-70	None/None	+	R
34	*Rheum turkestanicum*	Polygonaceae	Perennial	F&F	40-50	None/None	+	R
35	*Roemeria hybrida*	Papaveraceae	Annual	Flowering	15	None/None	+	O
36	*Roemeria pavonina*	Papaveraceae	Annual	Flowering	25-40	None/None	3	F
37	*Strigosella turkestanica*	Brassicaceae	Annual	Flowering	15-25	None/None	5	D
38	*Takhtajaniantha pusilla*	Asteraceae	Annual	Flowering	15-25	None/None	3	F
39	*Tulipa biflora*	Liliaceae	Perennial	Fruiting	10	None/None	+	O
40	*Tulipa lehmanniana*	Liliaceae	Perennial	Fruiting	15-25	NT/NT	+	R or L*

* F&F - Flowering and fruiting

* L – Local. The species occurs in localized patches or restricted parts of the survey area and is not evenly distributed throughout the habitat. Although it may form relatively well-developed populations within suitable microhabitats, its overall distribution remains spatially limited. This category is commonly used for species that are confined to specific ecological conditions or habitat fragments within the study area.

For *Tulipa lehmanniana* the "Local (L)" category reflects the species' occurrence mainly within suitable semi-natural habitat patches concentrated in the 150 m corridor between the A379 highway and the project area, rather than across the entire site.

21.4 Annex 4 – Summary of Relevant Uzbekistan E&S Regulatory Context

Legal Document Name	Description
Constitution of the Republic of Uzbekistan	It is the duty of every citizen to protect the historical, spiritual and cultural heritage of the people of Uzbekistan. Cultural monuments shall have protection by the state
Environmental Audit Law No. ZRU-678 of 2021	The law sets out the main features and requirements of environmental audit. The Law also defines the rights and obligations of an environmental audit organization, auditor, customer and the subject of environmental audit, the responsibility of an audit organization, and the restrictions on carrying out environmental audits. The Law states that 'an environmental audit can be carried out on a voluntary form by businesses with low or insignificant (local) risk of environmental impact and on a mandatory form on an annual basis for businesses with high and medium risk of environmental impact'. An environmental audit is not a substitute for environmental control; however, in case of a positive conclusion of the audit, a business entity is not subject to an inspection by the Ministry of ecology, environmental protection and climate change of the Republic of Uzbekistan for one year, except for accidents and emergencies, as well as in connection with the investigation of criminal cases or by order of the President of the Republic of Uzbekistan or the Cabinet of Ministers of the Republic of Uzbekistan. The environmental audit is carried out on the basis of a contract concluded between the environmental auditing organization and the client of the environmental audit.
Law on Environmental Control of 2013	Provides an overarching legal framework regulating various types and forms of control in the area of environment. It covers state environmental control, internal control (when the legality of inspections, permits or SEE (State Environmental Expertise) conclusions is being checked by a higher governmental body), self-monitoring and public environmental control. Article 14. Rights and obligations of business entities in the field of environmental control Business entities are obliged to: ▪ comply with the requirements of legislation on environmental control; ▪ develop and implement measures for environmental protection and rational use of natural resources; ▪ monitor the state of the environment and situations that may lead to environmental pollution and irrational use of natural resources, creating a threat to the life and health of citizens; ▪ develop and comply with environmental standards regulating the maximum permissible impact on the environment; ▪ eliminate the fact of violation of legislation in the field of environmental protection and rational use of natural resources identified during environmental control; ▪ provide assistance to other subjects of environmental control in the implementation of environmental control. Article 15. Powers of self-government bodies of citizens in the field of environmental control Citizens' self-government bodies: ▪ carry out public environmental control in the relevant territory; ▪ monitor the state of the environment and situations that may lead to environmental pollution and irrational use of natural resources, creating a threat to the life and health of citizens; ▪ make proposals to specially authorized state bodies, local government bodies, state and economic management bodies, and economic entities regarding the participation of their representative as an observer in the

	implementation of state, departmental and industrial environmental control; ▪ inform specially authorized state bodies, local government bodies, state and economic management bodies, economic entities about the fact of violation of legislation in the field of environmental protection and rational use of natural resources identified by them; ▪ conduct a study of public opinion on issues of environmental protection and rational use of natural resources, public environmental assessment; ▪ hear, within their competence, reports from the heads of enterprises, institutions and organizations located in the relevant territory on issues of environmental protection, sanitary conditions, improvement and landscaping of the territory and make decisions based on their results; ▪ promote environmental protection, including participating in the formation of a system of public environmental control inspectors. Chapter 3. Implementation of environmental control Article 19. Procedure for implementing environmental control
Land Use	
Decree of the President of the Republic of Uzbekistan №5495, "On measures on major improvement of the investment climate in the Republic of Uzbekistan."	Personal responsibility is assigned to the Chairman of the Council of Ministers of the Republic of Karakalpakstan, khokims of the regions and the city of Tashkent - for providing all necessary support to foreign investors, prompt consideration of investment applications with the establishment of a direct and open dialogue with investors, systematically conducting personal reception of investors, ensuring access to the appropriate infrastructure, putting up land plots for an online electronic auction, issuing permits, timely approval procedures for investment applications, systematic monitoring of the implementation of investment projects;
Land Code of 1998	The Land Code is the main regulatory framework for land related matters in Uzbekistan. It sets out the regulation of land for the purpose of providing for the benefit of the present and future generations, evidence-based, rational use and protection of lands, reproduction and increase in fertility of soils, preserving and improvements of the environment, creation of conditions for equal development of all forms of managing, protection of the rights of legal entities and physical persons to the land plots, and also strengthening of legality in this sphere, including by the prevention of corruption offenses. The Land Code regulates the allocation, transfer and sale of land plots, and defines ownership and rights on land. The Land Code also describes responsibilities of different state authorities including the Cabinet of Ministers, the province, the district, and city Khokimiyats (the regional state administrative body) in land management; rights and obligations of land possessor, user, tenant and owner; land category types, land acquisition and compensation, resolution of land disputes and land protection. The Land Code also defines the terms of rights termination on land plot, seizure and land acquisition of land plot for state and public needs, and the terms of seizure of land plot in violation of land legislation. Chapter 13, Article 86: Compensation for losses to landowners, land users, tenants and owners of land plots. Losses caused to landowners, land users, tenants and owners of land plots are subject to compensation in full (including lost profits) in the following cases: ▪ seizure, purchase or temporary occupation of land; ▪ restrictions on their rights in connection with the establishment of water protection zones, ... zones of state biosphere reserves, protective zones around state reserves, ... roads, pipelines, communication lines and power lines;

	▪ deterioration of land quality as a result of the impact caused by the construction and operation of reservoirs, canals, collectors and other objects that emit substances harmful to agricultural crops and plantings, and other actions of legal entities and individuals leading to a decrease in yield and deterioration in the quality of agricultural products. Compensation for losses during the seizure of a land plot for public needs is made from the funds of the relevant Centralized Funds for compensation of losses to individuals and legal entities in connection with the seizure of land plots from them for public needs, as well as enterprises, institutions and organizations whose activities entail restrictions on the rights of landowners, land users, tenants and owners of land plots or deterioration of the quality of nearby lands due to other sources not prohibited by law, in the manner established by law.
Civil Code of the Republic of Uzbekistan of 1966	The Civil Code defines the legal status of participants of civil relations, the grounds and procedure of implementation of property rights and other proprietary rights, rights on intellectual property, regulates the contractual and other obligations, as well as other property and related personal non-property relations. The code defines general rules of property seizure, determination of property cost and rights for compensation, terms of rights termination.
Law of the Republic of Uzbekistan No. ZRU-728 "On the privatization of non-agricultural land plots."	The law establishes the procedure for the privatization of non-agricultural land plots. The law stipulates the basic principles of land privatization, objects and subjects of privatization, state administration in the field of privatization, powers of state bodies, determines the legal status of land and other issues. Article 34. Confiscation of a land plot that is the private property of legal entities and individuals from the owner: Confiscation of a land plot that is the private property of legal entities and individuals from the owner is permitted only in the following cases: ▪ foreclosure on a land plot according to executive documents; ▪ confiscation of land; ▪ requisition of land. Article 36. Redemption of a land plot that is the private property of legal entities and individuals for public needs. Purchase of a land plot that is the private property of legal entities and individuals for public needs: ▪ carried out exclusively upon receipt of the written consent of the owner of the land plot; ▪ drawn up by a contract for the sale and purchase of a land plot, concluded on equal terms between the owner of the land plot and, accordingly, on behalf of the Council of Ministers of the Republic of Karakalpakstan, khokims of the regions and the city of Tashkent; ▪ is carried out subject to advance payment by the state of the contract price of the land plot. The purchase of a land plot that is the private property of legal entities and individuals for public needs is permitted exclusively for the following purposes: ▪ provision of lands for the needs of defense and state security, protected natural areas, creation and operation of free economic zones, free trade zones; ▪ fulfillment of obligations arising from international treaties of the Republic of Uzbekistan; ▪ construction (reconstruction) of roads and railways of republican and local significance, airports, airfields, air navigation facilities and aviation technical centers, railway transport facilities, bridges, subways, tunnels, engineering facilities and lines of the energy and communications system, space

	facilities, main pipelines, engineering and communication networks, irrigation and land reclamation systems;
Law of the Republic of Uzbekistan №ZRU-781 on Procedures for Withdrawal of Land Plots for Public Need with Compensation	The purpose of this Law is to establish procedures for the seizure of land plots or parts thereof belonging to individuals and legal entities on the right of lifelong inheritable ownership, permanent possession, permanent use, fixed-term (temporary) use or lease, for public needs with compensation. This Law does not apply to land plots owned by individuals and legal entities as property rights, as well as those in the permanent use of government bodies and institutions, enterprises, and self-government bodies of citizens. Chapter 4, Article 23: Compensation provided in connection with the seizure of a land plot The following are subject to compensation: ▪ market value of real estate objects located on the seized land plot; ▪ the market value of the right to the seized land plot (with the exception of the right to lease for agricultural land plots); ▪ market value of perennial plantings located on the seized land plot; ▪ expenses associated with relocation, including temporary rental of another real estate property; ▪ lost profits that could have been received from the use of the land plot and the real estate objects located on it (this takes into account the profit that could have been received from the moment the land plot and the real estate objects located on it were vacated until the restoration of the previous activity, but not more than one year, or the profit that could be received from the seasonal harvest); ▪ other expenses and losses of the property holder provided for by law or agreement. ▪ As compensation, a one-time payment is made in the amount of five percent of the market value of real estate located on the land plot for the inconvenience caused to the copyright holder in connection with the seizure of the land plot. ▪ If there are unauthorized constructed residential (non-residential) premises, industrial and other buildings and structures on a seized land plot that belongs to the copyright holder in accordance with the law, their market value is also subject to compensation in full.
Law of the Republic of Uzbekistan on State Land Cadaster No.666-1 of 1998	The purpose of this Law is to establish the legal basis for maintaining the state land cadastre, using cadastral data for economic development, ensuring guarantees of rights to land plots, rational use, restoration and protection of lands. If an international treaty of the Republic of Uzbekistan establishes rules other than those provided for in the legislation of the Republic of Uzbekistan on the state land cadastre, then the rules of the international treaty apply. Article 13: State registration of rights of ownership, use of land plots, lease of land plots, as well as ownership rights to land plots, including agreements on easements and other restrictions and termination of these rights, is carried out at the location of the land plot by entering the relevant data into the State Register of Rights to real estate. Article 15: The basis for state registration of rights to land plots are documents establishing, changing or terminating these rights.

Presidential Decree No. UP-5742 "On Measures for The Efficient Use of Land and Water Resources in Agriculture" of 2019	The document was developed with the aim of gradually re-introducing into use lands that have been taken out of use in the republic for many years as a result of the deterioration of their reclamation and irrigation conditions, reducing water loss through the effective use of underground water resources, introducing water-saving technologies and reconstructing internal irrigation networks, as well as attracting potential investors. Article 5: Establish a procedure according to which: ▪ irrigated agricultural lands are taken under special protection; allocation of these lands for non-agricultural purposes is not allowed, including for the construction of industrial and civil facilities (buildings and structures); - compensation payments for irrigated lands withdrawn for use for non-agricultural purposes are calculated at 10 times the amount of funds required for the development of similar new lands, without applying coefficients taking into account the location of the withdrawn land areas, as well as 20 times the amount of expenses associated with radical improvement of the condition of rain-fed and non-irrigated lands occupied by perennial plantations, hayfields and pastures.
Resolution of Cabinet Ministers №3857, "On procedure for preparation and implementation of projects with the participation of International Financial Institutions and foreign Governmental Financial Organizations."	The resolution partly provides that payment of compensation for the land acquisition, demolition of houses, other structures, plantings within the framework of projects with the participation of International Financial Institutions (IFIs), if it is agreed and stated in agreements, will be carried out by authorized bodies in accordance with the requirements of IFIs or Foreign Governmental Finance Organizations. Chapter 9. General issues related to project implementation. The project initiator (executing agency) ensures compliance with the requirements of the financial agreement, rules and procedures of the IFIs regarding the payment of compensation for the seizure of land, demolition of houses, other buildings, structures or plantings, anti-corruption and other issues referenced in the financial agreement.
Resolution of Cabinet of Ministers No.317 "On amending and adding to some decrees of the Republic of Uzbekistan, aimed the further improvement of registration of cadastral document on a real property."	This resolution updates the formula described in Resolution #146, determining the amount of losses in agricultural production when land is allocated for permanent use. Also updated the cost of irrigation and development of equivalent new lands to replace the withdrawn irrigated agricultural lands
Resolution of Cabinet of Ministers № 911, "On further improving procedures for providing property rights of individuals and legal entities and procedures for removal and compensation for land plots."	This resolution regulates compensation for losses to individuals and legal entities due to the seizure of land plots for state and public needs. This regulation is mainly dealing with land plots, houses, buildings and structures of individuals and legal entities. In regional and city administrations a department for coordination of land acquisition and compensation work consisting of 2 state units should be established. Some details of the resolution: ▪ withdrawal of a land plot is carried out only with the consent of the owner on the basis of a decision of the Kengash (Council) of Deputies, or in accordance with a resolution of the President of the Republic of Uzbekistan and the Cabinet of Ministers of the Republic of Uzbekistan. ▪ decision-making by khokimiyats on demolition is allowed if there is a positive conclusion from the justice authorities based on the results of a legal examination;

	▪ the agreement concluded between the initiator of the seizure of a land plot and the owner of the real estate object located on the seized land plot is subject to mandatory notarization; ▪ making a decision on the demolition of real estate objects, in the event of disputes arising by court decision, is allowed only after full compensation has been provided to the owner of the real estate objects located on the seized land plot; Attached to this Resolution is a Regulation on the procedure for the seizure of land plots and the provision of compensation to owners. It determines the procedure for the seizure of land plots held by individuals and legal entities under the rights of ownership, use or temporary use for state and public needs, as well as within the framework of the implementation of investment projects and the provision of compensation to owners in connection with such seizure.
Resolution of Cabinet of Ministers № 146, "On measures to improve the procedure for providing land plots for urban planning activities and other non-agricultural needs."	This Resolution aims to improve the procedure of granting land plots, protect the rights of legal entities and individuals on land and improve the general architecture of settlements and the efficient use of their land for construction in accordance with the Land Code and the Town Planning Code. This resolution has two approved Regulations: (i) Regulation on the procedure for granting land for urban development and other non-agricultural purposes, (ii) Regulation on the procedure of compensation for land possessors, users, tenants and owners, as well as losses of agriculture and forestry. Annex #2, item 6: In case of seizure, redemption or temporary occupation of land plots or part thereof, the following are subject to compensation: ▪ the cost of a land plot that is privately owned by legal entities and individuals; ▪ the cost of residential buildings, buildings and structures, including objects whose construction has not been completed, as well as those located outside the allocated area, if their further use turns out to be impossible due to the seizure of land; ▪ the cost of fruit, protective and other perennial plantings; ▪ the cost of unfinished agricultural production; ▪ lost profit. Article #3 details compensation for losses in agricultural and forestry production Annex #4 details the scheme that determining the amount of losses of owners, users, tenants and owners of land plots, as well as losses in agricultural and forestry production
Regulation of 2011 "On the procedure for compensation for losses of owners, users, tenants and owners of land plots, as well as losses in agricultural and forestry production." (annex to Resolution №146)	This Resolution aims to improve the procedure of granting land plots, protect the rights of legal entities and individuals on land and improve the general architecture of settlements and the efficient use of their land for construction in accordance with the Land Code and the Town Planning Code. This resolution has two approved Regulations: (i) Regulation on the procedure for granting land for urban development and other non-agricultural purposes, (ii) Regulation on the procedure of compensation for land possessors, users, tenants and owners, as well as losses of agriculture and forestry. Annex #2, item 6: In case of seizure, redemption or temporary occupation of land plots or part thereof, the following are subject to compensation: ▪ the cost of a land plot that is privately owned by legal entities and individuals; ▪ the cost of residential buildings, buildings and structures, including objects whose construction has not been completed, as well as those located

	outside the allocated area, if their further use turns out to be impossible due to the seizure of land; ▪ the cost of fruit, protective and other perennial plantings; ▪ the cost of unfinished agricultural production; ▪ lost profit. Article #3 details compensation for losses in agricultural and forestry production Annex #4 details the scheme that determining the amount of losses of owners, users, tenants and owners of land plots, as well as losses in agricultural and forestry production
Geology, Hydrology, Hydrogeology	
Resolution of the Cabinet of Ministers No. 255 "On Approval of Some Administrative Regulations of State Services in The Sphere of Nature Management."	The regulations determine the procedure for issuing permits for special water use or water consumption. The actions of these Regulations apply to individuals and legal entities engaged in special water use and water consumption, including collecting water and discharging wastewater. The requirements of these Regulations do not apply to the use of centralized public water supply and sewerage networks, as well as when collecting water up to 5 m3/day.
SanPin No 0183-05: Hygienic Requirements for the Quality of Soil in Populated Areas in the Specific Natural and Climatic Conditions of Uzbekistan.	These hygienic standards, sanitary rules and norms are mandatory for compliance by all enterprises, organizations, associations, institutions, regardless of their form of ownership, and individuals. Document sets criteria for assessing the degree of soil contamination with inorganic and organic substances and defines Indicative rating scale of the danger of soil pollution based on the total pollution indicator
SanPin No.0191-05: Maximum Permissible Concentrations (MPC) and Approximate Allowable Concentrations (AAC) of Exogenous Harmful Substances in soil.	This document defines MPC values of chemicals and pesticides polluting the soil. MPCs and AACs are designed to ensure that there is no negative direct or indirect impact on human health, its future generations and public health through soil contact. The commissioning of enterprises, new workshops and technologies, and the use of chemicals in agriculture associated with soil pollution is possible only if there are hygienic regulations for the content of substances in the soil and methods for their determination.
SanPin No.0212-06: Sanitary Rules and Norms for the Hygienic Assessment of Soil Contamination of Different Types of Land Use.	This document provides a unified methodology for hygienic assessment of soil pollution using a nomenclature of indicators of soil hygienic condition, which should be used both in the development of regulatory and technical documentation on the hygiene of soils, and in assessing the degree of its pollution.
SanPin № 0272-09: Sanitary Rules and Norms for Drawing Up Hygienic Justifications for Soil Protection Schemes from Pollution in the Conditions of Uzbekistan.	These Sanitary Rules and Norms include the basic requirements for development of hygienic justification for the soil protection schemes against pollution, duties and functions of state sanitary supervision bodies in this area. The document defines indicators characterizing the degree of pollution and sanitary condition of the soil: ▪ sanitary and chemical indicators; ▪ sanitary and bacteriological indicators; ▪ sanitary-helminthological and sanitary-parasitological indicators; ▪ sanitary and entomological indicators.
Biodiversity	

Law № 73-II on Environmental Expertise	This law specifies the purposes, objectives, and types of environmental expertise. The law defines the qualifications, duties, and obligations of environmental experts. The State Committee of the Republic of Uzbekistan for Ecology and Environmental Protection (currently reformed as the Ministry of Ecology, Environmental Protection and Climate Change) has overall responsibility for implementing this legislation through The Departments of Environmental Expertise (Glavgosekoexpertiza and Gosexpertisa which are both under the Ministry) and the regional branches of Ministry.
Law on Nature Protection of 1992	This law states legal, economic, and organizational basis for the conservation of the environment and the rational use of natural resources. Article 25: State Environmental Expertise (SEE) is a mandatory measure for environmental protection, before the decision making process. The law prohibits the implementation of any Project without approval from SEE Article 53 states that if an international treaty concluded by the Republic of Uzbekistan establishes rules other than those provided for by the legislation of the Republic of Uzbekistan on nature protection, the rules of the international treaty shall be applied, except in cases where the legislation of the Republic of Uzbekistan establishes stricter requirements.
Law ZRU-363 on Environmental Control	Provides an overarching legal framework regulating various types and forms of control in the area of environment. It covers state environmental control, internal control (when the legality of inspections, permits or SEE (State Environmental Expertise) conclusions is being checked by a higher governmental body), self-monitoring and public environmental control. Article 14. Rights and obligations of business entities in the field of environmental control Business entities are obliged to: ▪ comply with the requirements of legislation on environmental control; ▪ develop and implement measures for environmental protection and rational use of natural resources; ▪ monitor the state of the environment and situations that may lead to environmental pollution and irrational use of natural resources, creating a threat to the life and health of citizens; ▪ develop and comply with environmental standards regulating the maximum permissible impact on the environment; ▪ eliminate the fact of violation of legislation in the field of environmental protection and rational use of natural resources identified during environmental control; ▪ provide assistance to other subjects of environmental control in the implementation of environmental control. Article 15. Powers of self-government bodies of citizens in the field of environmental control Citizens' self-government bodies: ▪ carry out public environmental control in the relevant territory; ▪ monitor the state of the environment and situations that may lead to environmental pollution and irrational use of natural resources, creating a threat to the life and health of citizens; ▪ make proposals to specially authorized state bodies, local government bodies, state and economic management bodies, and economic entities regarding the participation of their representative as an observer in the implementation of state, departmental and industrial environmental control; ▪ inform specially authorized state bodies, local government bodies, state and economic management bodies, economic entities about the fact of violation of legislation in the field of environmental protection and rational use of natural resources identified by them;

	▪ conduct a study of public opinion on issues of environmental protection and rational use of natural resources, public environmental assessment; ▪ hear, within their competence, reports from the heads of enterprises, institutions and organizations located in the relevant territory on issues of environmental protection, sanitary conditions, improvement and landscaping of the territory and make decisions based on their results; ▪ promote environmental protection, including participating in the formation of a system of public environmental control inspectors. Chapter 3. Implementation of environmental control Article 19. Procedure for implementing environmental control
Law ZRU-678 on Environmental Audit	The law sets out the main features and requirements of environmental audit. The Law also defines the rights and obligations of an environmental audit organization, auditor, customer and the subject of environmental audit, the responsibility of an audit organization, and the restrictions on carrying out environmental audits. The Law states that 'an environmental audit can be carried out on a voluntary form by businesses with low or insignificant (local) risk of environmental impact and on a mandatory form on an annual basis for businesses with high and medium risk of environmental impact'. An environmental audit is not a substitute for environmental control; however, in case of a positive conclusion of the audit, a business entity is not subject to an inspection by the Ministry of ecology, environmental protection and climate change of the Republic of Uzbekistan for one year, except for accidents and emergencies, as well as in connection with the investigation of criminal cases or by order of the President of the Republic of Uzbekistan or the Cabinet of Ministers of the Republic of Uzbekistan. The environmental audit is carried out on the basis of a contract concluded between the environmental auditing organization and the client of the environmental audit.
Presidential Decree No. UP-5863 "Validating the Strategy for Environmental Protection in The Republic of Uzbekistan Until 2030."	The Strategy envisages measures for: (a) preservation and quality assurance of environmental objects (atmospheric air, water, land, soil, subsoil, biodiversity, protected natural areas) from anthropogenic impact and other negative impact; (b) priority use of materials, products, production sites and other facilities that pose the least environmental hazard; (c) expansion of protected natural areas; (d) ensuring the environmentally sound use of toxic chemical and radioactive substances; (e) improving the environmentally safe waste management; and (f) formation of the ecological culture of the population, increasing the level of transparency of the activities of state bodies in the field of protection of the environment and strengthening the role of civil society.
Resolution of Cabinet of Ministers of Republic of Uzbekistan No. 95 "On Approval of General Technical Regulations of Environmental Safety."	In order to establish uniform requirements for ecological safety and environmental protection, all previously adopted normative documents on environmental safety and standardization would be reviewed and approved by The State Committee for Ecology and Environmental Protection of the Republic of Uzbekistan (currently reformed as the Ministry of Ecology, Environmental Protection and Climate Change) and "Uzstandart" agency. The Committee and Uzstandart, together with the National Television and Radio Company of Uzbekistan and the mass media, should inform the population, state organizations and business entities about standards for environmental safety. Document describes environmental safety requirements for the: - protection of atmospheric air ▪ protection of water bodies ▪ protection of plant and animal world objects ▪ protection of land resources

	▪ spheres related to waste management. Document also: ▪ requires the implementation of environmental safety measures for the protection of flora and fauna. This includes the prevention of death of wildlife species due to magnetic fields of power transmission lines and sanitary protection zones. ▪ Requires transformer substations in power transmission lines, their grids to have equipment (barriers, fences etc.,) to prevent animals from entering the territory of the substation.
Resolution of the Cabinet of Ministers No. 286 "Standard Regulations on the Procedure for Implementing Industrial Environmental Control."	This Regulation has been developed in accordance with the Law of the Republic of Uzbekistan "On Environmental Control" and defines the basic requirements and procedure for carrying out industrial environmental control by business entities. The implementation of industrial environmental control is a mandatory condition for environmental management. Industrial environmental control is carried out by the environmental service of the economic entity. The environmental service is formed in the form of a department, management, department or other structural unit, and may also consist of one employee. Business entities whose activities are related to environmental pollution are required to carry out instrumental measurements of actual emissions and discharges of pollutants by pollution sources in accordance with the methods and frequency approved (established) by the State Committee of the Republic of Uzbekistan for Ecology and Environmental Protection (currently reformed as the Ministry of Ecology, Environmental Protection and Climate Change). Officials and authorized bodies carry out industrial environmental control in order to timely prevent, identify and suppress cases of violation of the requirements of legislation on environmental protection and rational use of natural resources in production and other divisions of an economic entity, as well as to identify situations in them that may lead to environmental pollution environment, irrational use of natural resources and create a threat to the life and health of citizens, and has the right to inspect them.
Resolution of the Cabinet of Ministers No. 484 "On Approval of the Strategy for the Conservation of Biodiversity in The Republic of Uzbekistan for the Period 2019-2028".	The strategy is aimed at identifying priority areas, goals and objectives, planning, and ways to achieve them effectively. The strategy involves the creation of a unified system for monitoring components of biodiversity with a central element - the reference ecosystems of state reserves; unified information database of state monitoring and state cadastre of biodiversity based on modern geo-information technologies (GIS technologies).
Resolution of the Cabinet of Ministers No. 86 "Approval of The Uniform Regulation on the Procedures for Issuing Certain Documents Through a Special Electronic System."	Document establishes the procedure for issuing permits for cutting trees and shrubs that are not included in the state forestry fund, to legal entities and individuals;

Resolution of the Cabinet of Ministers No. 93 "On Additional Measures to Conserve Valuable Varieties of Trees and Shrubs Not Included in the State Forest Fund".	Document approves the list of valuable tree and shrub species not included in the state forest fund, for the cutting of which a moratorium is established until December 31, 2021, according to the Presidential Decree No. 6155 dated 03.02.2021
The Law of the Republic of Uzbekistan № 543-I "On Protection and Use of Flora and Vegetation."	This law regulates the protection and the use of flora growing in natural condition, as well as in cultivation and its reproduction and conservation of gene pool of wild plants. The Ministry of ecology, environmental protection and climate change of the Republic of Uzbekistan and the Forestry Agency under the Ministry of ecology, environmental protection and climate change are the special authorized agencies in flora protection and its use. Article 24. Protection of the growing environment of flora objects Activities affecting the growing environment of flora objects must be carried out in compliance with the requirements ensuring the preservation of flora objects. The placement and operation of production facilities, the introduction of new technologies, geological exploration, mining, determination of places for grazing and running of farm animals that can adversely affect the growing environment of flora, are allowed in agreement with the Forestry Agency under the Ministry of ecology, environmental protection and climate change of the Republic of Uzbekistan in the presence of a positive conclusion of the state environmental assessment. The commissioning of production facilities and the use of technologies that are not provided with measures to protect the growing environment of plant life is prohibited.
The Law of the Republic of Uzbekistan № 710-II "On Protected Natural Reserves."	This law regulates the use and protection of protected natural territories. The main aim is to ensure preservation of typical, unique, genetic banks of plants and animals, prevent negative impact of human activities on nature, promote the study of natural processes and monitoring of the environment including promotion of environmental education. Chapter II. Management of protected natural areas. Article 12: Activities of legal entities and individuals on reserved land plots that threaten the preservation of natural objects and complexes planned for protection should be limited or prohibited. The provision of lease of these land plots to legal entities and individuals is permitted only if there is a positive conclusion from the state environmental assessment. Chapter VIII. Protected landscapes Article 35. Protected landscapes include resort natural areas, recreational zones, water protection zones, coastal strips, zones of sanitary protection of water bodies, zones of formation of surface and groundwater.
The Law of the Republic of Uzbekistan № 73-II "On Ecological Expertise."	Details the mandatory process required for an expert assessment of impacts on the environment and human health, as well as the legal basis. Article 4. Types of environmental impact assessment: Environmental assessment is carried out in the form of state and public environmental assessment, as well as environmental audit. Article 11. Objects of state environmental impact assessment The objects of state environmental assessment are: ▪ draft state programs, concepts, schemes for the placement and development of productive forces, sectors of the economy and the social sphere; ▪ materials for selecting land plots for all types of construction; ▪ pre-project and design documentation;

	▪ draft normative-technical and instructional-methodological documents regulating economic and other activities related to the use of natural resources; ▪ operating enterprises and other objects that have a negative impact on the state of the natural environment and the health of citizens; Article 13. Mandatory conduct of state environmental impact assessment Conducting a state environmental assessment of the facilities specified in Article 11 of this Law is mandatory. State environmental assessment is carried out by specialized expert units of the State Committee of the Republic of Uzbekistan for Ecology and Environmental Protection (currently reformed as the Ministry of Ecology, Environmental Protection and Climate Change), the Department of the Republic of Karakalpakstan for Ecology and Environmental Protection, departments for ecology and environmental protection of the regions and the city of Tashkent. Article 14. Requirements for conducting state environmental assessment When conducting a state environmental assessment, the following is carried out: ▪ checking the compliance of submitted materials with environmental legislation; ▪ analysis of the reliability and completeness of information about the environmental and social consequences of planned or ongoing economic and other activities; ▪ checking the validity of assessing the impact of biological, chemical substances and technologies on the environment; ▪ checking the correctness of the assessment of the level of environmental hazard of the consequences of the implementation of planned or ongoing economic and other activities; ▪ identifying the sufficiency and validity of measures to ensure environmental safety requirements; ▪ checking the validity of draft environmental standards. Article 15. Materials submitted for state environmental assessment To conduct a state environmental assessment, the customer submits: ▪ for designed facilities - environmental impact assessment materials containing a draft environmental impact statement, a statement of environmental consequences, and in cases provided for by law - an environmental impact statement; A draft environmental impact statement is submitted before the start of funding for the state environmental assessment facility. The environmental impact statement is submitted before the approval of the feasibility study for the object of the state environmental assessment. A statement of environmental consequences is submitted before the facility is accepted into operation in the manner prescribed by law. Article 21. Mandatory execution of the conclusion of the state environmental assessment The conclusion of the state environmental assessment is mandatory for legal entities and individuals when financing and implementing the object of the state environmental assessment. It is prohibited to finance projects by banking and other credit organizations, as well as their implementation without a positive conclusion from the state environmental assessment.

	When the state environmental assessment concludes that the implementation of the object of the state environmental assessment is inadmissible, the customer is obliged to ensure that the project is finalized in accordance with the proposals contained in the conclusion and resubmit the materials for the state environmental assessment or abandon the planned or ongoing economic and other activities. Article 22. Validity period of the conclusion of the state environmental assessment The conclusion of the state environmental assessment on the compliance of the object of the state environmental assessment with environmental requirements has legal force for three years from the date of its issue. Article 23. Public environmental review Public environmental assessment can be carried out on the initiative of non-governmental non-profit organizations and citizens in any field of activity that requires environmental justification. It is prohibited to interfere with the implementation of public environmental assessment. Public environmental impact assessment can be carried out independently of the state environmental impact assessment. The conclusion of the public environmental review is advisory in nature. Article 24. Environmental audit An environmental audit is a systematic, documented, independent environmental assessment of the economic and other activities of the subject of an environmental audit carried out by an environmental audit organization for compliance with the requirements of regulatory documents in the field of technical regulation and regulations aimed at environmental protection and rational use of natural resources. Article 26. Liability for violation of legislation on environmental assessment Persons guilty of violating the legislation on environmental impact assessment are liable in accordance with the procedure established by law. N.B. Implementation of projects without a positive conclusion of the state environmental (sanitary-ecological) examination entails liability provided for in Article 96 of the Code of the Republic of Uzbekistan on Administrative Liability. Also, Article 193 of the Criminal Code of the Republic of Uzbekistan provides for liability for violation of environmental safety standards and requirements.
The Law of the Republic of Uzbekistan ZRU-408, "On Protection and Use of the Wildlife."	This law regulates the use, protection, reproduction and restoration of wildlife in order to promote conservation and ensure diversity of species in their natural habitat. Chapter 3. Wildlife protection Article 17. Protection of rare and endangered wild animal species Rare and endangered species of wild animals are included in the Red Book of the Republic of Uzbekistan. Actions (inaction) that could lead to death, reduction in numbers or disruption of the habitat of rare and endangered species of wild animals are not permitted. Article 21. Monitoring of fauna Monitoring of the animal world consists of specially organized systematic observations, identification of changes, assessment and forecast of the state of the animal world and its habitat and is an integral part of the State monitoring of the natural environment. Chapter 4. Requirements for the protection and use of wildlife Article 27. Legal entities and individuals are obliged to take measures to prevent diseases and death of wild animals, preserve their habitat, breeding grounds and migration routes when carrying out any types of economic and other activities.

	It is prohibited to burn vegetation, store and use materials, raw materials, chemicals, plant protection products, mineral fertilizers and other preparations hazardous to wild animals, dispose of, transport and bury household and industrial waste without taking into account the requirements for the protection and use of wildlife. When locating, designing and constructing settlements, enterprises, transport highways, power and communication lines, hydraulic structures and other objects, improving existing and introducing new technological processes, introducing wetlands and shrub-occupied areas into economic circulation, establishing a water regime and water consumption limit, land reclamation, forest use, geological exploration, mining, determining places for grazing and running farm animals, developing tourist routes and organizing places for mass recreation of the population, measures must be envisaged and implemented to preserve the habitat, breeding grounds and migration routes of wild animals, and ensure the integrity of areas of particular value as wildlife habitat. Article 28. Conducting state environmental assessment in the field of protection and use of wildlife The following are subject to state environmental assessment: ▪ materials for the selection of land plots for all types of construction, pre-planning, pre-design and design documentation, the implementation of which may have a harmful impact on the state of the animal world or habitat, breeding sites and migration routes of wild animals.
The Red Book of the Republic of Uzbekistan	An official state document that contains an annotated list of rare and endangered species of flora and fauna within the territory of Uzbekistan, as well as general information about the distribution and current state of these species. Environmental categories ▪ Apparently extinct species. ▪ Species in a dangerous state (on the verge of extinction, endangered species). ▪ Vulnerable species (declining in numbers, naturally rare). ▪ In a condition close to endangered. ▪ Lack of data (species of uncertain status are not classified as endangered).
The Resolution of Cabinet of Ministries of the Republic of Uzbekistan No. 820 “On Measures to Further Improve the Economic Mechanisms for Ensuring Nature Protection.”	Document approves the Regulations on the procedure for applying compensation payments for environmental pollution and waste disposal on the territory of the Republic of Uzbekistan. Document establishes that: ▪ base rates of compensation payments for environmental pollution and waste disposal are accepted in coefficients of the established minimum wage; ▪ document identifies the government bodies that collect compensation payments - the document also defines standards for maximum permissible concentrations of pollutants in discharges of industrial wastewater into municipal sewer networks and a list of particularly toxic pollutants
The Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 14. “On Approval of the Regulation on the Procedure for the Development and Agreement of Projects with Environmental Standards.”	These Regulations determine the procedure for developing and agreeing on environmental standards for the impact on the environment by organizations and individual entrepreneurs engaged in the production of products or provision of services related to the generation of emissions, discharges of pollutants into the environment and waste. The document describes the procedure for developing environmental standards for: ▪ maximum permissible emissions of pollutants into the atmosphere; ▪ maximum permissible emissions of pollutants into surface water bodies and terrain;

	▪ standards for waste generation and disposal; ▪ inventory of sources of emissions and discharges of substances into the environment, generation and disposal of waste; ▪ list of pollutants subject to standardization; ▪ Waste classification catalog
The Resolution of the Cabinet of Ministries of the Republic of Uzbekistan No. 541 "On further improvement of the environmental impact assessment mechanism."	The Uzbekistan Environmental Impact Assessment (EIA) requirements are set forth within this Resolution. The EIA process is known as "Otsenka Vliyaniya na Okruzhayushchuyu Sredu" (OVOS) within the local context. Annex 1 of the Resolution classifies electricity generation projects exceeding 300 MW as Category 1 (with 'high-risk' of environmental impacts), which will require the undertaking of an EIA study in order to obtain an environmental permit (EIA study is known as PZVOS within the local context). Category 1 is equal to Category A in accordance with international categorization. The national EIA process consists of three stages: Stage I: "A Preliminary Statement of the Environmental Impact - this is performed at the planning stage of the proposed Project prior to the allocation of funds for development. Stage II: The "Statement of the Environmental Impact" - this is prepared following Stage 1 and where the outcome of Stage 1 identifies the need for additional studies or analyses. This statement shall be submitted to the Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan prior to the Feasibility Study or financing of the Project and, therefore, prior to the beginning of construction. ▪ Stage III: The "Statement on Environmental Consequences" is the final stage of the SEE process and is performed prior to operations of the Project. State ecological expertise approval: The Ministry provides their opinion at Stage I and II is typically a mandatory document for project financing by Uzbek banks, other Lenders and for Project commissioning at Stage III. The conclusion of the Ministry is typically valid for three years from the date of its issuance. If the project is not implemented within three years from the date of issue of the conclusion, the EIA report needs to be revised and re-submitted for approval.
The Resolutions of Cabinet of Ministers of the Republic of Uzbekistan No. 290 "About the Settlement of Use of Biological Resources and about the Procedure for Passing of Allowing Procedures in the Field of Environmental Management."	▪ Document provides regulations on procedure for use of objects of flora and passing of allowing procedures in the field of use of flora objects; ▪ Sets out the requirements to obtain permission to cut wood and shrub plantations that are in the zone of the construction site. ▪ Regulations on procedure for use of objects of fauna and passing of allowing procedures in the field of use of fauna objects; ▪ Regulations on procedure for passing of allowing procedures in the field of international trade in the types of wild fauna and flora which are under the threat of disappearance in the territory of the Republic of Uzbekistan; ▪ Regulations on procedure for distribution of the means received as payment for use of objects of animal and flora, the penal amounts, and the amounts collected from violators of the nature protection legislation for the caused damage. ▪ Defines the size of payments to calculate the amount of damage caused by violation of the order of use of flora and fauna
Archaeology and Cultural Heritage	
Constitution of the Republic of Uzbekistan	It is the duty of every citizen to protect the historical, spiritual and cultural heritage of the people of Uzbekistan. Cultural monuments shall have protection by the state

Law No. ZRU-229 "On Protection and Use of the Objects of Archaeological Heritage."	Regulates the protection and use of the objects of archaeological heritage. The state has exclusive right of ownership of the objects of archaeological heritage. Objects of archaeological heritage are subject to compulsory state registration. The Ministry of Culture issues field investigation permits and approves the scientific report for each permit issued. Specially authorized institutions in the field of protection and use of archaeological heritage objects (authorized agencies) approve the procedures for archaeological exploration, archaeological excavations and archaeological surveillance, issue open sheets and participate in the historical and cultural examination of archaeological heritage sites.
Law No. 269-II "On the Protection and Use of Cultural Heritage Sites."	Regulates the protection and use of cultural heritage objects (CHO), which are the national property of the people of Uzbekistan. The law protects ensembles, sites, monuments, objects of tangible and intangible cultural heritage. The law defines objects of tangible cultural heritage as representing historical, scientific, artistic or other cultural value ensembles, sites and monuments; and objects of intangible cultural heritage as representing customs, historical, scientific, artistic or other cultural value, folklore (the art of word, dance, music, performance), as well as knowledge, skills, tools, artifacts related to them and folk arts and crafts, and cultural spaces. Tangible cultural heritage is divided into CHO of national and local historical, scientific, architectural, artistic and memorial significance. Designated cultural heritage comprises World Heritage properties, elements inscribed on the Representative List of the Intangible Cultural Heritage of Humanity, CHO on the State Register, historical and cultural reserves, museum reserves and historical settlements. These are maintained on the State Cadastre of tangible CHO and the List of intangible objects of intangible CHO.
Resolution of the Cabinet of Ministers of the Republic of Uzbekistan № 846 "On Approval of the National List of Real Estate Sites and Objects of Tangible Cultural Heritage."	In total, there are 8,208 real estate objects throughout the country, of which 4,748 are archaeological monuments, 2,250 architectural monuments, 678 monuments of monumental art, 532 attractions. In order to preserve historical, artistic or other cultural value, collateral and mortgage cannot be applied to objects included in the National List, with the exception of immovable objects of tangible cultural heritage, which are private property.
Presidential Decree no. PP-4068 "Regarding the Strengthening of the Protection, Management and Enhancement of Tangible and Intangible Cultural Heritage."	Includes a 'Road Map' to radically improve the protection, conservation, scientific research, propaganda and rational use of tangible cultural heritage objects for 2019-2021.
Air Quality and Noise	
Sanitary Standards and Rules No. 0008-20 on Permissible Noise Levels in Residential Buildings, Public Buildings and Recreation Zones.	These sanitary norms and standards specify the permissible levels of noise generated from external and internal sources in residential areas, public buildings, and populated areas in Uzbekistan. Noise levels in premises of residential, public buildings and on the territory of residential areas: ▪ 7am to 11pm: 55dB(A) ▪ 11pm to 7am: 45dB(A)
Sanitary Standards and Rules No. 0325-16 for Permissible Noise Levels in the Workplace	These standards establish: ▪ noise classification; ▪ characteristics and permissible noise levels in workplaces; ▪ general requirements for changes in standardized values; ▪ basic measures to prevent the adverse effects of noise on workers.

	Requirement for Work Environment Noise Limit (Performing all types of work on the permanent workplaces in industrial premises and in the enterprises): 80db(A)
SanPin № 0293-11 "Hygienic regulations List of maximum permissible concentrations (MPC) of contaminants in the atmospheric air of inhabitant areas in the territory of the Republic of Uzbekistan."	This document defines the basis for planning and implementing measures to protect atmospheric air in the interests of public health are maximum permissible concentrations (MPC) of pollutants. Maximum one-time concentration - the highest concentration detected at 20-30- minute sampling. - Average daily concentration is the average of the one-time concentrations detected during the day or obtained with continuous 24-hour sampling. - Monthly average concentration is the average of the average daily concentration detected during the month. - Average annual concentration - the average of the number of average monthly concentrations revealed during a year in the course of one-time sampling. This list in the document includes maximum permissible concentrations of harmful substances in atmospheric air for 485 substances. Of these, hazard class I substances account for 43 (8.94%); II class - 157 (32.64%), III class - 192 (39.91%) and IV class 89 (18.5%). The document also defines substances, the release of which into the atmospheric air is prohibited
SanPin №. 0339-16. "Sanitary rules and norms of planning and development of settlements of Uzbekistan."	These rules and regulations are applicable to the design of new and renovated urban and rural settlements and include basic hygienic requirements for their layout and development. Noise limits for areas directly adjacent to residential buildings, recreation centers, pioneer camps, retirement and nursing homes for the disabled and elderly, and pre-schools: - 7am to 11pm: 55dB(A) - 11pm to 7am: 45dB(A)
Standard No. 0350-17, "Sanitary norms and rules for the protection of atmospheric air in populated areas of the Republic of. Uzbekistan."	These sanitary norms and rules formulate the basic requirements for the protection of atmospheric air, compliance with which should ensure the prevention of the adverse effects of polluted air on the health of the population and the sanitary and living conditions of their lives. Sanitary norms and rules are intended for enterprises, institutions, organizations, associations, regardless of their form of ownership, and individuals involved in placement, design; construction of new, reconstruction (technical re-equipment) and operation of existing enterprises, structures and other facilities that are sources of air pollution, as well as for sanitary doctors. State control over compliance with the requirements of these norms and rules is carried out by bodies of the state sanitary and epidemiological service of the Republic of Uzbekistan. When locating, designing, constructing and commissioning new and reconstructed facilities, measures must be taken to reduce the emission of pollutants to the maximum possible extent using low-waste and non-waste technologies, integrated use of natural resources, as well as measures to capture, neutralize and dispose of harmful emissions and waste. The measures taken must ensure compliance with the maximum permissible concentrations (MPC) of pollutants in the atmospheric air of residential areas (lands intended for the construction of residential and public buildings, roads, streets and squares within cities and towns) and 0.8 MPC in places of public recreation.
The Law of the Republic of Uzbekistan № 353- I "On Atmospheric Air Protection."	This law sets the rules on atmosphere protection, standards, quality and deleterious effect norms, requirements on fuels and lubricants, production and operation of vehicles and other transport means and equipment, ozone layer protection requirements, obligations of enterprises, institutions and organizations toward atmospheric protection, and compensations for damages from atmospheric pollutions.
Community Development	

Decree No. 964 of 5 December 2017 "On the Measures for Perfection of the Activity of Self-Government Bodies Aimed at Ensuring Employment, firstly for the Youth and Women."	This Regulation determines the procedure for interaction between self-government bodies of citizens with district (city) divisions of the Youth Union of Uzbekistan and the Women's Committee of Uzbekistan, labor authorities in matters of promoting employment of the population, primarily youth and women
Decree of the Cabinet of the Ministers No. 1011 "On Perfection of the Methodology of Definition of Number of People in Need of Job Placement."	Document includes the Methodology for Observing Households with Regard to Employment Issues, also for the Development of Balance of Labour Resources, Employment and Job Placement of Population. This Methodology is used by the Ministry of Employment and Labor Relations of the Republic of Uzbekistan to ensure a comprehensive analysis, qualitative and objective assessment of labor resources and employment of the population, especially young people who have reached working age and are entering the labor market for the first time.
Resolution of the Cabinet of Ministries of the Republic of Uzbekistan No. 541 "On further improvement of mechanism for Environmental Impact Assessment."	The Uzbekistan Environmental Impact Assessment (EIA) requirements are set forth within this Resolution. The EIA process is known as "Otsenka Vliyaniya na Okruzhayushchuyu Sredu" (OVOS) within the local context. Annex 1 of the Resolution classifies electricity generation projects exceeding 300 MW as Category 1 (with 'high-risk' of environmental impacts), which will require the undertaking of an EIA study in order to obtain an environmental permit (EIA study is known as PZVOS within the local context). Category 1 is equal to Category A in accordance with international categorization. The national EIA process consists of three stages: ▪ Stage I: "A Preliminary Statement of the Environmental Impact - this is performed at the planning stage of the proposed Project prior to the allocation of funds for development. ▪ Stage II: The "Statement of the Environmental Impact" - this is prepared following Stage 1 and where the outcome of Stage 1 identifies the need for additional studies or analyses. This statement shall be submitted to the Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan prior to the Feasibility Study or financing of the Project and, therefore, prior to the beginning of construction. ▪ Stage III: The "Statement on Environmental Consequences" is the final stage of the SEE process and is performed prior to operations of the Project. State ecological expertise approval: The Ministry provides their opinion at Stage I and II is typically a mandatory document for project financing by Uzbek banks, other Lenders and for Project commissioning at Stage III. The conclusion of the Ministry is typically valid for three years from the date of its issuance. If the project is not implemented within three years from the date of issue of the conclusion, the EIA report needs to be revised and re-submitted for approval.
Infrastructure and Utilities	

Criteria and Procedure for Determining International Road Transportation of Loads of 2019, No. 6 (approved by the Resolution №3194 of The Ministry of Transport of The Republic of Uzbekistan, The State Customs Committee of The Republic of Uzbekistan)	The act sets out the criteria for determining international road freight transportation as bilateral, transit or transportation to (from) the third countries. National carrier - a legal entity or individual registered on the territory of the Republic of Uzbekistan, using a vehicle owned by it on property rights or other legal grounds for international transportation of goods or passengers and having a special permit (license) for this; Foreign carrier - a legal entity or individual registered in the territory of a foreign state and using a vehicle owned by it on the basis of ownership or other legal grounds for the international transport of goods or passengers.
Decree of the Cabinet of Ministers of the Republic of Uzbekistan No.1050 "On approval of Rules for Protection of Power Grid Facilities	This document determines the procedure for establishing protected zones for power grid facilities, as well as special conditions for using land located within the protected zones and ensuring the functioning and operation of the said facilities. Article 15 stipulates that any actions that may disrupt the safe operation of electric grid facilities, including damaging or destroying them, and/or causing damage to life and property of individuals or legal entities, as well as causing environmental damage and fires, are prohibited within the protected zones. Article 17 states that within the protected zones, without the written permission of the owner of the electric grid facility, the following is prohibited: ▪ Construction, overhaul, reconstruction or demolition of buildings and structures; ▪ Planting and cutting down of trees and bushes; and ▪ Passage of machines with an overall height of more than 4.5m with or without load within the protection zones of the OHTL. In order to obtain written permission to perform any of the actions listed above, the concerned parties should submit a written application to the operator of the grid at least 15 working days prior to the execution of the works. - Construction of power grid facilities with 110, 220 or 500kV in protected areas of state nature reserves, protected areas of nature parks and state biosphere reserves etc shall be allowed with the permission of the Cabinet of Ministers of the Republic of Uzbekistan. - Protected zones of power grid facilities shall be established on both sides of the power transmission line from the outermost wires and along the perimeter of substations at the following distances for voltages; - 110kV: 20 meters; - 220kV: 25 meters; and - 500kV: 30 meters.
The Law of the Republic of Uzbekistan No. ZRU-117 on Highways of 2007	The purpose of this Law is to regulate relations in the field of design, construction, reconstruction, repair, maintenance of highways and their use. Article 24. Responsibilities of owners, possessors and users of land plots adjacent to the highway Article 25. Responsibility of legal entities and individuals for failure to comply with the procedure for using highways
The Law of the Republic of Uzbekistan № 725-1 "On Radio Frequency Spectrum" of 1998	The purpose of this Law is to regulate legal relations in the field of distribution and use of the radio frequency spectrum. Article 14: The development and production of radio-electronic equipment and high-frequency devices, as well as research and development work using radio frequencies, are carried out only after the user of the radio frequency spectrum has received the appropriate permission from the radio frequency authority and the organization's standards for development have been agreed upon. The construction (installation) of radio-electronic equipment and high-frequency devices of all types and purposes can be carried out only with the appropriate permission from the radio frequency authority.

Regulations on Provision of Energy Services, Resolution No. 551 of the Cabinet of Ministers of the Republic of Uzbekistan, of 2018.	Determines the rules for the provision of services related to ensuring energy efficiency by the state-owned monopolist, the National Energy Saving Company, under energy services contracts that have to be entered into by state agencies and state-owned enterprises.
Regulations on road safety during transportation of large and heavy loads by road transport (Annex No.2 to the Decree of Cabinet of Ministers No. 342 of 2011).	This document determines the requirements of ensuring and coordinating traffic safety during the transportation of large size and heavy loads on public roads on the territory of Uzbekistan. It also details the basic requirements for the technical condition equipment and furnishing of vehicles used for the transport of large and heavy loads as well as safety.
Regulations on Rules for Cargo Transportation by road in the Republic of Uzbekistan (Annex to Decree of Cabinet of Ministers No. 213 of 2014)	These Rules regulate the relationship of participants in the transportation process on road transport, their rights, duties and responsibilities, and also establish requirements for the transportation of goods, their safety and other conditions for the transportation of goods carried out by road transport in the Republic Uzbekistan. The specifics of transporting dangerous, large and heavy cargo by road are determined by separate regulations.
Resolution of the President of the Republic of Uzbekistan №PP-57, "On measures to accelerate the implementation of renewable energy sources and energy-saving technologies in 2023."	Resolution aims at promoting the exploitation of renewable energy resources and further deploying renewable energy technologies, with the overall aim of founding the basis of a sound absorptive capacity for renewable energy technologies, and technical expertise related to renewable energy. Documents supports: ▪ commissioning of renewable energy sources with a total capacity of 4,300 MW, including large-scale renewable energy plants - with a capacity of 2,100 MW, solar panels installed on buildings and structures of social facilities and business entities, households - with a capacity of 1,200 MW, small photovoltaic stations built by entrepreneurs - with a capacity of 550 MW; ▪ producing an additional 5 billion kilowatt-hours of electrical energy and saving 4.8 billion cubic meters of natural gas in 2023 through the construction of renewable energy installations, switching consumers to alternative energy and introducing energy-saving technologies; ▪ approve the Addressed list of projects for the construction of 27 high-capacity renewable energy plants on the basis of public-private partnership in 2023 in accordance with Appendix No. 1, as well as the Addressed list of projects for connecting high-power solar and renewable energy plants to power transmission networks Article 10: Establish that business entities, including foreign investors, are allowed to: ▪ sell electrical energy produced from renewable energy sources to government agencies and (or) territorial electric networks - at established tariffs, to other consumers - at mutually agreed prices, on the basis of concluded direct contracts, including long-term ones;
Sanitary Norms No. 0236-07: Sanitary Standards and Regulations to Ensure Safety for Populations Living near High Voltage Power Lines.	This regulation sets the requirements for ensuring public safety when overhead power lines pass over populated, unpopulated or inaccessible territories. - It requires sanitary norms and rules to be followed in the design, construction and operation of overhead power lines. The sanitary protection zone for 500kV OHTL is 30m and up to the 750kV OHTL is 40m. 55m for overhead power lines up to 1150 kV. No houses are allowed within. When designing overhead power lines with voltages above 750 kV, their distance from the boundaries of populated areas must be at least 250 m. In addition, SanPin 0236-07 specifies that EMF in population living areas is not to exceed 1.0kV/m and magnetic fields 80 A/m (equivalent to 100μT).

Sanitary Rules and Regulations № 0370-19 for The Placement and Operation of Radio Engineering Facilities in Populated Areas	Sanitary rules and regulations are aimed at preventing the adverse effects on human health of electromagnetic radiation of radio frequencies (30 kHz - 300 GHz), created by various radio engineering radio communication facilities, radio television stations, radar equipment, etc. in a residential area. Levels of electromagnetic radiation in the radio frequency range created by antenna mast structures of a radio engineering facility in residential, public buildings and residential areas should not exceed the following maximum permissible values: ▪ in the frequency range up to 30 MHz - 1 V/m; ▪ in the frequency range 30 MHz - 300 MHz - 3 V/m; ▪ in the frequency range 300 MHz - 300 GHz - 2.5 µW/sq. cm. The electric field strength levels of industrial frequency (50 Hz) created by the supply and power equipment of base stations in residential and public buildings should not exceed 0.5 kV/m.
Air Code for the Republic of Uzbekistan of 1993	Article details procedures to obtain permission to carry out activities that may pose a threat to flight safety. Chapter III sets out a list of necessary documents requested from the Developer for constructing an object located near civil aviation aerodromes.
Aviation Regulations (AP RUZ-150) Registered under No. 73 of 2006	This document regulates the marking and equipment of facilities located near civil aviation airfields. According to Chapter IV, clause d, clause 11: stationary objects with a height of 50 m or more, regardless of their location, must be marked. Chapter V, clauses 12- to 23 states that “White lights operating in flashing mode can be used to illuminate freestanding obstacles located outside the airfield zones that do not have extraneous lights around them. The flash strength of the obstruction light must be at least 10 candelas (cd) and the flash rate must be at least 60 per minute.”
Labor and Working Conditions	
Decree of the Cabinet of the Ministers No. 965 "On the Measures of Further Perfection of the Procedure of Establishment and Reservation of Minimum Number of Job Places for the Job Placement of Persons who are in need of Social protection and Face Difficulties in Searching Employment and Incapable of Competing in Labor Market with Equal Conditions."	Organizations of all forms of ownership, with an average number of employees of more than 20 people, must reserve jobs to employ those in need. The total number of reserved jobs is up to 10% inclusive (including at least 3% for people with disabilities) of the average number of employees. Organizations with more than 20 employees annually: ▪ before August 1, determine the total number of reserved jobs for the coming year, taking into account positions; ▪ before August 15, submit information about this to the district (city) employment promotion center in the prescribed form. Reservations for seasonal and temporary jobs are not permitted. For refusal to make a reservation - there will be a fine, for exceeding the established standards - benefits.

Joint Decree of the Ministry of Labor and Social Protection of the Population (No. 33) and the Ministry of Healthcare (No. 13) of Uzbekistan "On the approval of the list of jobs with unfavorable working conditions where the employment of persons under 18 years is prohibited" registered by the Ministry of Justice of the Republic of Uzbekistan.	The document was adopted in order to implement the Convention on the Minimum Age for Employment and the Convention on the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labor ratified by the Republic of Uzbekistan
Labor Code of the Republic of Uzbekistan	This is the key national labor focused legislation which takes into account the interests of the employees, employers and the state. Its main aim is to promote fair and safe working conditions and protect the labor rights and the health of employees. The main health and safety provisions in the labor law include H&S requirements, employees' obligation to comply with H&S standards, procedures and use of PPE, additional H&S measures for disabled employees, reporting and investigating accidents etc. The labor code also specifies collective bargaining through collective contracts and agreements as a way of regulating labor relations and harmonizing social and economic interests of both the employer and the employees.
The Law of the Republic of Uzbekistan "On the employment of the population, No. ZRU- 642 of 2020	The purpose of this Law is to regulate relations in the field of employment. Able-bodied persons over the age of sixteen and until they acquire the right to a pension, who do not have a paid job or occupation that generates earnings (earning income), who are looking for work and are ready to start work as soon as it is offered to them, or to undergo vocational training, retraining or advanced training (with the exception of students in educational institutions), who have applied to local labor authorities to receive assistance in finding employment and are registered by them as job seekers, are recognized as unemployed. Article 38: The state provides additional guarantees for the employment of socially vulnerable categories of the population. Socially vulnerable categories of the population include: ▪ single parents with children under the age of fourteen, ▪ children with disabilities, as well as parents with large families; ▪ youth who have acquired a profession after graduating from general secondary and secondary special educational organizations, vocational schools, vocational colleges and technical schools; ▪ graduates of Mehribonlik (orphan) houses, as well as graduates of higher educational institutions who studied under state grants; ▪ persons discharged from military service from the troops of the Ministry of Defense, the Ministry of Internal Affairs, the Ministry of Emergency Situations, the National Guard, the State Security Service of the Republic of Uzbekistan; ▪ persons with disabilities; ▪ persons of pre-retirement age; ▪ persons released from penal institutions, or persons against whom compulsory medical measures were applied by court decision; ▪ victims of human trafficking; ▪ other persons in accordance with the law.

	The employer is obliged to hire the persons specified in this article, sent by local labor authorities and other bodies in the manner prescribed by law, for employment in reserved jobs.
The Law of the Republic of Uzbekistan No. ZRU-641 on Rights of Persons with Disabilities of 2020	The purpose of this Law is to regulate relations in the field of ensuring the rights of persons with disabilities. Article 42. Ensuring the implementation of the right to work A person with a disability has the right to work in organizations with normal working conditions, in specialized enterprises, in workshops and in areas employing the labor of persons with disabilities, as well as to carry out individual labor or other activities not prohibited by law. Discrimination on the basis of disability is prohibited in relation to all forms of labor relations, including conditions of recruitment, hiring, employment, retention of work, promotion (work), as well as ensuring safe working conditions. The state establishes a minimum number of jobs in organizations, regardless of the organizational and legal form, for hiring persons with disabilities in the manner prescribed by the legislation on employment.
Resolution of Cabinet of Ministers No. 244 "On the approval of the regulations on the procedure for the attraction and use of foreign workforce in the Republic of Uzbekistan" of 2019	The document was developed with the aim of creating favorable conditions for the implementation of labor activities in the territory of the Republic of Uzbekistan by qualified specialists from foreign countries. The document defines, among other things, the process of issuing and extending entry visas for citizens of foreign countries arriving in the Republic of Uzbekistan for the purpose of carrying out work activities, after they have received, in the prescribed manner, permission to carry out work activities in the Republic of Uzbekistan
Management of Solid Waste, Hazardous Waste and Wastewater	
The Law of the Republic of Uzbekistan No. ZRU-784 on Drinking Water and Wastewater, of 2022	The law guarantees the provision of drinking water of established quality to consumers. The Ministry of Housing and Communal Services is a specially authorized government body in the field of drinking water supply and wastewater disposal. Organizations of any legal form can operate as a drinking water supply organization. They are responsible for causing material and moral damage to the life, health and property of the consumer. Drinking water must be safe in epidemiological, radiation and chemical terms. The quality of drinking water is analyzed in the laboratories of drinking water supply organizations. Drinking water is supplied by transport: ▪ to areas where there are no drinking water supply networks; ▪ in case of accidents at drinking water supply network structures; ▪ when carrying out repair and restoration work on drinking water supply networks; ▪ in emergency situations.

Regulation "On the Procedure for the Disposal, Collection, Pay Settlement, Storage and Removal of Waste Industrial Oils" (annex to the Decree of the Cabinet of Ministers No.258 of 2012)	Waste technical oil (WOT) - any industrial or motor oil on a mineral, semi-synthetic and synthetic basis, unsuitable for further use for its original purpose, which has lost the established quality indicators, consumer properties during operation, or has worked for a certain period of time for them; Consumer of technical oils - an individual or legal entity who uses technical oils in the process of their production or other activities, as a result of which waste technical oils are formed; Calculated standard for the minimum quantity of waste technical oils delivery - the minimum quantity of used technical oils determined by these Regulations, formed in the process of consumption of technical oils per unit of production or per unit of raw materials, which serves as a calculation indicator for assessing the resources of used oils handed over to special collection points for used technical oils oils, as a percentage of the initial amount of consumption;
Regulation on the Procedure for Handling Colored and Black Metal Scrap" (annex to the Decree of Cabinet of Ministers No. 425 of 2018)	This Regulation defines the procedure, basic concepts, procedures and requirements, as well as features of regulation of relations in the field of handling scrap, waste of non-ferrous and ferrous metals and is mandatory for execution by all state and economic management bodies, local executive authorities, other organizations and individuals persons on the territory of the Republic of Uzbekistan
Resolution of Cabinet of Ministers of Republic of Uzbekistan No. 95 "On Approval of Regulatory and Legal Acts in the Field of Waste Management."	These Rules determine the procedure for the provision of services for the collection and removal of solid and liquid household waste by organizations specializing in the provision of services in the field of waste management
SanPin (Sanitary Rules & Norms) No. 0158-04 - Sanitarian Rules and Norms on collection, transportation and disposal of wastes contained asbestos in Uzbekistan."	These Sanitary Rules and Standards define the basic requirements for the collection, transportation and disposal of asbestos-containing waste in order to prevent their harmful effects on human health and the environment, as well as the inclusion of such waste in economic circulation as additional sources of raw materials.
SanPin № 0127-02 "Sanitary procedures for inventory, classification, storage and disposal of industrial waste."	This regulation and norms ensure optimal hygienic accounting and inventory of industrial wastes, determination of toxicity index and classification of industrial waste by hazard classes with optimal selection of ways to neutralize and utilize them. Article 2.1 The collection and accumulation of industrial waste, their accounting and inventory must be carried out at all enterprises, regardless of their form of ownership and departmental affiliation. At the same time, for practical purposes, it is advisable to distinguish the following categories of industrial waste: ▪ industrial waste allowed for joint storage with municipal solid waste (MSW) in city landfills; ▪ industrial waste sent to departmental sludge storage tanks; ▪ industrial waste to be disposed of; ▪ toxic industrial waste stored in specially equipped landfills. Article 2.2 The procedure for collection and accumulation, accounting and inventory of industrial waste is established taking into account their hazard classes: Class I - extremely dangerous, Class II - highly dangerous, Class III - moderately dangerous, Class IV - slightly dangerous.

SanPin № 0157-04 "Sanitary requirements to the storage and neutralization of solid domestic waste on special grounds in Uzbekistan."	Solid waste includes useless, unnecessary or discarded materials that are a product of human activity, generated in individual homes, public, medical and other institutions, subject to removal from the territory of cities and rural towns according to a unified centralized system by specialized municipal enterprises of khakimiyats to solid waste landfills .
SanPin of the Republic of Uzbekistan № 0128-02 – "Hygienic classifier of toxic industrial wastes in the Republic of Uzbekistan."	This document supplements SanPiN RUz N 0127-02 "Sanitary rules for inventory, classification, storage and disposal of industrial waste", compliance with its requirements helps improve accounting and reporting of toxic industrial waste, determine methods for their disposal, processing or disposal in the environment. Hazardous waste is classified into four groups known as "hazard classes". Waste hazards are assessed based on this law. Waste hazard classes include: - Class I: Extremely hazardous waste; - Class II: Highly hazardous waste; - Class III: Moderately hazardous waste; - Class IV: Low hazardous waste; and
SanPin of the Republic of Uzbekistan №0300-11 "Sanitary Rules and Standards for managing collection, inventory, classification, treatment, storage and disposal of industrial waste in the context of Uzbekistan."	Article 3.1. The collection and accumulation of industrial waste, their accounting and inventory must be carried out at all enterprises, regardless of their form of ownership and departmental affiliation. The following categories of industrial waste are distinguished: ▪ industrial waste allowed for joint storage with municipal solid waste (MSW) in city landfills; ▪ industrial waste sent to departmental sludge storage tanks; ▪ industrial waste to be disposed of; ▪ toxic industrial waste stored in specially equipped landfills. Article 3.2. Primary accounting and inventory of industrial waste is carried out directly in each workshop of the enterprise for toxic and non-toxic waste separately, indicating their name, physical and chemical state of hazard class and priority contaminants. Article 3.3. Hygienic assessment of the degree of danger to humans of chemical hazardous substances (including industrial waste) is carried out taking into account their hazard class, and, first of all, for the most toxic chemicals: class 1 - extremely dangerous, class 2 - highly dangerous, class 3 - moderately hazardous and class 4 - low-hazardous substances.
The Law of the Republic of Uzbekistan No. 362-II "On Waste" of 2002	This law prevents negative effects of solid wastes on populations' lives and public health as well as on the environment, reduces waste generation and encourages rational use of waste reduction techniques. The law regulates the procedures for treating solid wastes and defines the authorities involved in solid wastes management. The law also stipulates the rules for transporting solid wastes and provides market based incentives for efficient treatment of solid wastes. Article 19: Provided generated waste is subject to export and import operations, or hazardous waste is subject to transportation, an environmental certification procedure shall be completed by the Project to confirm compliance with sanitary and environmental norms and standards associated with waste management. Article 20 states that transportation of hazardous waste shall be in specially designated types of vehicles with a waste certificate and permit. The responsibility for safe transportation of hazardous waste shall be with the transporting organization. Article 22 specifies the general requirements for waste storage and disposal. Waste disposal of recyclable waste is prohibited in Uzbekistan. In addition, storage and disposal of waste in the environment including in nature conservation and protected areas, settlements, health and recreational areas or historical and cultural facilities is prohibited.

The Resolution of Cabinet of Ministries of the Republic of Uzbekistan No. 820 "On Measures to Further Improve the Economic Mechanisms for Ensuring Nature Protection."	Document approves the Regulations on the procedure for applying compensation payments for environmental pollution and waste disposal on the territory of the Republic of Uzbekistan. Document establishes that: ▪ base rates of compensation payments for environmental pollution and waste disposal are accepted in coefficients of the established minimum wage; ▪ document identifies the government bodies that collect compensation payments - the document also defines standards for maximum permissible concentrations of pollutants in discharges of industrial wastewater into municipal sewer networks and a list of particularly toxic pollutants
The Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No 14. "On Approval of the Regulation on the Procedure for the Development and Agreement of Projects with Environmental Standards."	These Regulations determine the procedure for developing and agreeing on environmental standards for the impact on the environment by organizations and individual entrepreneurs engaged in the production of products or provision of services related to the generation of emissions, discharges of pollutants into the environment and waste. The document describes the procedure for developing environmental standards for: ▪ maximum permissible emissions of pollutants into the atmosphere; ▪ maximum permissible emissions of pollutants into surface water bodies and terrain; ▪ standards for waste generation and disposal; ▪ inventory of sources of emissions and discharges of substances into the environment, generation and disposal of waste; ▪ list of pollutants subject to standardization; ▪ Waste classification catalog
Occupational Health and Safety	
The Law of the Republic of Uzbekistan No. ZRU-174 "About mandatory state social insurance against industrial accidents and occupational diseases" of 2008	The goals of compulsory state social insurance against industrial accidents and occupational diseases are: ▪ implementation of social protection of citizens through the legislative establishment of their rights to compulsory state social insurance against industrial accidents and occupational diseases, ▪ provision of insurance compensation in connection with harm to the life and health of an employee as a result of an industrial accident and occupational disease; ▪ improving the state of labor protection and working conditions, maintaining the health of workers.
The Law of the Republic of Uzbekistan No. ZRU-393 of the Republic of Uzbekistan "On Sanitary and Epidemiological Welfare of Population" of 2015	The purpose of this Law is to regulate relations in the field of sanitary and epidemiological welfare of the population. Article 16. Responsibilities of legal entities and individual entrepreneurs in the field of sanitary and epidemiological welfare of the population Legal entities and individual entrepreneurs are obliged to: ▪ comply with the requirements of legislation on the sanitary and epidemiological welfare of the population, as well as resolutions and instructions of officials exercising state sanitary supervision; ▪ develop and implement sanitary-hygienic and anti-epidemic measures in the event of the occurrence of infectious and parasitic diseases in order to eliminate them; ▪ ensure the safety of products during production, transportation, storage and sale to the public, as well as the work performed and services provided; ▪ comply with sanitary rules, norms and hygienic standards during the production, transportation, storage and sale of products to the population, performance of work and provision of services;

	▪ provide local government authorities, bodies carrying out state sanitary supervision, with reliable information about emergency situations, violations of technological processes that pose a threat to the sanitary and epidemiological well-being of the population.
Order of the Head of the State Inspectorate for Supervision in the Electric Power Industry, No. 19 "On approval of safety rules when performing electrical installation work at power facilities."	These Rules establish organizational and technical measures, preventing exposure of workers to hazardous and harmful production factors (or reducing the degree of exposure) and ensuring safety of work during the construction and reconstruction of power lines, as well as requirements for the personnel of organizations performing construction, installation and commissioning of electrical installations.
Ordinance No. 30-31 of the Ministry of Labor and Social Security and the Ministry of Health of the Republic of Uzbekistan	Document approves the list of hazardous jobs mentioned in Article 355, for which the employment of persons under the age of eighteen years is prohibited
Sanitary Standards and Rules No 03225-16 for permissible noise levels in the workplace	These standards establish: ▪ noise classification; ▪ characteristics and permissible noise levels in workplaces; ▪ general requirements for changes in standardized values; ▪ basic measures to prevent the adverse effects of noise on workers. Requirement for Work Environment Noise Limit (Performing all types of work on the permanent workplaces in industrial premises and in the enterprises): 80db(A)
SanPin (Sanitary Rules & Norms) 0372-20 (May 2020) on "Temporary sanitary rules and regulations on the organization of activities of state authorities and other organizations."	This local legislation introduced temporary sanitary rules and standards for organizing the activities of government bodies and other organizations, as well as business entities under restrictionary measures in connection with the COVID-19 pandemic. The employer must work to prevent the spread of coronavirus infection (COVID-19)
Standard No. 0294-11 on "Permissible Amount of Harmful Substance in Air in Working Space."	These standards are used in the design of industrial buildings, technological processes, equipment, and ventilation to ensure industrial control over the quality of the working environment and prevent adverse effects on the health of workers from harmful substances. substances are divided into 4 hazard classes: ▪ Class 1 - extremely dangerous; ▪ Class 2 - highly dangerous; ▪ Class 3 - dangerous; ▪ Class 4 - moderately dangerous. According to the "Peculiarities of action on the body" type, special symbols in the document highlight: substances with a highly targeted mechanism of action that require automatic control over their content in the air of the working area; carcinogens; allergens and aerosols of predominantly fibrogenic action.
Public Health and Safety	

Sanitary Norms No. 0236-07 "Sanitary Standards and Regulations to Ensure Safety for Populations Living near High Voltage Power Lines."	This regulation sets the requirements for ensuring public safety when overhead power lines pass over populated, unpopulated or inaccessible territories. - It requires sanitary norms and rules to be followed in the design, construction and operation of overhead power lines. The sanitary protection zone for 500kV OHTL is 30m and up to the 750kV OHTL is 40m. 55m for overhead power lines up to 1150 kV. No houses are allowed within. When designing overhead power lines with voltages above 750 kV, their distance from the boundaries of populated areas must be at least 250 m. In addition, SanPin 0236-07 specifies that EMF in population living areas is not to exceed 1.0kV/m and magnetic fields 80 A/m (equivalent to 100μT).
Decree of the Cabinet of Ministers of the Republic of Uzbekistan No.1050 "On approval of Rules for Protection of Power Grid Facilities	This document determines the procedure for establishing protected zones for power grid facilities, as well as special conditions for using land located within the protected zones and ensuring the functioning and operation of the said facilities. Article 15 stipulates that any actions that may disrupt the safe operation of electric grid facilities, including damaging or destroying them, and/or causing damage to life and property of individuals or legal entities, as well as causing environmental damage and fires, are prohibited within the protected zones. Article 17 states that within the protected zones, without the written permission of the owner of the electric grid facility, the following is prohibited: ▪ Construction, overhaul, reconstruction or demolition of buildings and structures; ▪ Planting and cutting down of trees and bushes; and ▪ Passage of machines with an overall height of more than 4.5m with or without load within the protection zones of the OHTL. In order to obtain written permission to perform any of the actions listed above, the concerned parties should submit a written application to the operator of the grid at least 15 working days prior to the execution of the works. ▪ Construction of power grid facilities with 110, 220 or 500kV in protected areas of state nature reserves, protected areas of nature parks and state biosphere reserves etc shall be allowed with the permission of the Cabinet of Ministers of the Republic of Uzbekistan. ▪ Protected zones of power grid facilities shall be established on both sides of the power transmission line from the outermost wires and along the perimeter of substations at the following distances for voltages; - 110kV: 20 meters; - 220kV: 25 meters; and - 500kV: 30 meters.
Water Resources	
Decree of the President of the Republic of Uzbekistan No. PP-5005 "On approval of the strategy for water resources management and development of the irrigation sector in the Republic of Uzbekistan for 2021-2023."	The strategy includes a range of infrastructure, policy, institutional and capacity building measures covering sustainable water resource management and improving the country's irrigation sector
The Law of the Republic of Uzbekistan No. ZRU-784 on Drinking Water and Wastewater	The law guarantees the provision of drinking water of established quality to consumers. The Ministry of Housing and Communal Services is a specially authorized government body in the field of drinking water supply and wastewater disposal.

	Organizations of any legal form can operate as a drinking water supply organization. They are responsible for causing material and moral damage to the life, health and property of the consumer. Drinking water must be safe in epidemiological, radiation and chemical terms. The quality of drinking water is analyzed in the laboratories of drinking water supply organizations. Drinking water is supplied by transport: ▪ to areas where there are no drinking water supply networks; ▪ in case of accidents at drinking water supply network structures; ▪ when carrying out repair and restoration work on drinking water supply networks; ▪ in emergency situations.
Presidential Decree No. UP-6024 Validating the Concept for The Development of Water Sector of The Republic of Uzbekistan for The Period Of 2020-2030.	The Concept includes priority areas and a set of measures for the development of the water sector of the Republic of Uzbekistan until 2030. The goals of concept are stable water supply to the population and all sectors of the economy in the next 10 years, improvement of the reclamation condition of irrigated lands, widespread introduction of market principles, mechanisms and digital technologies in the water sector, ensuring reliable operation of water management facilities, as well as increasing the efficiency of land and water use. resources.
The Law of the Republic of Uzbekistan No. ZRU-837-XII "On Water and Water Use."	Law to regulate water relations, the rational water use for the needs of the population and the national economy, and the protection of water from pollution and exhaustion. The prevention and abatement of the harmful effects of water, the improvement of the conditions of water objects, and the protection of the rights of enterprises, institutions, organizations, farms and individuals in the sphere of water relations.
Decree of the Cabinet of Ministers of the Republic of Uzbekistan, 31.03.2018 No.255 "On approval of some administrative regulations for the provision of public services in the field of natural resources management."	The regulations determine the procedure for issuing permits for special water use or water consumption. The actions of these Regulations apply to individuals and legal entities engaged in special water use and water consumption, including collecting water and discharging wastewater. The requirements of these Regulations do not apply to the use of centralized public water supply and sewerage networks, as well as when collecting water up to 5 m3/day.
Criteria and Procedure for Determining International Road Transportation of Loads of 2019, No. 6 (approved by the Resolution №3194 of The Ministry of Transport of The Republic of Uzbekistan, The State Customs Committee of The Republic of Uzbekistan)	The act sets out the criteria for determining international road freight transportation as bilateral, transit or transportation to (from) the third countries. National carrier - a legal entity or individual registered on the territory of the Republic of Uzbekistan, using a vehicle owned by it on property rights or other legal grounds for international transportation of goods or passengers and having a special permit (license) for this; Foreign carrier - a legal entity or individual registered in the territory of a foreign state and using a vehicle owned by it on the basis of ownership or other legal grounds for the international transport of goods or passengers.