







PUBLIC

## **European Bank for Reconstruction and Development**

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# **ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN**

Kapshagai-Kurty 67 km Road Project, Kazakhstan

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## ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Kapshagai-Kurty 67 km Road Project, Kazakhstan

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## SCOPE

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The aims of this Environmental and Social Monitoring Plan (ESMP) are to:

- Identify the key environmental and social issues or sensitivities related to the Project;
- Describe the mitigation measures and show how the effectiveness of the mitigation will be monitored;
- Ensure that the program will be developed and operated according to requirements EBRD and the EIA Directive<sup>1</sup>
- Directive 2014/52/EU of the European Parliament and of the Council amending Directive 2011/92/EU on the Assessment of the Effects of Certain Public and Private Projects on the Environment (herein referred to as);
- Ensure that the programme will comply with relevant Republic of Kazakhstan environmental legislation and other corporate and Lender requirements throughout its construction and operational phases;
- Identify roles and responsibilities; and
- Propose mechanisms for monitoring compliance.

This document represents a commitment by the Company, local municipalities and local government organisations and ministries to environmental and social sustainability, and applies to the Project's entire lifecycle.

The potential impacts and associated mitigation measures and management procedures in this ESMP are based on the baseline information and assessments provided in the supplementary ESIA documents and Environmental Social Action Plan (ESAP) prepared for the Project by WSP (2018).

In addition, for this project a Stakeholder Engagement Plan (SEP) and a Livelihood Restoration Framework (LRF) have been prepared by WSP (2018) with management and monitoring elements captured in this ESMP.

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<sup>1</sup> Directive 2014/52/EU of the European Parliament and of the Council amending Directive 2011/92/EU on the Assessment of the Effects of Certain Public and Private Projects on the Environment.

## INTENDED USERS

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The aim of this document is to communicate to the Project Team (including contractors and sub-contractors); the potential environmental and social issues associated with the Project and the procedures and mitigation measures that are required to be implemented.

The Project Team will utilise this ESMP during project execution to achieve appropriate and effective environmental and social management. This ESMP should be read in conjunction with the supplementary ESIA documents, Environmental Social Action Plan (ESAP), Stakeholder Engagement Plan (SEP) and Livelihood Restoration Framework (LRF).

## ROLES AND RESPONSIBILITIES

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The broad role of each party involved in the Project in relation to the ESMP is identified below.

- **EBRD:** Financing but not directly developing the Project. Responsibility is therefore passed to the Project Owner, although reports will be required to be submitted to the EBRD on the status of the ESAP, resolution of grievances and EHSS performance of the project.
- **Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC):** Overall responsibility for planning, implementation, monitoring and enforcement of activities associated with this ESMP and environmental, social, health and safety performance.
- **JSC “NC “KazAutoZhol”:** The Project Implementation Unit (PIU). The role of the PIU will be the Project implementation, financial management and overall delivery of the investment project.
- **JSC “NC “KazAutoZhol” “Construction Directorate”:** Takes the responsibility for the ESMP
- **Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC):** ensuring that all parties understand, implement and comply with the measures identified during construction and operation.
- **Engineering Centre Astana LLP:** The designer, responsible for implementing the design control process, to ensure the measures identified in the ESMP are implemented during the development of the detailed design.
- **Contractor:** Responsible for the implementation of appropriate mitigation measures identified in the ESMP and Construction Environmental Management Plan (CEMP) during the construction phase to minimise the environmental and social impacts that may occur during construction and to record all public complaints via a well-defined complaint logging procedure and take the necessary action to manage the issues. All contractors and sub-contractors shall comply with and apply the ESMP and CEMP requirements as applicable to the tasks they are instructed to complete.
- **JSC “NC “KazAutoZhol” / Kazavtodor LLP:** Responsible for implementation of the Operational Environmental Management Plan (OEMP) during the operation phase to minimise environmental and social impact that may occur during operation.

## **DELIVERY MECHANISMS**

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### **DESIGN CONTROL PROCESS**

The application of a formal process during the development of the design to ensure the ESMP activities are undertaken and inform the design as it is refined.

### **CONSTRUCTION ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN**

The CEMP will elaborate the measures for implementing the activities specified in the ESMP, and will contain the following plans:

- Occupational Health and Safety Plan;
- Recruitment Plan;
- Accident Management Plan;
- Emergency Preparedness and Response Plan;
- Grievance Register;
- Complaints Register;
- Construction Camp Management Plan;
- Influx Management Plan;
- Cultural Heritage Management Plan;
- Cultural Heritage Management Implementation Plan;
- Road Maintenance and Restoration Plan;
- Employment Management Plan;
- Security Management Plan;
- Gender Policy;
- Operation Environmental Management Plan;
- Ground Risk Assessment;
- Traffic Management Plan; and
- Security Management Plan.

### **OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN**

The OEMP will elaborate the measures for implementing the activities specified in the ESMP during the operational phase of the Project.

### **STAKEHOLDER ENGAGEMENT PLAN AND LIVELIHOOD RESTORATION FRAMEWORK**

A Stakeholder Engagement Plan (SEP) and Livelihood Restoration Framework (LRF) have been prepared by WSP (2018) and will be implemented as part of this Project. These plans will remain live documents and will be updated throughout the construction phase and operational phase. The LRF will subsequently be developed into a Livelihood Restoration Plan (LRP).

ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
<b>Air Quality</b>					
<ul style="list-style-type: none"> <li>The name and contact details of person(s) accountable for air quality and dust issues should be displayed on the site boundary. This may be the environment manager/engineer or the site manager. The head or regional office contact information should also be displayed.</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>Contractor.</li> </ul>	Pre-construction and construction period.	Display boards placed at appropriate locations within the Project Boundary.	Visual checks of display boards.	CEMP.
<ul style="list-style-type: none"> <li>All dust and air quality complaints should be recorded and causes identified. Appropriate remedial action should be taken in a timely manner with a record kept of actions taken including of any additional measures put in place to avoid reoccurrence.</li> <li>The complaints log should be made available to the local authority on request.</li> <li>Any exceptional incidents that cause dust and/or air emissions, either on- or offsite should be recorded, and the action taken to resolve the situation recorded in the log book.</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>Contractor.</li> </ul>	Pre-construction and construction period.	Monthly reporting.	Review of monthly reports submitted.	Complaints Register (or equivalent).
<ul style="list-style-type: none"> <li>A visual inspection of dust should be undertaken twice a day and surfaces watered to reduce dust generation.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> </ul>	Construction Period	Visual check and surface watering procedure produced	Record visual checks each day	CEMP
<ul style="list-style-type: none"> <li>The site layout should be planned so that machinery and dust causing activities are located away from receptors, as far as is possible;</li> <li>Where practicable, solid screens or barriers should be erected around dusty activities or the site boundary that are at least as high as any stockpiles on site;</li> <li>Site runoff of water or mud should be avoided; and</li> <li>Site fencing, barriers and scaffolding should be kept clean using wet methods.</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>Contractor.</li> </ul>	Pre-construction and construction period.	Mitigation measures visible on site.	Visual checks.	CEMP.
<ul style="list-style-type: none"> <li>It should be ensured that all vehicle operators switch off engines when stationary with no idling of vehicles; and</li> <li>The use of diesel or petrol-powered generators should be avoided and mains electricity or battery powered equipment used where practicable.</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>Contractor.</li> </ul>	Construction period.	Mitigation measures visible on site.	Visual checks.	CEMP.

ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
<ul style="list-style-type: none"> <li>▪ Cutting, grinding or sawing equipment will be fitted or used in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems;</li> <li>▪ It will be ensured that an adequate water supply will be on the site for effective dust / particulate matter suppression / mitigation, using non-potable water where possible and appropriate;</li> <li>▪ Enclosed chutes and covered skips will be used;</li> <li>▪ Drop heights from loading shovels, hoppers and other handling equipment will be minimised and fine water sprays used on such equipment wherever appropriate; and</li> <li>▪ It will be ensured that equipment is readily available on site to clean any dry spillages, and spillages will be cleaned up as soon as reasonably practicable after the event using wet cleaning methods.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>▪ Contractor.</li> </ul>	Construction period.	<p>Mitigation measures visible on site.</p> <p>Monthly reporting.</p>	<p>Visual checks.</p> <p>Review of monthly reports submitted.</p>	CEMP.
<ul style="list-style-type: none"> <li>▪ Bonfires and the burning of waste materials will be avoided in accordance with national laws.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>▪ Contractor.</li> </ul>	Construction period.	Visual checks.	Visual Checks.	CEMP
<ul style="list-style-type: none"> <li>▪ The surface area of stockpiles will be minimised (subject to health and safety and visual constraints regarding slope gradients and visual intrusion) to reduce area of surfaces exposed to wind pick-up;</li> <li>▪ Where practicable, windbreak netting / screening will be positioned around material stockpiles and vehicle loading / unloading areas, as well as exposed excavation and material handling operations, to provide a physical barrier between the site and the surroundings;</li> <li>▪ Where practicable, stockpiles of soils and materials will be located as far as possible from sensitive properties, taking account of the prevailing wind direction; and</li> <li>▪ During dry or windy weather, material stockpiles and exposed surfaces will be dampened down using a water spray to minimise the potential for wind pick-up.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>▪ Contractor.</li> </ul>	Construction period.	<p>Mitigation measures visible on site.</p> <p>Monthly reporting.</p>	<p>Visual checks.</p> <p>Review of monthly reports submitted.</p>	CEMP.

ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
<ul style="list-style-type: none"> <li>All construction plant and equipment will be maintained in good working order and not left running when not in use.</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>Contractor.</li> </ul>	Construction period.	Maintain a log of plant and equipment on site. Visual checks.	Review log weekly. Visual checks.	CEMP.
<ul style="list-style-type: none"> <li>It will be ensured that vehicles entering and leaving the site are covered to prevent escape of materials during transport; and a wheel washing system will be implemented (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>Contractor.</li> </ul>	Construction period.	Mitigation measures visible on site.	Visual checks before vehicles enter and leave site.	CEMP.
<b>Biodiversity and Living Natural Resources</b>					
<ul style="list-style-type: none"> <li>Removal / loss of semi-natural habitat should be minimised throughout. This is particularly relevant to the tree-lines and scrub scattered across the site. Where this is not possible, it will be necessary for a suitably qualified ecologist/biodiversity specialist to undertake a walkover of these areas to inform more detailed mitigation proposals to compensate for losses (both in terms of habitat/features and potential effects to fauna associated with these areas).</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC);</li> <li>Contractor; and</li> <li>Suitably Qualified Ecologist.</li> </ul>	Pre-construction and construction period.	Ecological features retained.	Protection plan for identified ecological features incorporated into the CEMP.	CEMP.
<ul style="list-style-type: none"> <li>Any vegetation clearance should be programmed to be completed outside of the breeding bird season. Where this is not possible, it will be necessary for a pre-clearance walkover to be completed by a suitably qualified ecologist to check for the presence of active bird nests. Should any nests be identified, it is recommended that these are excluded from works until such time that the young birds have fledged the nest - detailed advice in this regard should be sought from the ecologist upon completion of survey.</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC);</li> <li>Contractor; and</li> <li>Suitably Qualified Ecologist.</li> </ul>	Pre-construction and construction period	Vegetation clearance programmes outside this period.	Regular inspection during construction period.	CEMP.
<ul style="list-style-type: none"> <li>A general animal welfare impact exists during construction activities with the potential for injury or death to mobile fauna as they access the active construction site. To reduce this, all open excavations, hazardous materials, and plant machinery should be secured and made safe when not in use. Furthermore, a fence is proposed for the boundary of</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC);</li> <li>Contractor; and</li> <li>Suitably Qualified Ecologist.</li> </ul>	Pre-construction and construction period	Fencing visible around site and daily checks.	Visual checks of fence integrity around the site and of works areas.	CEMP.

ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
the site which will help to prevent site access by wildlife, minimising the potential impacts from the construction activities.					
<b>Climate Change</b>					
<ul style="list-style-type: none"> <li>Greenhouse Gas assessment and climate vulnerability risk assessment to be carried out.</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC)</li> </ul>	Pre-construction	Completion of a greenhouse gas and climate vulnerability assessment	Review of final greenhouse gas and climate vulnerability assessments in line with the ESIA	Design Control Process.
<ul style="list-style-type: none"> <li>Minimising materials required for construction;</li> <li>Maximising the use of construction materials and products with recycled or secondary and low carbon content, from renewable sources, and offering sustainability benefit;</li> <li>Using locally-sourced materials where available and practicable to minimise the distance materials are transported from source to site; and</li> <li>Using more efficient construction plant and delivery vehicles, and / or those powered by electricity from alternative / lower carbon fuels.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP; and</li> <li>Contractor.</li> </ul>	Pre-construction and construction period	Annual reporting from on-site Environmental Manager (or equivalent).	Review of Annual reports submitted.	CEMP.
<ul style="list-style-type: none"> <li>Designing, specifying and constructing the Project with a view to maximising the operational lifespan and minimising the need for maintenance and refurbishment (and all associated emissions);</li> <li>Designing, specifying and constructing the Project with a view to maximising the potential for reuse and recycling of materials/elements at the end-of-life stage; and</li> <li>Specifying high efficiency mechanical and electrical equipment such as lighting (LED lights) and telecoms.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP; and</li> <li>NK "Kazavtozhol" / Kazavtodor LLP.</li> </ul>	Pre-construction and construction period	Inclusion of these measures within the design and maintenance measures in line with best practice.	Review of design and maintenance measures.	Design Control Process OEMP.
<ul style="list-style-type: none"> <li>Operating, maintaining and refurbishing the Project using best-practice efficient approaches and efficient plant and equipment.</li> </ul>	<ul style="list-style-type: none"> <li>NK "Kazavtozhol" / Kazavtodor LLP</li> </ul>	Operation	Operation, maintenance and refurbishment in line with best practice.	Regular maintenance and refurbishment.	OEMP
<b>Cultural Heritage and Archaeology</b>					
<ul style="list-style-type: none"> <li>Set up a 'Chance Finds Procedure' to manage and mitigate the impact during construction on potential archaeological assets, this should be conducted in accordance with EBRD Performance Requirements 8 and will take the form of a Cultural Heritage Management Implementation Plan</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP; and</li> <li>Contractor.</li> </ul>	Pre-construction and construction period	Producing a defined procedure.	Check that defined procedure is being conducted.	CHMP.



ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
(CHMP) and a corresponding Cultural Heritage Management Implementation Plan (CHMIP) which will cover the following topics: <ul style="list-style-type: none"> <li>▪ Plan operation and maintenance activities to consider potential cultural heritage discoveries;</li> <li>▪ Code of conduct, awareness raising, and training for workers and personnel involved during the construction phase;</li> <li>▪ Implement chance find procedures; and</li> <li>▪ Implement monitoring and reporting requirements that must be adhered to by the Contractor during the construction phase.</li> </ul>					
<b>Major Accidents and Disasters</b>					
<ul style="list-style-type: none"> <li>▪ Measures from Road Safety Audit to be included in the design</li> </ul>	<ul style="list-style-type: none"> <li>▪ Engineering Centre Astana LLP.</li> </ul>	Pre-construction.	Revised Design	Revised design constructed.	Design.
<ul style="list-style-type: none"> <li>▪ Plans and procedures to prevent and manage potential major accidents and disasters shall be documented in the CEMP (for construction).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Contractor.</li> </ul>	Pre-construction and construction period	Producing defined procedures.	Check that defined procedures are produced, in place and available.	CEMP.
<ul style="list-style-type: none"> <li>▪ Plans and procedures to prevent and manage potential major accidents and disasters shall be documented in the Emergency Preparedness and Response Plan (or equivalent).</li> </ul>	<ul style="list-style-type: none"> <li>▪ NK "Kazavtozhol" / Kazavtodor LLP.</li> </ul>	Operation.	Production of an Emergency Preparedness and Response Plan (or equivalent).	Emergency Preparedness and Response Plan is produced, available and constantly reviewed.	Emergency Preparedness and Response Plan (or equivalent).
<b>Geology and Soils</b>					
<ul style="list-style-type: none"> <li>▪ Ground investigation and risk assessment to assess the potential risk to identified receptors.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Engineering Centre Astana LLP.</li> </ul>	Pre-construction and construction period	Completion of a ground investigation and risk assessment.	Review and monitor risk assessment throughout construction.	CEMP.
<ul style="list-style-type: none"> <li>▪ Principles, measures and procedures for contaminated land mitigation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Engineering Centre Astana LLP; and</li> <li>▪ Contractor.</li> </ul>	Pre-construction and construction period	Produce procedures for managing contaminated land discharge / run-off.	Check defined procedures are in place and are known by all site-workers (e.g. through Tool Box Talks).	CEMP.
<ul style="list-style-type: none"> <li>▪ Provision of spill kits to contain oil / petroleum leaks or spills.</li> </ul>	Contractor.	Construction.	Spill kits to be included in vehicle inspection checklists and at appropriate locations on site.	Audit of vehicle inspection checklist and visual checks on the status of spill kits on site.	CEMP.
<ul style="list-style-type: none"> <li>▪ Program to ensure good driver behaviour / maintenance of vehicles.</li> </ul>	Contractor.	Construction.	Production of a driver behaviour program and records of vehicle inspection and maintenance.	Audit of good driver behaviour programme and vehicle inspection and maintenance records.	CEMP
<ul style="list-style-type: none"> <li>▪ Ground investigation and risk assessment to:</li> </ul>	<ul style="list-style-type: none"> <li>▪ Engineering Centre Astana LLP;</li> <li>▪ Contractor; and</li> </ul>	Pre-construction and operation.	Completion of a ground investigation and risk	Implementation of mitigation measures.	Risk assessment.

ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
<ul style="list-style-type: none"> <li>Assess the potential risk of ground gas accumulation to identified receptors; and</li> <li>Assess the potential risk of aggressive ground conditions.</li> </ul>	<ul style="list-style-type: none"> <li>NK "Kazavtozhol" / Kazavtodor LLP.</li> </ul>		assessment. Implementation of mitigation measures.		
<ul style="list-style-type: none"> <li>Design buried concrete and services to resist aggressive ground conditions.</li> </ul>	Engineering Centre Astana LLP.	Pre-construction.	Design buried concrete services are of a specification to resist aggressive ground conditions.	Review of design and maintenance measures.	Design Control Process.
<b>Landscape and Visual</b>					
<ul style="list-style-type: none"> <li>Removal / loss of semi-natural habitat should be minimised throughout. This is particularly relevant to the tree-lines and scrub scattered across the site.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP; and Contractor.</li> </ul>	Pre-construction and construction period	Semi-natural habitat retained.	Protection plan included within the CEMP.	CEMP.
<ul style="list-style-type: none"> <li>All open excavations, hazardous materials, and plant machinery should be secured and made safe when not in use. Furthermore, a fence for the boundary of the site should be installed which will help to prevent site access by animals and herders, minimising the potential impacts from the construction activities.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor.</li> </ul>	Pre-construction and construction period	Fencing visible around site and daily checks.	Visual checks of fence integrity around the site and of works areas.	CEMP.
<ul style="list-style-type: none"> <li>Alternative routes for dirt roads while intersections are constructed should be identified and publicised.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP; and Contractor.</li> </ul>	Construction.	Alternative routes are provided while intersections are constructed.	Monitor traffic using temporary routes.	CEMP.
<ul style="list-style-type: none"> <li>Blasting activities, if required, should only occur during the day within reasonable working hours and publicised as to when it will take place.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor.</li> </ul>	Construction.	Blasting activities to occur in the day and working hours publicised to the public.	Monitor blasting activities and check working hours are publicised in advance.	CEMP.
<ul style="list-style-type: none"> <li>A suitable decommissioning and reinstatement plan for any quarries required should be identified and implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and Contractor.</li> </ul>	Pre-construction and construction period	Production of decommissioning and reinstatement plans for quarries.	Ensure decommissioning and reinstatement plans for any quarries are adhered to.	CEMP.
<ul style="list-style-type: none"> <li>A CEMP, inclusive of Traffic Management Plans, should be developed to identify migrant worker housing, compounds, storage areas, blasting, material crushing, machinery and working methods and practices and environmental safeguarding methodologies.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP; Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and Contractor.</li> </ul>	Pre-construction and construction period	Production of a CEMP to include these measures.	Ensure any methods, procedures and practice are adhered to.	CEMP.
<ul style="list-style-type: none"> <li>Minimise the use of artificial lighting on the site and where needed, use directional lighting.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor.</li> </ul>	Construction.	Mitigation measures visible on site.	Check lighting is not left on when not required and maintain any lighting put in place.	CEMP.

ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
<ul style="list-style-type: none"> <li>New tree and hedge / shrub planting to be planted within a suitable depth of appropriate topsoil to aid establishment, in cases specified by the project.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor.</li> </ul>	Construction.	Mitigation measures visible on site.	Ensure tree and hedge planting adheres to this method	CEMP
<ul style="list-style-type: none"> <li>Protect and preserve memorial sites along the road.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor.</li> </ul>	Construction.	Protective fencing surrounding memorial sites.	Visually check fences and condition of memorial sites throughout construction works	CEMP
<ul style="list-style-type: none"> <li>Ensure a suitable number of underpasses are installed.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP.</li> </ul>	Pre-construction.	A suitable number of underpasses are provided as part of the design.	Review the design to check the provision of underpasses is suitable.	Design Control Process.
<ul style="list-style-type: none"> <li>Reinstate all excavated and temporary land-take areas like for like or better.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor; and</li> <li>NK "Kazavtozhol" / Kazavtodor LLP.</li> </ul>	Construction and operation.	All temporary land take areas are re-instated once unoccupied like for like or better.	Check areas are reinstated and measures visible on site.	OEMP.
<ul style="list-style-type: none"> <li>Ensure suitable establishment of any tree or scrub to maintain screening properties, in cases specified by the project and when necessary.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor; and</li> <li>NK "Kazavtozhol" / Kazavtodor LLP.</li> </ul>	Operation.	Measures visible on site.	Ongoing checks of measures taken.	OEMP.
<ul style="list-style-type: none"> <li>Protect and preserve memorial sites along the Project.</li> </ul>	<ul style="list-style-type: none"> <li>NK "Kazavtozhol" / Kazavtodor LLP.</li> </ul>	Operation.	Memorial sites are preserved and protected.	Checks on the condition of memorial sites. During maintenance	OEMP.
<b>Material Resources and Waste</b>					
<ul style="list-style-type: none"> <li>The reuse of materials generated through demolition and excavation arisings in cases specified by the project.. This will be increased using a crusher to process arisings. Further best practice guidance can be sought from BES 6001 Responsible Sourcing of Construction Products<sup>2</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP; and</li> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC);</li> <li>Contractor.</li> </ul>	Pre-construction and construction period	Materials generated are re-used.	Throughout design and construction, review opportunities to re-use materials.	Construction Control Process.
<ul style="list-style-type: none"> <li>The re-use of signs for other road projects.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP; and</li> <li>Contractor.</li> </ul>	Pre-construction and construction period	Road signs not required are re-used on the Project or other roads.	Throughout design and construction, review opportunities for re-use.	Construction Control Process.
<ul style="list-style-type: none"> <li>Design for off-site construction: maximising the use of pre-fabricated structures and components, encouraging a process of assembly rather than construction.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP; and</li> <li>Contractor.</li> </ul>	Pre-construction and construction period	Utilise pre-fabricated structures and components, where practicable.	Review of final design documents. Presence of pre-fabricated structures and components on site.	Construction Control Process.

<sup>2</sup> British Research Establishment (2014). BES 6001: The Framework Standard for Responsible Sourcing of Construction Products.

ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
<ul style="list-style-type: none"> <li>Design for the future: considering how materials can be designed to be more easily adapted over an asset lifetime, and how deconstruct ability and demount ability of elements can be maximised at end-of-first-life.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP.</li> </ul>	Pre-construction and construction period	Project design which includes stated measures.	Review of final design documents.	Construction Control Process.
<ul style="list-style-type: none"> <li>Identify opportunities to minimise the export and import of material resources, where it is practically feasible. Consider cumulative opportunities for managing materials and waste in partnership with the 228 km "Kurty-Buribaytal" Project</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP.</li> </ul>	Pre-construction and construction period	Project design which includes stated measures.	Review of final design documents.	Construction Control Process.
<ul style="list-style-type: none"> <li>Develop and implement a CEMP, incorporate a Design Site Waste Management Plan and a Materials Management Plan in accordance with best practice (CL: AIRE Definition of Waste: Code of Practice)<sup>3</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>Contractor.</li> </ul>	Pre-construction and construction period	CEMP that includes stated measures.	Audit of CEMP.	CEMP.
<ul style="list-style-type: none"> <li>Engage early with contractors to identify possible enhancement and mitigation measures (for example, waste exemption licenses), and to identify opportunities to reduce waste through collaboration and regional synergies.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP; and</li> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC);</li> <li>Contractor.</li> </ul>	Pre-construction and construction period	CEMP that includes stated measures.	Audit of CEMP.	CEMP.
<ul style="list-style-type: none"> <li>Recovery and reuse: identifying, securing and using material resources at their highest value, whether they already exist on site, or are sourced from other projects.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP; and</li> <li>Contractor.</li> </ul>	Pre-construction and construction period	Project design which includes stated measures.	Audit of CEMP.	Construction Control Process.
<ul style="list-style-type: none"> <li>Ensure arisings are properly characterised during design, to maximise the potential for highest value reuse.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP.</li> </ul>	Pre-construction.	Project design which includes stated measures.	Audit of CEMP.	Construction Control Process.
<ul style="list-style-type: none"> <li>Working to a proximity principle, ensuring arisings generated are handled, stored, managed and re-used or recycled as close as possible to the point of origin.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor.</li> </ul>	Construction period.	CEMP that includes stated measures.	Audit of CEMP.	CEMP.
<ul style="list-style-type: none"> <li>Ensure wastes are appropriately managed to ensure they are disposed of in an environmentally sound manner and their environmental harmfulness is reduced as far as practicable.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor.</li> </ul>	Construction period.	CEMP that includes stated measures.	Audit of CEMP.	CEMP.

<sup>3</sup> CL:AIRE (2018). Definition of Waste: Code of Practice. Available at: <https://www.claire.co.uk/projects-and-initiatives/dow-cop> [Accessed: 20/07/18].

ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
<ul style="list-style-type: none"> <li>Ensure contractors used for the disposal of waste and the waste disposal sites are reputable, legitimate enterprises, licenced by the relevant regulatory authorities and operating to acceptable standards.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor.</li> </ul>	Construction period.	Licence certificates for waste disposal sites. CEMP that includes stated measures.	Review of licence certificates for waste disposal sites. Audit of CEMP.	Licence Certificates. CEMP.
<ul style="list-style-type: none"> <li>Implement measure to ensure the use of hazardous substance and materials is avoided or minimised. Where avoidance is not possible, appropriate risk management measure will need to be implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP; and</li> <li>Contractor.</li> </ul>	Pre-construction and construction period	Project design which includes stated measures. CEMP that includes stated measures.	Review of final design documents. Audit of CEMP.	Construction Control Process.
<b>Noise and Vibration</b>					
<ul style="list-style-type: none"> <li>CEMP to include environmental management responsibilities and activities, monitoring and auditing processes, complaints handling and response procedures and community and stakeholder liaison processes. The CEMP should also include Best Practicable Means (BPM) to minimise any residual noise impact.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor.</li> </ul>	Construction.	CEMP that includes stated measures.	Audit of CEMP.	CEMP.
<ul style="list-style-type: none"> <li>Environmental barriers - in the form of earth mounding or acoustic fencing of various types, or a combination of the two.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP;</li> <li>Contractor; and</li> <li>NK "Kazavtozhol" / Kazavtodor LLP.</li> </ul>	Operation.	Project design includes stated measures.	Review of design and maintenance measures.	Design Control Process. OEMP.
<b>Water Environment</b>					
<ul style="list-style-type: none"> <li>The preparation of a water balance assessment.</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC)</li> </ul>	Pre-construction	Preparation of a water balance assessment and Project design that minimises the risk of water (portable and non-portable) required by the project resulting in impacts to ground or surface water resources	Review of final water balance assessment	CEMP
<ul style="list-style-type: none"> <li>The preparation of a CEMP to address key work activities and sources of risk to surface water and groundwater.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor.</li> </ul>	Construction.	CEMP that includes stated measures to reduce risk to water quality and quantity	Audit of CEMP.	CEMP.
<ul style="list-style-type: none"> <li>Inclusion of treatment and attenuation systems within the Project design.</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Centre Astana LLP;</li> <li>Contractor; and</li> <li>NK "Kazavtozhol" / Kazavtodor LLP.</li> </ul>	Operation,	Project design to include stated measures.	Review of design and maintenance measures.	Construction Control Process.
<b>Social</b>					
<ul style="list-style-type: none"> <li>A Livelihood Restoration Framework (LRF) and Livelihood Restoration Plan (LRP) will be implemented to include the measures outlined in</li> </ul>	<ul style="list-style-type: none"> <li>Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> </ul>	Pre-construction and construction period	LRF and LRP in which include the stated measures.	Regular monitoring of livelihood restoration activities and outcomes and final audit of the LRF and LRP	LRF and LRP.

ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
15.5.1.1 in the Supplementary ESIA Report.	<ul style="list-style-type: none"> <li>▪ Contractor.</li> </ul>			implementation.	
<ul style="list-style-type: none"> <li>▪ Engagement of all non-employee workers in line with international best practice as follows: <ul style="list-style-type: none"> <li>▪ Implementation of transparent and fair recruitment procedures;</li> <li>▪ Engaging all non-employee workers in line with both national legislation and applicable international (ILO) standards and recommendations;</li> <li>▪ Implementation of a grievance mechanism for workers;</li> <li>▪ Increase local content through use of local resources (i.e. skilled, semi-skilled jobs);</li> <li>▪ Allocate internship and volunteering programmes for students;</li> <li>▪ Post job opportunities on local newspapers and display job advertisements on community centre bulletin boards through local Akimats;</li> <li>▪ Monitor contractors and suppliers to ensure they comply with the Labour Code;</li> <li>▪ Promote local investments and provide advice to local farmers on applying for assistance and loans for further projects; and</li> <li>▪ Collaborate with local NGOs and volunteering organisation to promote local farming and cattle husbandry.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>▪ Contractor.</li> </ul>	Pre-construction and construction period	<p>Recruitment is carried out based on international best practice and in compliance with local regulations.</p> <p>Worker grievances are registered and addressed.</p>	Audit of recruitment procedures, including grievance management.	Recruitment Policy and Grievance Register (or equivalent).
<ul style="list-style-type: none"> <li>▪ Ensure the Project design and construction tendering process include clauses and policies on minimum working age, free collective bargaining, good working conditions and eradicating any risk of forced labour and include the following: <ul style="list-style-type: none"> <li>▪ Provision of labour management clauses in procurement contracts;</li> <li>▪ Regular monitoring of suppliers to ensure avoidance of any risk associated with child labour and forced labour and implement a supply chain management plan;</li> <li>▪ Establish employment contracts for all permanent and temporary employees in accordance with the Labour Code;</li> <li>▪ Develop Project policy on labour</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>▪ Contractor.</li> </ul>	Pre-construction and construction period	Creation and implementation of Project employment, labour and human resources policies.	Audit of employment, labour and human resources policies.	Recruitment Policy, Procurement Policy, Construction Camp Management Plan, Influx Management Plan and Supply Chain Management Plan (or equivalent).

ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
<ul style="list-style-type: none"> <li>and human resources;</li> <li>▪ Develop and implement an employee grievance mechanism; and</li> <li>▪ Ensure that all employees and contractors have access to the Project human resources policies and procedures.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ Ensure the Project does not affect community access rights through: <ul style="list-style-type: none"> <li>▪ Ensuring sufficient route diversions and temporary access routes are present during the construction stage;</li> <li>▪ Prior to the construction stage, local Akimats to consult with affected farmers and land users to confirm the exact date for commencement of road construction;</li> <li>▪ Communicate and distribute Project Information on temporary access routes and route diversions to affected land users and owners; and</li> <li>▪ Ensure the construction sites are fenced and construction materials are covered in an isolated area to avoid obstruction of access.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Engineering Centre Astana LLP;</li> <li>▪ Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>▪ Contractor.</li> </ul>	Pre-construction and construction period	The Project design provides sufficient diversions, affected farmers and land users to be consulted and temporary access routes are published.	Audit of final Project design. Audit of CEMP (to include Traffic Management Plan).	Design Control Process. CEMP/ SEP.
<ul style="list-style-type: none"> <li>▪ Develop and implement a Traffic Management Plan (within the CEMP) to include the following: <ul style="list-style-type: none"> <li>▪ Establishment of safety speed limits;</li> <li>▪ Deployment of temporary traffic lights and road safety signs;</li> <li>▪ Enforce workers code of conduct (guidance on safe driving);</li> <li>▪ Cooperate and coordinate with local health, safety and security facilities;</li> <li>▪ Construction vehicles to keep to agreed access routes and adhere to construction speed limits;</li> <li>▪ Ensure the competency of vehicle operators and provide induction training;</li> <li>▪ Minimise the need for vehicle reversing;</li> <li>▪ Provide segregated routes and site entrances (i.e. with no vehicles) to be provided for pedestrians;</li> <li>▪ Use fencing to exclude local people and wildlife from the construction areas;</li> <li>▪ Information boards about public</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>▪ Contractor.</li> </ul>	Pre-construction and construction period	The production and implementation of a CEMP (to include Traffic Management Plan).	Audit of CEMP (to include Traffic Management Plan).	CEMP.

ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
<p>safety hazards and emergency contact information, schedules;</p> <ul style="list-style-type: none"> <li>▪ Hazardous materials and wastes stored on site to prevent community exposure to these substances;</li> <li>▪ Publishing of temporary livestock crossing sites and road works that disrupt traffic (also included in SEP); and</li> <li>▪ Establish temporary diversions for the local access routes.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ To minimise any potential impacts associated with the Project construction camps the following should be implemented: <ul style="list-style-type: none"> <li>▪ Consult with local communities on location of construction camps to ensure no local discomfort;</li> <li>▪ Encourage contractors to hire a local workforce;</li> <li>▪ Enforce workers code of conduct (including policies on alcohol consumption and drug abuse);</li> <li>▪ Ensure 24-hour security personnel and CCTV are deployed at the camp; and</li> <li>▪ Cooperate and coordinate with local police on all the camp security issues.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>▪ Contractor.</li> </ul>	Pre-construction and construction period	Production of a procedure that includes the stated measures.	Audit of final procedure.	CEMP / Recruitment Policy and Procedures / Construction Camp Management Plan, Influx Management Plan and Health, Safety and Security Plan (or equivalent).
<ul style="list-style-type: none"> <li>▪ To ensure the existing quality of road conditions will not be affected, the following measures will be implemented: <ul style="list-style-type: none"> <li>▪ Ensure regular inspection and maintenance of road and cover pitfalls;</li> <li>▪ Ensure that sites are not covered with ice during the winter times;</li> <li>▪ Develop a road maintenance and restoration plan and procedures; and</li> <li>▪ Ensure route diversions and road signs are provided.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>▪ Contractor.</li> </ul>	Pre-construction and construction period	Development and implementation of a road maintenance and restoration plan procedures.	Final audit of maintenance and restoration procedure and visual checks of the roads throughout works.	Road Maintenance and Restoration Plan (or equivalent) / CEMP.
<ul style="list-style-type: none"> <li>▪ Employment of women will be encouraged with implementation of the following measures: <ul style="list-style-type: none"> <li>▪ Ensure that the Project workforce is aware of local rules and culture;</li> <li>▪ Ensure that location of construction camps is evaluated in relation to avoiding discomfort for local women and families;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>▪ Contractor.</li> </ul>	Pre-construction, construction and operation period	Recruitment of women for at least 15% of construction related jobs.	Audit of recruitment procedures and outcomes.	Employment Management Plan, Security Management Plan, SEP Gender Policy.



ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
<ul style="list-style-type: none"> <li>▪ Ensure sufficient temporary safe access routes are provided with sufficient lighting;</li> <li>▪ Ensure that regular collaborations are conducted with local police on potential interactions/conflicts between local women and the workforce and provision of safety support to women; and</li> <li>▪ Set structures, policies and procedures for obtaining women's concerns and issues and incorporated their comments into road health, safety and security policies.</li> <li>▪ Analysis of all positions where women can be employed</li> <li>▪ Giving equal consideration to suitably qualified and experienced woman applicants</li> <li>▪ Encourage contractors to hire women, i.e. consider suitably qualified and experienced woman applicants; and</li> <li>▪ Provide internships and volunteering opportunities for female students.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ To reduce effects on vulnerable people within the Project area the following mitigation measures will be implemented: <ul style="list-style-type: none"> <li>▪ Identify presence of people with chronic health condition, elderly, and individuals living in poverty (no access to facilities and poor social status);</li> <li>▪ Identify women (married or single headed) who based on traditional limiting factors may not be able to claim land compensation;</li> <li>▪ Identify presence of any informal people to ensure that their land use rights will be protected;</li> <li>▪ Consult with vulnerable people to identify their needs and concerns in relation to the Project (including meetings and focus groups);</li> <li>▪ Implementation of the LRP as defined in the LRF; and</li> <li>▪ Provide support and monitor health status of disabled people and pregnant women living close to the construction corridor.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>▪ Contractor.</li> </ul>	Pre-construction and construction period.	Production and inclusion of states measures within the LRP and LRF.	Audit of final LRP and LRF.	LRP LRF and.SEP.

ACTION	RESPONSIBILITIES	TIMING	INDICATOR OF DELIVERY	MONITORING OF DELIVERY	DELIVERY MECHANISM
<ul style="list-style-type: none"> <li>▪ The following measures will be implemented to reduce effects of the Project on affected people:               <ul style="list-style-type: none"> <li>▪ Provision of in-kind compensation or allocation of another area for businesses or households located within a less than 500m from the construction corridor; and</li> <li>▪ Implementation of the LRP as defined in the LRF.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Implementation Unit (PIU) and Contract Supervision Consultant (CSC); and</li> <li>▪ Contractor.</li> </ul>	Pre-construction, construction and operation period	Inclusion of stated measures within the LRP and LRF.	Audit of the LRP and LRF	LRP and LRF.



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