

ZIVINICE WATER AND WASTEWATER PROJECT

DETAILED DESIGN, TENDER DOCUMENTS PREPARATION
AND PROCUREMENT SUPPORT FOR WORKS AND
CONSULTANCY IMPLEMENTATION

E&S Management Plan

July 2026



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1 INTRODUCTION

This Environmental and Social Management Plan (ESMP) has been prepared for the Zivinice Water and Wastewater Project (the “Project”). The Project will be implemented by the City of Živinice through the established Project Implementation Unit (PIU), while operation and maintenance of the Project infrastructure will be undertaken by JP Vodovod i kanalizacija d.o.o. Zivinice (the “Company”). Following completion of the construction works, the City and the PIU will retain an oversight role regarding implementation of Project-related obligations.

The Project involves reconstruction and extension of the existing water supply and wastewater infrastructure within the administrative area of the City of Zivinice. Planned investments include reconstruction and extension of water supply and sewerage networks, rehabilitation of the Mestrici Reservoir, replacement of water meters, installation of a SCADA system, replacement of pumps at PS Spreca, procurement of a spare pump for the Pjesinac water source, installation of a SBR wastewater treatment facility in the Maline Industrial Zone, and procurement of spare parts for the existing wastewater treatment plant (WWTP). The Project also includes separation of parts of the existing combined sewerage system and expansion of sanitary sewerage services to currently unserved areas.

The purpose of this ESMP is to define the environmental and social (E&S) mitigation, management and monitoring measures required to avoid, reduce or control potential impacts and risks during Project implementation. The ESMP also defines responsibilities for implementation and monitoring of the proposed measures.

The ESMP has been developed based on the findings of the E&S assessment, review of available Project documentation, discussions with the designers, the PIU and the Company, and site visits undertaken within the Project area.

Contractors are required to comply with the ESMP and prepare and implement a Construction Environmental and Social Management Plan (CESMP), incorporating all relevant mitigation measures and requirements arising from the ESMP and applicable permits and approvals. The PIU will be responsible for overall coordination and oversight of ESMP implementation, while the Supervision Engineer will monitor contractor compliance and implementation of prescribed measures during construction works.

During the operational phase, the Company will be responsible for implementation of all applicable operational measures defined in the ESMP and for preparation and implementation of an Operational Environmental and Social Management Plan (OESMP), which will incorporate the relevant ESMP requirements and operational obligations arising from obtained permits and approvals. This will be supervised by the PIU.

2 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
WATER AND WASTEWATER				
Construction	During the works on the water supply system, interruptions in service provision are expected to occur.	Contractor needs to execute works in phases, with advance notification to affected customers. Temporary water cisterns need to be installed to manage disruptions and speed up water supply restoration in case of construction delays.	<i>Implementation:</i> Contractor and Company <i>Monitoring:</i> Supervision Engineer / PIU	Affected customers timely notified on expected interruptions Received complaints related to water supply services Monthly reports for the PIU prepared by the Contractor and the Supervision Engineer
	Ranking before mitigation measures: High	Ranking after mitigation measures: Medium		
	Potential temporary impact on groundwater quality due to increased turbidity and sediment load if the groundwater table is encountered during excavation works for the SBR plant	CESMP needs to include specific measures for groundwater inflow management during excavation works for the SBR plant. The following measures to be implemented: > If groundwater is encountered and/or visible contamination of groundwater inflow is observed, works in the affected excavation area shall be immediately stopped, the Supervising Engineer informed, and works shall not resume until appropriate control, dewatering or remediation measures are implemented. > Groundwater inflow shall not be discharged directly to soil, drainage channels or nearby watercourses without prior settling or filtration, using sedimentation tanks, settling pits, filter bags or equivalent measures.	<i>Implementation:</i> Contractor and Company <i>Monitoring:</i> Supervision Engineer / PIU	CESMP includes groundwater inflow management measures for SBR excavation works Zero groundwater contamination incidents during SBR excavation works Monthly reports for the PIU prepared by the Contractor and the Supervision Engineer
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
	Groundwater and surface water pollution may occur due to spillage of chemicals, oil	CESMP needs to include specific measures for <u>hazardous substance management</u> to ensure	<i>Implementation:</i>	CESMP prepared by the Contractor and reviewed

PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
	and oil derivatives, particularly from heavy machinery. Improper handling and storage of construction materials, chemicals, and fuels can result in the contamination of aquifers, thereby affecting groundwater quality.	the safe handling and storage of oils, lubricants and other hazardous materials. The following measures to be implemented: > Store chemicals, oils, lubricants and other hazardous substances in special closed and leak-proof containers or boxes to prevent leakage and spillage. > Implement emergency excavation measures in areas where machine oil, lubricants and fuel have been spilled. > Conduct daily visual inspections to check for oil and fuel leaks from vehicles. > Regularly check and service equipment to identify and address potential spills from machinery on-site. > Clean vehicles and mechanical equipment before leaving the construction zone to prevent transporting contaminants off-site. > Prohibit equipment servicing and refuelling on the construction site. > In case of large oil, lubricant or fuel spills, promptly clean up the construction site and conduct water quality monitoring to ensure effective remediation. > Implement spill response procedures to handle and contain hazardous substance spills effectively. In the event of chemicals, oil or lubricant spills, have prepared sawdust or other absorbents readily available to take immediate remedial action.	Contractor <i>Monitoring:</i> Supervision Engineer/PIU	and approved by the Supervision Engineer/PIU Number of spillage accidents recorded No visible deterioration of water quality caused by construction works recorded Weekly inspections Monthly reports for the PIU prepared by the Contractor and the Supervision Engineer
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
	Groundwater and surface water pollution may occur due to improper disposal of excavation materials, construction and municipal waste.	Include in the CESMP and implement the following <u>measures regarding spoil and waste management</u> : > Adequate management of excavated material, avoiding its disposal near rivers. Use excavated material for backfilling the terrain and landscaping. > Identify and allocate specifically designed areas for the temporary stockpiling of construction materials, including “no-go” areas to prevent contamination. > Designate appropriate areas for concrete production to contain potential spills. > Implement the other measures defined under <i>Materials and Waste</i>.	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision Engineer/PIU	CESMP prepared by the Contractor and reviewed and approved by the Supervision Engineer/PIU Excavated material used for backfilling and landscaping Areas for concrete production designated Weekly inspections Monthly reports for the PIU prepared by the Contractor and the Supervision Engineer
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
	Water pollution may occur as a result of leakage or spillage of wastewater and sanitary water from temporary sanitary facilities for workers.	Include in the CESMP and implement the following <u>measures regarding spillage of wastewater and sanitary water management</u> : > Install and maintain ecological toilets for the needs of workers. Implement activities related to regular cleaning, proper wastewater discharge and waste disposal to prevent water contamination. > Conduct daily visual inspections to check for sanitary wastewater discharge from temporary facilities for workers. > Implement the other measures defined under <i>Materials and Waste</i>.	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision Engineer/PIU	CESMP prepared by the Contractor and reviewed and approved by the Supervision Engineer/PIU Ecological toilets for workers installed Weekly inspections Monthly reports for the PIU prepared by the Contractor and the Supervision Engineer
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
O&M	Insufficient management of infrastructure may diminish the Project’s advantages, resulting in decreased water savings.	As part of the OESMP, the Company to develop a written <i>Active Leakage Control Procedure</i> , which should contain the following elements:	<i>Implementation:</i> Company	OESMP prepared and implemented by the Company



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
	Minor or major repairs or periodical check-ups may lead to the same impacts as during construction.	> leak detection methods > surveillance and monitoring > data analysis and assessment, including definition of key performance indicators and target values > response protocols > repair and maintenance guidelines (to also include the same measures as defined in the construction phase) > training and capacity building > reporting and record-keeping	Monitoring: PIU	<i>Active Leakage Control Procedure</i> developed as part of the OESMP Reports on Procedure's implementation, including data on key performance indicators
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
	Insufficient management of infrastructure may diminish the Project's advantages, resulting in subpar effluent quality from the WWTP.	Update Company's <i>General Regulation on Maintenance, Use, and Monitoring of WWTP and Procedures in Case of Malfunction</i> , to reflect changes in relation to procurement of spare parts. Enhance the frequency of internal wastewater quality monitoring at both the plant's inlet and outlet (one to two times a week) and implement corrective actions should the measured parameter values exceed legislatively prescribed limits. The procedure for implementing corrective measures, as well as the associated responsibilities, to be clearly outlined in the <i>General Regulation on Maintenance, Use, and Monitoring of WWTP and Procedures in Case of Malfunction</i> .	Implementation: Company Monitoring: PIU	<i>General Regulation on Maintenance, Use, and Monitoring of WWTP and Procedures in Case of Malfunction</i> updated and implemented Weekly reports on internal wastewater quality monitoring
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
	Malfunction of the SBR plant, potentially	The Company, with support of the CDP	Implementation:	Evidence that operational

PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
	resulting in reduced treatment efficiency, discharge of insufficiently treated effluent into the Spreca River, and leakage from underground SBR chambers with potential impact on groundwater quality due to the possible presence of groundwater in the area	Consultant, shall develop operational procedures for the SBR plant in line with the manufacturer's operation and maintenance instructions. From the aspect of surface water and groundwater protection, the procedures shall include, as a minimum, the following measures: > Compliance with all measures and conditions prescribed in the obtained water acts, including requirements for monitoring of effluent quality. > Verification of watertightness of the underground SBR chambers and associated pipework before commissioning, with any defects repaired before operation. > Regular operation, inspection, maintenance and cleaning of the SBR plant and its system components, in line with the manufacturer's instructions and good O&M practice, to maintain adequate treatment efficiency and prevent discharge of insufficiently treated effluent into the Spreca River. > Oils, lubricants, cleaning agents and other chemicals used for operation and maintenance of the SBR unit shall be stored in designated areas protected from precipitation and provided with secondary containment. > In case of suspected damage, rupture or leakage from the underground chambers, operation of the affected part of the system shall be immediately stopped, wastewater inflow shall be diverted or temporarily retained in available chambers/retention capacity, and the	Company <i>Monitoring:</i> PIU	procedures for the SBR plant have been developed in line with manufacturer's O&M instructions Records on effluent quality monitoring/testing maintained in line with obtained water acts Evidence that watertightness testing of underground SBR chambers and associated pipework has been carried out before commissioning Zero uncontrolled discharge of insufficiently treated effluent into the Spreca River Evidence that oils, lubricants, cleaning agents and chemicals are stored in designated areas with secondary containment Zero uncontrolled leakage from underground SBR chambers and associated pipework Records of any confirmed leakage incidents and damaged SBR reactors/chambers, if any Records of contaminated soil removed and managed as contaminated material, where leakage is confirmed



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		affected contents shall be pumped out and either handed over to an authorised operator or returned to the system after repair. > The damaged reactor/chamber shall be repaired or replaced before recommissioning. > In case of confirmed leakage, the surrounding soil and excavation area shall be inspected, any contaminated soil shall be removed and managed as contaminated material, and groundwater quality monitoring downstream of the location shall be carried out, if needed.		
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		
SOIL				
Construction	Excavation activities during pipeline reconstruction will take place under asphalted, grass and earthen surfaces, and have the potential to disturb the soil and lead to erosion and sediment runoff.	CESMP needs to include the following measures: > In case of identified erosion risks, implement erosion control practices, such as installing erosion control blankets, sediment barriers, and silt fences. > In case of heavy rain, schedule construction activities during dry periods when soil is less vulnerable to erosion. Regularly monitor and inspect erosion and sediment control measures to ensure they are functioning effectively.	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision Engineer/PIU	CESMP prepared by the Contractor and reviewed and approved by the Supervision Engineer/PIU Reports on soil erosion (if occurred) Weekly inspections Monthly reports for the PIU prepared by the Contractor and the Supervision Engineer
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		



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	The quality of surrounding soil might be impacted by accidental spills of hazardous substances such as oils from machinery. This is considered to be a localised accidental situation with a limited spatial extent and is not expected to occur during the regular course of construction activities.	Implement the same measures for <u>hazardous substances management</u> during construction activities, as previously defined under <i>Water and Wastewater</i> .	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision Engineer/PIU	CESMP prepared by the Contractor and reviewed and approved by the Supervision Engineer/PIU Number of spillage accidents recorded No visible deterioration of soil quality caused by construction works recorded Weekly inspections Monthly reports for the PIU prepared by the Contractor and the Supervision Engineer
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
O&M	Minor or major repairs or periodical check-ups may lead to the same impacts as during construction.	As part of the OESMP, include and implement the same measures for <u>hazardous substances management</u> , as previously defined under <i>Water and Wastewater</i> .	<i>Implementation:</i> Company <i>Monitoring:</i> PIU	OESMP prepared and implemented by the Company Number of spillage recorded Reports on soil erosion (if occurred)
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
	Improper operation or malfunction of the SBR plant, potentially resulting in wastewater or filtrate leakage and soil contamination	As part of the OESMP, implement the same measures for the management of SBR operation, maintenance, potential leakage and soil contamination as previously defined under <i>Water and Wastewater</i> .	<i>Implementation:</i> Company <i>Monitoring:</i> PIU	OESMP prepared and implemented by the Company Zero uncontrolled leakage from underground SBR chambers and associated pipework Records of any confirmed leakage incidents and damaged SBR
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		



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				reactors/chambers, if any
	Adverse changes in soil quality resulting from changes in the composition of sludge generated from the WWTP and planned SBR plant	Continue performing regular monitoring of sludge quality generated from the WWTP every six months. Sign a contractual agreement with a third party authorised for management of hazardous waste, to ensure for safe sludge disposal, if it is classified as hazardous. Ensure that the operational procedures for the SBR plant include the same sludge quality monitoring requirements and hazardous waste management arrangements, where applicable. In addition, the Company shall assess the potential for controlled reuse of fully treated/stabilised sludge for horticultural and landscaping purposes within the green areas around the WWTP and planned SBR plant, as follows: > Sludge and soil analyses shall be carried out in accordance with Annex II A and Annex II B of Council Directive 86/278/EEC. Sampling and analysis methods shall be carried out in line with Annex II C of the same Directive. Soil analysis shall be undertaken prior to and following the use of sludge on land. The results shall be compared against the applicable soil limit values in order to determine whether sludge use has resulted in increased contaminant concentrations or deterioration of soil quality > Sludge and soil analyses shall be carried out by a laboratory accredited in accordance with the BAS EN ISO/IEC 17025 standard for all parameters listed in the relevant Annexes to the Directive > The analysed sludge and receiving soil shall comply with the relevant limit values	<i>Implementation:</i> Company <i>Monitoring:</i> PIU	Reports on WWTP sludge quality monitoring Signed contractual agreement with third party authorised for disposal of hazardous waste (if needed) Sludge disposal certificates Evidence that SBR operational procedures include applicable sludge quality monitoring requirements and hazardous waste management arrangements Evidence that the potential for controlled reuse of fully treated/stabilised sludge within green areas around the WWTP and planned SBR plant has been assessed Reports/records on sludge and soil analyses retained, including accredited laboratory results, compliance with relevant limit values, and soil quality analysis before and after any sludge reuse Evidence that controlled sludge reuse requirements are incorporated into



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		prescribed in Annex I A for soil and Annex I B for sludge of the same Directive. > If the analyses do not confirm compliance with the relevant limit values, the stabilised sludge shall be managed as non-hazardous waste and the Company shall continue applying the existing procedure for disposal of this type of waste at landfill. > If sludge analysis and soil analyses undertaken before and after sludge use on land confirm compliance with the limit values set out in the Directive, the Company shall incorporate controlled sludge reuse as good practice into the operational procedures for the WWTP and SBR plant, including requirements for sludge and soil analysis, monitoring and record keeping. The Company shall apply the above sludge and soil analysis practice until a permanent local bylaw regulating sludge management from urban wastewater treatment plants is adopted and becomes applicable. Following its adoption, the Company shall update the operational procedures for the WWTP and SBR plant accordingly.		WWTP and SBR operational procedures, where reuse is confirmed as acceptable Evidence that WWTP and SBR operational procedures are updated following adoption of applicable local sludge management regulation, once adopted
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
CLIMATE FACTORS AND CLIMATE CHANGE				
Construction	During the construction phase, small-scale GHG emissions are expected, as a result of the production of construction materials that will be used (scope 3 emissions ¹), as well as due to the use of construction equipment and machinery (scope 1 emissions ²).	Implement all measures defined below under the <i>Air Quality</i> topic in the construction phase.	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision Engineer/PIU	Reports on regular maintenance schedules for machines and vehicles Maintenance logs detailing dates, types of maintenance performed Fuel quality reports confirming the use of approved fuels Records of any unexpected breakdowns
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
	Damage to construction materials and equipment due to natural climate change disasters is a potential occurrence, although the likelihood may be relatively low.	As part of the CESMP, include <u>measures for reducing negative impacts of climate-related hazards</u> , such as: > Develop a plan to protect equipment and personnel if the site floods. > Store electrical and mechanical equipment above projected flood heights. > Move material storage away from areas prone to flooding. > Conduct training for equipment and personnel protection in case of floods. > In case of floods, remove water from flooded areas (water needs to be pumped into tanker trucks to be hauled off-site safely).	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision Engineer/PIU	CESMP prepared by the Contractor and reviewed and approved by the Supervision Engineer/PIU Reports on proper functioning of fire protection equipment Worker training logs Number of climate-related impacts occurred during construction

¹ Other indirect GHG emissions from sources that are upstream or downstream of a value chain and not owned or controlled by the investor.

² Direct GHG emissions from the sources that are affected by the investment project and that are owned or controlled by the investor.



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		> Perform “hot work” like grinding and welding, away from combustibles. > Have a fire extinguishing plan and equipment in place. > Provide shaded rest areas for workers, potable water, and cooling stations. > Adjust working hours to avoid peak temperatures; schedule frequent breaks. > Monitor workers for heat stress symptoms; provide first aid. > Establish early warning for heat waves and suspend high-risk activities if needed.		
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
O&M	Temporary and localised pollution is expected as a result of GHG emissions from materials and vehicles used during replacement and maintenance activities.	Implement all measures defined below under <i>Air Quality</i> topic in the operation phase.	<i>Implementation:</i> Company <i>Monitoring:</i> PIU	Inspections of the proper functioning of equipment Reports on regular equipment maintenance
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
	Inadequate management of non-revenue water potentially limiting the Project's ability to improve resilience to droughts and reduced water availability	As part of the OESMP, implement the Active Leakage Control Procedure, as defined above under <i>Water and Wastewater</i> topic in operation phase.	<i>Implementation:</i> Company <i>Monitoring:</i> PIU	<i>Active Leakage Control Procedure</i> developed as part of the OESMP
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		
	Climate hazards potentially affecting the operational continuity of the SBR unit	Ensure that operational procedures for the SBR unit include preparedness and response measures for climate-related hazards, such as:	<i>Implementation:</i> Company	Evidence that SBR operational procedures include preparedness and



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		> Defining clear responsibilities and communication channels for emergency situations. > Establishing procedures for rapid inspection and recommissioning of equipment following extreme weather events. > Ensuring backup power supply arrangements or contingency measures in case of interruptions to electricity supply during extreme events. > Monitoring weather forecasts and implement early warning procedures allowing preventive actions to be undertaken prior to extreme weather events. > During extreme temperature events, ensuring appropriate ventilation and cooling of electrical and control equipment rooms to prevent overheating and equipment malfunction. Regularly reviewing and updating emergency response procedures based on operational experience and observed climate trends.	<i>Monitoring:</i> PIU	response measures for climate-related hazards Records of weather monitoring / early warning actions and preventive measures undertaken before extreme weather events, where relevant
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		
AIR QUALITY				
Construction	Dust will be generated as a result of site preparation activities (earthworks and anchoring metal structures to the ground) and machinery movement on dirt roads.	Include in the CESMP and implement <u>measures regarding dust and air emissions management</u>: Conduct mandatory visual monitoring of dust generation and dispersion throughout construction activities, with particular attention to works undertaken in the vicinity of schools, healthcare facilities and residential areas.	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision	CESMP developed by the Contractor and approved by the Supervision Engineer/PIU Visual monitoring of air quality Received complaints on



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		> Avoid simultaneously performing activities that cause high levels of dust and emissions, particularly during periods of unfavourable meteorological conditions and elevated ambient particulate matter concentrations. > Regularly spray the construction area, to avoid the spread of dust, with increased frequency during dry, windy conditions and periods of poor ambient air quality. > Implement enhanced dust suppression measures for works undertaken near sensitive receptors, including schools, the health centre and densely populated residential areas, especially during air quality alert periods or episodes of elevated PM concentrations. > When driving construction vehicles on unpaved roads, limit their speed to 10 km/h. > Soil, sand and gravel materials need to be transported in covered trucks; vehicles transporting materials shall not be overloaded. In case other infrastructure projects are implemented concurrently within the same urban areas, the PIU shall coordinate with the respective project promoters to align construction schedules and minimise cumulative impacts.	Engineer/PIU	dust and emissions generation and deterioration of air quality Monthly reports on implementation for the PIU prepared by the Contractor and the Supervision Engineer
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
	Emission of exhaust gases from mechanisation. Polluters such as sulphur dioxide (SO ₂), carbon dioxide (CO ₂), carbon monoxide (CO), nitrogen oxides (NO _x), volatile organic compound (VOC) etc. may be generated.	Include in the CESMP and implement measures <u>regarding exhaust gas emissions management</u>: > Limit the vehicle speed on construction sites. > Machines and vehicles to be used in construction activities must have use/operation permits. > Machines and vehicles need to be regularly maintained. > High quality fossil fuels (with low percentage of sulphur and lead) to be used as motor fuel for vehicles and equipment. > All vehicle operators to switch off engines when stationary – no idling vehicles.	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision Engineer/PIU	CESMP developed by the Contractor and approved by the Supervision Engineer/PIU Reports on regular maintenance schedules for machines and vehicles Maintenance logs detailing dates, types of maintenance performed, and the condition of the machines and vehicles before and after maintenance Fuel quality reports confirming the use of approved fuels Records of any unexpected breakdowns and the response times for repairs
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
O&M	Minor or major repairs or periodical check-ups may lead to the same emissions and impacts as during construction. Unpleasant odours may occur in the future, resulting from WWTP and SBR operation.	Include in the OESMP measures for <u>dust and exhaust gasses emission management</u>, as defined for the construction phase. Updated <i>General Regulation on Maintenance, Use, and Monitoring of WWTP and Procedures in Case of Malfunction</i> to include regular inspection of WWTP equipment, to prevent leaks and ensure that all systems are functioning optimally. Leaks can be a significant source of odorous emissions. Ensure that operational procedures for the SBR unit include measures to prevent odour generation associated with equipment malfunction or improper sludge handling. These	<i>Implementation:</i> Company <i>Monitoring:</i> PIU	OESMP prepared and implemented by the Company <i>General Regulation on Maintenance, Use, and Monitoring of WWTP and Procedures in Case of Malfunction</i> updated and implemented Records on inspections of proper functioning of the WWTP and SBR unit,



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		shall include, as a minimum: > regular inspection and maintenance of enclosed treatment units, > maintenance of ventilation and air extraction systems, > regular inspection of sludge filter bags and timely removal of dried sludge, > prompt repair of malfunctioning mechanical and electrical equipment that could result in process disruptions or odour generation, > implementation of good housekeeping practices, including regular cleaning of process areas and immediate removal of spillages and accumulated residues. In case of community grievances related to odour emissions from the WWTP or SBR unit, the Company to investigate the source of odour, implement corrective measures and, where appropriate, consider additional mitigation measures such as installation of odour control equipment at key emission points, enhanced maintenance regimes, and/or landscaping and vegetative screening to minimise odour transmission.		including replacement/repair where needed Evidence that SBR operational procedures include odour prevention measures related to equipment malfunction and sludge handling Zero unresolved complaints on air quality and odours during O&M phase; any received complaints recorded, investigated and addressed Records/evidence of additional odour control measures implemented in case of odour-related complaints or identified malfunction, where relevant
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		



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NOISE				
Construction	Increased levels of noise will inevitably be caused by civil works, machinery, and the use of equipment on all sites where construction will be carried out. Typically, the operation of construction equipment generates noise ranging between 75–90 dB(A). Since construction activities will take place close to inhabited areas, citizens may be affected by increased ambient noise in combination with the existing traffic and other daily activities. However, noise emissions will be of local and temporary character.	Include in the CESMP and implement the following <u>measures regarding noise management</u>: > Limit noisy activities to the least noise-sensitive times of day (e.g., from 08:00 to 18:00). > Avoid simultaneous use of high noise generating equipment. > Residents to be informed of the planned works and their duration. > All machinery and equipment to have sound-control devices. > All construction equipment and vehicles to be maintained in good working order. > Workers in the vicinity of sources of high noise levels to wear necessary protection gear. > Machinery to be shut down or throttled down to a minimum when not in use. In case other infrastructure projects are implemented concurrently within the same urban areas, the PIU shall coordinate with the respective project promoters to align construction schedules and minimise cumulative impacts.	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision Engineer/PIU	CESMP developed by the Contractor and approved by the Supervision Engineer/PIU Noise control measures implemented and recorded Received complaints on high noise levels during construction phase Equipment purchase, maintenance and repair program implemented Weekly inspections Monthly reports on implementation for the PIU prepared by the Contractor and Supervision Engineer
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		



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O&M	Minor or major repairs or periodical check-ups may lead to the same impacts as during construction.	Include in the OESMP measures for <u>noise management</u> , as defined for the construction phase.	<i>Implementation:</i> Company <i>Monitoring:</i> PIU	OESMP prepared and implemented by the Company Received complaints on high noise levels during O&M phase
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
PROTECTED AREAS				
Construction	During construction works, habitat disturbance can be expected due to earthworks and pipeline reconstruction activities. Although habitats in the Project area are not valuable and are already under anthropogenic influence, a temporary loss of green surfaces is anticipated.	Include in the CESMP and implement the following <u>measures regarding protected areas</u> : > Only planned access roads are to be used for construction activities. Should any need for additional areas occur, only already modified areas may be used. > Only utilise designated locations for equipment and material storage. > Prevent unnecessary movement of vehicles outside of area designated for implementation of construction activities. > Perform revegetation of disturbed areas to original condition. Implement all measures defined below under the <i>Landscape and Visual Aspects</i> topic in the construction phase.	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision Engineer/PIU	CESMP developed by the Contractor and approved by the Supervision Engineer/PIU Successful revegetation of disturbed areas post-construction
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
O&M	Repairs during maintenance work are expected to lead to the same impacts as during construction.	During maintenance activities, implement the same measures as in the construction phase,	Implementation: Company Monitoring: PIU	OESMP prepared and implemented by the Company No further degradation of the urbanised area in the potential Natura 2000 site
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
LANDSCAPE AND VISUAL ASPECTS				
Construction	Construction works can create temporary, localised negative visual impacts due to the presence of workers and machinery at the construction sites and excavation, trenching and asphaltting works. However, such impact is common to construction works and often present in urban areas.	Include in the CESMP and implement the following <u>measures regarding landscape and visual aspects management</u>: > Keep the construction site clean after completion of construction works. > Construction machinery to be parked on defined places. > Ensure appropriate disposal of construction waste during construction activities, as defined under the item Materials and Waste below, and appropriate recultivation afterward. > Maintain the trees, grass and vegetation in the Project area to reduce the impact on landscape, especially for returning to the original condition after the completion of works (in grassy areas). Recultivate the construction zones as appropriate. > Clearance of land and vegetation to be minimised where possible. > The disturbed construction areas to be successively reinstated when no longer required.	Implementation: Contractor Monitoring: Supervision Engineer/PIU	CESMP developed by the Contractor and approved by the Supervision Engineer/PIU Number of community grievances raised relating to visual impacts due to the construction works Weekly inspections Monthly reports on implementation for the PIU prepared by the Contractor and Supervision Engineer
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
O&M	Major repairs of constructed infrastructure are expected lead to the same impacts as during construction.	During maintenance activities, implement the same measures as in the construction phase.	<i>Implementation:</i> Company <i>Monitoring:</i> PIU	OESMP prepared and implemented by the Company Number of community grievances raised relating to visual impacts during maintenance works
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
MATERIALS AND WASTE				
Pre-construction	Presence of asbestos-containing materials within the existing water supply infrastructure, potentially resulting in unplanned disturbance of asbestos-containing materials, exposure of workers and the public to asbestos fibres, and generation of hazardous waste during construction activities	Prior to commencement of works, PIU to prepare an asbestos inventory covering all sections of the existing infrastructure planned for reconstruction or replacement. The inventory shall identify the location, approximate quantities, condition and proposed management approach for asbestos-containing materials (ACMs). PIU to ensure that tender documentation and contractor obligations include specific requirements for asbestos management and engagement of suitably qualified and authorised contractors. The asbestos inventory shall serve as the basis for development of an Asbestos Management Plan.	<i>Implementation:</i> PIU <i>Monitoring:</i> PIU	ACMs inventory prepared Tender documentation includes asbestos management requirements and obligations for engagement of qualified and authorised contractors
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		
Construction	Construction activities will generate construction and demolition waste (inert earth material, soil and concrete, distribution pipes) and other construction elements. Presence of hazardous waste may also be expected which may include	Develop a Project-specific <i>Construction Waste Management Plan (CWMP)</i> as part of the CESMP, outlining strategies for reducing, reusing, recycling, recovering and properly disposing of waste generated during construction activities. The Plan should contain at least the following:	<i>Implementation:</i> Contractor <i>Monitoring:</i>	CWMP and AMP developed as part of the CESMP by the Contractor, with the AMP prepared based on the asbestos inventory, and approved by the



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
	waste fuel and lubricants, oil filters and batteries. Of particular environmental and safety concern is the generation of asbestos-containing waste, given that the current pipelines are primarily made of asbestos-cement. It is also expected that small amounts of municipal waste will be generated during construction activities.	> Site assessment including a detailed description of the construction sites and assessment of potential waste streams > Waste management strategies > Recycling and reuse plans > Waste disposal procedures > Training and education > Emergency response. At least the following measures regarding waste management should be included in the CWMP: > Provide on-site separation and selection of different types of waste. > Majority of excavated materials to be reused as engineering fill material. > All generated waste during construction activities to be classified and separated as inert, non-hazardous or hazardous waste, and their mixing not permitted. Waste to be stored temporarily on site neatly and safely³. > The spoil to be reused for covering the trenches. > Final disposal of (hazardous) waste to be conducted by engagement of authorised third parties, in compliance with the national requirements on transfer, treatment and disposal of waste, and accompanied with appropriate documentation.	Supervision Engineer/PIU	Supervision Engineer/PIU Waste disposed in accordance with legal requirements and good practices Received complaints Training logs Contractual agreements with authorised third parties for disposal of hazardous waste signed Proofs of the transfer of hazardous waste to authorised third parties (waste shipment records or similar) Weekly inspections Records/evidence that AC pipes were left in trenches where feasible and marked with warning tape Monthly reports on implementation for the PIU prepared by the Contractor and Supervision Engineer

³ Practices related to management and disposal of asbestos-containing waste to be aligned with the Asbestos Management Plan.



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		> It is forbidden to burn or bury waste on the construction site. > It is forbidden to dispose waste in an uncontrolled manner, in surface waters or on land. > Train workers and employees about the types of waste generated and its treatment. Where feasible, existing asbestos-cement (AC) pipes to remain in the trench after decommissioning to avoid unnecessary disturbance. Trenches containing decommissioned AC pipes to be marked with durable warning tape installed 30–50 cm above the top of the pipe. Where removal of the AC pipes is necessary, hire a company experienced in working with ACMs for the safe removal of asbestos pipes. Based on the ACMs inventory, develop an <i>Asbestos Management Plan (AMP)</i> as part of the CWMP and include the following measures: > All personnel involved in handling asbestos pipes must complete thorough training covering proper ACMs management techniques, correct use of PPE, and understanding the health risks involved. > The asbestos pipes, in the process of dismantling, have to be lifted, and in no circumstance plucked or broken. > During dismantling of the asbestos pipes, workers should use manual tools, or mechanical aid for the processing of asbestos-cement, with embedded vacuum with HEPA filter. > Only wet-cutting method is allowed.		



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		> The wet cutting of asbestos-cement pipes should take place inside the excavation where the work is being carried out. This will ensure that the asbestos fibres are contained in one location. > Collect and route all cutting wastewater through a temporary containment/bunding system (e.g. sealed catch trays or a settling/filtration unit) before discharge, rather than allowing runoff to flow to open ground, drains, or surface water; treat captured water as containing asbestos fibres and dispose of it (and any sediment/sludge generated) as hazardous waste through a licensed waste contractor. > To prevent asbestos fibres from entering the air during pipe cutting, heavy-gauge polythene can be placed around the pipe and the pipe can then be broken with a hammer. > During cutting of pipes, one worker should spray a pipe with water while another cuts it with a hand tool, thus reducing the release of asbestos fibres into the air. > For small asbestos-cement pipes, a hand saw or pipe breaker can be used. Water should be sprayed continually over the area being cut to suppress the release of asbestos fibres. > The water used to suppress fibre release during pipe cutting becomes slurry. Because this slurry contains asbestos fibres, it will need to be removed and handed over to the authorised company to be disposed of as hazardous waste. > Asbestos pipes should be sealed in heavy-gauge polythene. This should then be		



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		placed in a polythene bag (ideally double bagged). The bag should be sealed with tape to secure the contents, affixed with appropriate signage and disposed by the authorised company as hazardous waste. > The authorised company is obliged to maintain complete records of all generated asbestos-containing waste and associated waste streams, including documentation on quantities generated, transport and disposal. All asbestos-containing waste, as well as any materials contaminated with asbestos fibres (including slurry, PPE and packaging materials), shall be handed over exclusively to authorised operators licensed for the transport, treatment and disposal of hazardous waste, with appropriate waste transfer documentation retained and made available upon request. During development of the AMP, take note of the EBRD's Briefing Note 03: Working safely around asbestos pipes⁴.		
	Ranking before mitigation measures: High	Ranking after mitigation measures: Low		
O&M	The main waste types generated during Company operations include municipal waste, construction waste (such as old pipes and equipment), waste tires, used parts and equipment from motor vehicles, chemicals (and their packaging) used for water treatment and sludge.	Update the <i>Internal Waste Management Plan</i> (IWMP) to include management of waste generated during Company's reconstruction/maintenance activities (including asbestos-containing waste), as well as waste generated during operation and maintenance of the newly constructed SBR plant. The updated IWMP to define responsibilities, handling procedures, temporary storage requirements, waste prevention measures, monitoring arrangements and disposal routes	<i>Implementation:</i> Company <i>Monitoring:</i> PIU	OESMP prepared and implemented by the Company <i>Internal Waste Management Plan</i> updated and integrated into the OESMP Contractual agreements with authorised third parties for disposal of hazardous waste signed

⁴ Available at: <https://www.ebrd.com/who-we-are/our-values/environmental-and-social-policy/implementation.html>

PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		through authorised waste management operators. The updated IWMP to also incorporate resource efficiency and circular economy principles, such as: > prioritisation of repair, refurbishment and reuse of pumps, valves, fittings and other equipment before replacement is considered, > segregation of waste streams at source to maximise recycling and recovery opportunities, > reuse of excavated materials during maintenance and reconstruction works where technically feasible, > implementation of measures aimed at extending the service life of infrastructure and equipment through preventive maintenance and timely repairs. Updated IMWP to be an integral part of the OESMP.		
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		
CULTURAL HERITAGE				
Construction	Potential access restrictions for cultural heritage or religious sites during construction activities.	Contractor to include in the CESMP and implement specific measures regarding cultural heritage: > Provide free access to all cultural and religious facilities at all times; install pedestrian bridges with fences and crossings for motor traffic to avoid restrictions of movement of pedestrians, vehicles and access to facilities during construction works.	<i>Implementation:</i> Contractor/ Company <i>Monitoring:</i> PIU	Information included in reports submitted to EBRD CESMP includes the defined measures Community grievance logs Stakeholder engagement monitoring reports



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		> As required in the SEP, provide official notification to the representatives of religious and cultural facilities, publish information on the extent, timing and duration of planned works in local media and on the Company/City of Zivinice websites at least 15 days before commencement of works. > Implement and regularly update the SEP (and grievance mechanism) to respond to issues that might occur during construction works near cultural heritage sites. > Respond to issues that might occur during the construction works near cultural heritage sites.		
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
	Encountering chance finds during site preparation activities and construction.	The Contractor must have a Chance Finds Procedure in place before start of construction and train its workers on the Procedure as part of their induction training.	<i>Implementation:</i> Contractor/ Company <i>Monitoring:</i> PIU	Chance Find Procedure developed and implemented as necessary Training logs Information included in reports submitted to EBRD
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
O&M	Minor or major repairs or periodical check-ups potentially leading to the same impacts as during construction.	During maintenance activities, as part of the OESMP, implement the same measures as in the construction phase.	<i>Implementation:</i> Company <i>Monitoring:</i> PIU	Information included in reports submitted to EBRD OESMP includes the defined measures Community grievance logs Stakeholder engagement monitoring reports
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
OCCUPATIONAL HEALTH AND SAFETY				
Construction	Construction hazards for workers.	Contractors to: > Apply the FBiH Law on OHS. > Engage qualified and experienced workers to conduct construction activities and ensure the use of PPE. > Provide training on safe procedures and use of PPE to minimise the risk of accidents and injuries (as part of induction training for all contractors/ subcontractors' personnel). > Develop and implement an OHS Plan (as part of CESMP) for the construction phase. > Adhere to the Asbestos Management Plan. > Regularly review and update the OHS Plan to address any changing circumstances or emerging risks. > Maintain records of occupational accidents and diseases, as well as dangerous occurrences and accidents for all workers on site. > For works near the railway line, undertake additional safety measures such as erecting safety barriers or fencing between the work site and the railway line, scheduling intensive works during periods when rail traffic is minimal or halted, and coordinating with the Railways of FBiH regarding potential short-term service adjustments. In the process of developing the OHS Plan, use EBRD Briefing Notes as relevant: > BN01-- Underground and overhead services,	<i>Implementation:</i> Contractor <i>Monitoring:</i> PIU	OHS Plan developed OHS training reports Compliance with OHS standards verified through monthly progress reports signed off by the PIU Information included in reports submitted to EBRD



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		> BN02-- Safe excavations, > BN03-- Working safely around asbestos pipes > BN04-- Safe working with mobile plants, > BN05-- Setting up a safe site, > EBRD Guidance Note on Safe Working in Confined spaces). > Locate all underground utilities before digging. > Implement specific measures to avoid long exposure to noise such as avoid simultaneous use of high noise generating equipment, noise generating equipment must be powered off while not in use. > Use methods of securing excavations and preventing collapse during any ground disturbance in line with EU Directive 92/57/EEC, including the use of appropriate trench safety procedures, support measures, and supervision. All ground disturbance activities must follow a secure work system, with risk assessments conducted by competent individuals, regardless of depth. Avoid entry into excavations whenever possible and prioritise engineering methods. If there is a risk of collapse, employ supports to prevent entrapment and maintain stability in the surrounding ground and structures.		
	Potential inadequate contractor OHS capacity / performance	> The City/PIU, with support from the Supervision Engineer, to assess the OSH capacity and past OSH performance of contractors before appointment or, at minimum, before mobilisation. > Tender and contract documents to require contractors to prepare an OHS Plan as part	<i>Implementation:</i> PIU/City and Contractor <i>Monitoring:</i> PIU	Evidence of contractor OSH capacity/performance assessment prior to appointment or mobilisation OHS Plan in place and



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		of the CESMP, allocate qualified OHS personnel, maintain accident/near-miss records, provide worker training and PPE, and apply safe systems of work. > The Supervision Engineer to carry out periodic site inspections to verify ongoing contractor OSH performance and the continued suitability of the OHS Plan. > Contracts to include the right to suspend works in case of immediate danger to workers or communities. > Contracts to require that drivers are licensed and trained, vehicles and machinery regularly inspected, and working/driving hours monitored to prevent fatigue. These measures to be cross-referenced with the project Traffic Management Plan.		reviewed Records of accidents/near-misses maintained Supervision Engineer site inspection reports Driver licensing/training records; vehicle inspection records Right-to-suspend clause included in contracts
	Potential inadequate provision of worker welfare facilities during construction	Contractors to provide adequate worker welfare facilities at all active work sites, proportionate to the number of workers and duration of works. As a minimum, this shall include access to safe drinking water, toilets and handwashing facilities, suitable rest/eating areas, first-aid equipment, protection from extreme weather, and clean and hygienic facilities appropriate to the workforce, including gender-appropriate facilities where relevant. The provision and maintenance of worker welfare facilities shall be included in the CESMP/OHS Plan and verified by the Supervision Engineer prior to mobilisation and during regular site inspections.	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision Engineer / PIU	Worker welfare facilities included in CESMP/OHS Plan Supervision Engineer verification prior to mobilisation Supervision Engineer verification during regular site inspections



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
	Emergency preparedness	Contractors to include emergency preparedness and response arrangements in the OHS Plan/CESMP, addressing railway-incident protocols and coordination with the Railways of FBiH, flooding/inundation of open trenches (please also see Climate Change section above), accident and injury response, and coordination with local emergency services. Emergency contacts, muster points and responsibilities to be communicated to all personnel during induction.	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision Engineer / PIU	Emergency preparedness and response arrangements included in OHS Plan/CESMP Evidence of coordination with the Railways of FBiH Emergency contacts and muster points communicated during induction
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		
O&M	O&M risks for maintenance workers.	The Company to: > Ensure regular monitoring of effectiveness of prescribed measures through assessment of key indicators (such as: number and severity of injuries, loss time injuries and near misses). > Maintain a record of occupational accidents and diseases, as well as dangerous occurrences and accident.	<i>Implementation:</i> Company <i>Monitoring:</i> PIU	Internal policies and procedures updated; risk Assessment performed and documented OHS monitoring reports Information included in reports submitted to EBRD



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		
LABOUR AND WORKING CONDITIONS				
Construction	Potential risks of non-implementation of labour regulations by contractors which may include undeclared work, long hours of work or unavailability of a worker grievance mechanism.	Require Contractors to: > Submit a statement that they comply with all FBiH and ESR 2 labour regulations and will comply with these regulations during construction. > Keep records of workers, working hours, overtime, wage payments and grievances. > Establish a worker grievance mechanism in line with ESR 2, including confidential channels for sensitive complaints such as harassment, discrimination, GBVH and retaliation. The PIU to ensure contractors' performance is monitored by the Supervision Engineers.	<i>Implementation:</i> Contractor <i>Monitoring:</i> Supervision Engineer/PIU	Provisions on applying the relevant requirements of FBiH legislation and ESR 2 incorporated into the Tender Documents and contracts with Contractor, including the establishment of a grievance mechanism for all workers Statement provided by Contractors that they fully observe all local labour regulations and will comply with these during construction Compliance with labour standards verified through monthly progress reports signed off by the PIU Periodic checks including site visits and reports on contractors Information included in reports submitted to EBRD
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
O&M	Lack of grievance mechanism in place to address employee grievances in compliance with EBRD ESR 2 standards.	The Company needs to develop, adopt, and communicate to all employees an internal grievance procedure in accordance with ESR 2 requirements.	Implementation: Company Monitoring: PIU	Developed, adopted, and communicated internal grievance procedure by the Company
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		
COMMUNITY HEALTH AND SAFETY				
Construction	Temporary construction-related impacts and risks on surrounding communities, including potential for economic disruption and temporary use of privately owned land for material storage and equipment housing	The PIU to: > Carry out extensive information disclosure prior to the start of construction works as detailed in the SEP, including information on construction schedules and any anticipated access disruptions. > Ensure that the public grievance mechanism is in place prior to any works and well communicated to respond to any community grievances. > Throughout construction, track community grievances as defined in the SEP. Company to: > Install temporary cisterns to manage disruptions and speed up water supply restoration during extended delays in supply resumption due to construction works. Contractor to: > Include in the CESMP measures related to community health and safety.	Implementation: Contractor Monitoring: PIU	CESMP developed and includes community health and safety measures Traffic Management Plan developed Construction sites properly fenced, and information boards installed at all sites Community grievance logs Obtained authorisations/consents and evidence of compensation payment for temporary occupation of private land by the contractor SEP monitoring reports Information included in reports submitted to EBRD



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		> As part of the CWMP, develop an AMP with measures addressing asbestos-related risks to community health and safety. > Mitigate the risk of unauthorised access to the construction sites by implementing effective measures such as installing proper fencing. This fencing should be sturdy, clearly marked, and difficult to breach, serving as a physical barrier to deter unauthorised individuals from entering restricted areas. Additionally, signage should be displayed to clearly indicate restricted access zones and communicate potential hazards. > Provide free access to all facilities at all times; install pedestrian bridges with fences and crossings for motor traffic to avoid restrictions of movement of pedestrians, vehicles and access to facilities during construction works. > Place information boards at construction sites displaying contact information for third-party concerns. > Implement SEP provisions on handling grievances, providing timely information to citizens about upcoming construction works, expected duration of the works, etc. > In case of need to temporarily occupy private land for construction purposes, obtain authorisation from the competent authority, the landowner's consent and provide compensation, as required by national legislation. > Develop a comprehensive Traffic Management Plan (TMP) as part of the CESMP before commencement of any		



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		transportation activities related to the Project execution to ensure that the transportation process is properly and adequately managed. TMP must include the following minimum requirements: > adherence to local traffic and transport regulations, > identification of traffic requirements for the Project, including materials, equipment, machinery, workers, services, etc. This should specify the number of vehicles, weight loads, schedule, route/duration, and other relevant details, > identification of suitable traffic management procedures, both onsite and offsite. This should cover haulage suppliers, licensing, driving instructions and code of conduct, speed limits, accident management, monitoring, reporting and other necessary aspects, > identification of sensitive receptors on or around Project sites, > use of high-visibility safety apparel for workers in the vicinity of traffic, > trainings and instructions for vehicle drivers, including on road safety, driver safety and fatigue management. The TMP to also consider the following: > identifying alternate traffic routes to alleviate congestion, > prioritising uninterrupted access to the City's bus station via Prva Ulica Street and ensuring that it remains functional and if necessary, ensuring alternative routes for buses to and from the station,		



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		> consideration of access requirements for the Maline and Ciljuge industrial zones, including access for businesses, delivery vehicles, workers, visitors and emergency services, > cooperation with the Railways of FBiH during installation of the drainage pipeline near the City bus station that passes under the railway line, > inclusion and consideration of the "Bingo" shopping centre and the "Hifa" gas station on regional road R455a (Prva Ulica Street) in the TMP and their impact on traffic due to their high traffic volume, > paying special attention to road safety, especially for sensitive receptors in the area, which may be temporarily affected by construction activities, > ensuring that works on the main road M-18 do not significantly disrupt local and regional traffic flow in order to minimise inconveniences and maintain road safety, > continuously monitoring and adapt the TMP as necessary to address traffic flow and safety concerns throughout the construction phase. > cooperation with relevant authorities on traffic management, including informing authorities about the TMP and obtaining their consent prior to the Plan's adoption. In case other infrastructure projects are implemented concurrently within the same urban areas, the PIU shall coordinate with the respective project promoters to align construction schedules and minimise cumulative impacts.		



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		(specific measures related to noise, air quality, etc. are listed in the relevant specialist sections)		
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		
O&M	Similar risks as in the construction phase may be expected during operation and maintenance activities but in a much smaller and localised scope.	Company to include in the OESMP at least the following community health and safety measures: > Install temporary cisterns for efficient water supply management during extended water supply interruptions due to maintenance works. > Mitigate unauthorised access risks through sturdy fencing, clear markings, and signage indicating restricted zones and hazards. > Ensure free access to facilities, installing pedestrian bridges and crossings for uninterrupted movement during construction. > Display contact information on information boards for third-party concerns.	<i>Implementation:</i> Company <i>Monitoring:</i> PIU	Daily inspections Reports on any accidents Community grievance logs Information on grievance mechanism available at construction sites
	Ranking before mitigation measures: Low	Ranking after mitigation measures: Negligible		
LAND ACQUISITION AND ECONOMIC DISPLACEMENT				
Pre-construction	Private land acquisition (complete or incomplete acquisition) or restrictions on land use	The City to prepare the Expropriation Studies required under national legislation to identify affected land plots, ownership status, land users, affected assets and required land rights. Following confirmation of affected plots and land rights, the City to prepare and implement a Land Acquisition and Resettlement Plan (LARP), based on the Project Land Acquisition and Resettlement Framework (LARF). The LARP will cover all land acquisition, land use restriction, temporary land occupation, loss of assets and displacement impacts that are known or can be reasonably identified at the time of its	<i>Implementation:</i> City <i>Monitoring:</i> City	Expropriation Studies developed LARP developed Completion of census, asset inventory and socio-economic survey where required Compensation and assistance records Consultation records



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		preparation.		
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		
Construction	Potential for temporary economic disruption, temporary access restrictions, temporary occupation of privately owned land for construction purposes, accidental damage to assets or other construction-related land and livelihood impacts.	> The City and the contractor will manage all temporary economic disruption, temporary access restrictions, temporary occupation of privately owned land, accidental damage to assets and any other construction-related land or livelihood impacts in accordance with the Project LARF and, where applicable, the future LARP. > Where such impacts are known or can be reasonably identified before construction, they will be assessed and addressed in the LARP. Where such impacts are not known at the time of LARP preparation and arise during construction, they will be managed through the procedures defined in the LARF and LARP, including documentation of impacts, consultation with affected persons, application of the Entitlements Matrix, grievance management and monitoring by the PIU. > Temporary access restrictions to homes, businesses, agricultural plots, public services, emergency routes or other affected facilities will be avoided or minimised through construction phasing, traffic management and site organisation. Where access restrictions cannot be avoided, safe alternative access arrangements will be provided. Any verifiable income losses or livelihood impacts resulting from Project-induced access restrictions	<i>Implementation:</i> Contractor <i>Monitoring:</i> City	Number and location of private plots temporarily occupied Existence of written agreements and compensation records Number and location of temporary access restrictions Records of advance notice Pre-entry and post-use condition records Number and type of asset damage cases Number of livelihood/income loss claims and outcomes Grievances log



PHASE	IDENTIFIED IMPACTS/RISKS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING PARAMETERS
		will be assessed and compensated in accordance with the LARF Entitlements Matrix. > Temporary occupation of privately owned land for construction purposes will be compensated in accordance with the LARF Entitlements Matrix. > Accidental or construction-related damage to land, crops, trees, fences, utilities, structures or other assets will be recorded, assessed and addressed through repair, reinstatement or compensation at replacement cost, in accordance with the LARF and, where applicable, the LARP. > The public grievance mechanism will be in place prior to any works and well communicated throughout the Project area.		
	Ranking before mitigation measures: Medium	Ranking after mitigation measures: Low		





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