

The Lender Group
Eurasia Tunnel Project
Environmental and Social Action
Plan

ESAP

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It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1 Introduction

The European Investment Bank, European Bank for Reconstruction and Development, Standard Chartered Bank (Mandated Lead Arranger –Technical) the Export-Import Bank of Korea and Korea Trade Insurance Corporation (the Lender Group), are considering participating in co-financing the design, build, finance, operate and maintenance of the Istanbul Strait Road Tube Crossing. The project begins at Kennedy Street on the European Side and ends at the Goztepe Intersection of the Ankara State Highway on the Anatolian Side.

The project aims to improve and develop transportation infrastructure in Istanbul by providing a new connection between the two continents. The works will comprise the widening of and improvements to existing roads, including alongside the old city which is designated as a UNESCO World Heritage Site (WHS), and a new bored tunnel crossing beneath the Bosphorus. It will provide an alternative to crossing by car ferry in this area of Istanbul.

On behalf of the Lender Group, Arup have reviewed the existing documentation and the project preparation activities undertaken to date, comparing the scope and content of the works undertaken with the environmental and social requirements of the Lender Group, including:

- National environmental, labour health and safety laws and regulations;
- International Law including conventions and treaties ratified by the host country and/or applicable to the

Project, including but not limited to the UN ECE Aarhus and ESPOO convention, ILO Core Labour Standards as well as any international marine convention applicable to the Project or its Area of Influence;

- The Equator Principles (July 2006) applicable to the project;
- IFC Performance Standards (April 30th, 2006);
- IFC Environmental, Health and Safety (EHS) Guidelines in force at the time of this agreement applicable to the Project, including EHS General Guidelines (particularly but not only the “Guidelines for Toll Roads” (2007);
- The EBRD Environmental & Social Policy and Performance Requirements (2008);
- The EIB Statement of Environmental and Social Principles and Standards (2009);
- Applicable EU environmental & social legislation and standards, in particular SEIA, EIA, Birds & Habitats, Marine and EHS Directives;
- OECD Common Approach (as applicable to the project).

As necessary, measures have been identified by the sponsors and by Arup for achieving compliance with the Lender Group’s environmental and social requirements; these measures are detailed in this Environment and Social Action Plan (ESAP). The ESAP provides an environmental risk management tool allowing responsibilities to be allocated, discharged and monitored throughout the lifetime of the project, in line with

Lenders requirements. The ESAP is to be implemented as part of the loan agreement. Turkish Environmental, Labour Health and Safety Laws and Regulations will be applicable during the design, construction and operation of the Project. Where performance requirements by Lenders does not exist in Turkish Law and Regulations (or where a Turkish standard is superseded by an international standard); the aforementioned international standards and principles will apply (where relevant).

Avrasya Tüneli İşletme İnşaat ve Yatırım Anonim Şirketi (“ATAS”), as the Appointed Company, are responsible for implementing this ESAP and the requirements of the Environmental and Social Impact Assessment (ESIA). ERM, the authors of the ESIA Report, have been appointed consultants to ATAS to provide assistance in meeting environmental requirements satisfactorily.

2 Methodology

An Environmental and Social Due Diligence exercise has been undertaken, including a site visit and document review to assess the environmental and social issues associated with proposed project. An assessment of the Sponsors’/Project Company’s proposals against compliance with the Lender Group’s environmental and social requirements has been undertaken. This assessment was based on the current scheme design available at the time of the assessment. A change management system is to be implemented to allow assessment of the potential impact of changes as the design develops. This will allow assessment, monitoring and recording of potential changes and maintain compliance with Turkish national laws and regulations and Lenders requirements (subject to Turkish

Law and Regulations) throughout the design stages of the project; and subject to any approvals required by Turkish law, to comply with the particularities of this document.

Based on the findings of these investigations, this ESAP has been developed. It is a time bound action plan detailing mitigation measures to prevent, reduce or minimise environmental and social impacts of the project, and measures to improve the current environmental and social management systems and operational performance towards compliance with the lender Group’s requirements throughout the lifetime of the project (i.e. both construction and operational phases).

The key documents reviewed at this stage include:

- Dokay-CED Project Information File (November 2007);
- Environmental & Social Impact Statement Inception Report (22nd September, 2009);
- Environmental & Social Impact Statement Scoping Report (1st October, 2009);
- Environmental and Social Impact Assessment (ESIA) (January 2011);
- Non Technical Summary to the ESIA;
- Environmental and Social Management Plan (ESMP (Annex D1 of the ESIA));
- Resettlement Framework (Annex D2 of the ESIA);
- Stakeholder Engagement Plan (SEP);
- Tender Stage plans and maps;
- Implementation Contract;
- Direct Agreement (draft February 2011);
- Employers Requirements.

3 Environmental and Social Action Plan Table

The following environmental and social actions are required to fulfil the Lender Group's environmental and social requirements, within the timescale indicated. The ESAP is divided into two parts; the first describing management, procedural and monitoring requirements to be implemented across the project and the second, Appendix A, detailing the mitigation measures and requirements detailed in the ESIA. Responsibility for discharging each action has been assigned, and if external resources or support are anticipated to be required to discharge the commitments, an indication of this external cost has been provided. The timetable for the discharge of the conditions is provided by reference to the date of first disbursement, and criteria for evaluating compliance with the requirements (and for determining successful implementation of the measures) are presented.

The Environmental and Social Impact Assessment (ESIA) contains the mitigation measures that are required to be implemented to ensure that the environmental and social impacts of the project fall within acceptable limits. The ESIA was undertaken in accordance with the Lenders Requirements. All of the measures contained in the ESIA are to be delivered to meet Lender Group's requirements. The key measures have been extracted from the ESIA, clarified as necessary, and presented in Appendix I of this report, together with the specific evaluation criteria that will demonstrate the successful implementation of these measures. In addition, the table below lists issues identified through the gap analysis that have not been covered by the ESIA and also need addressing.

Ref. No.	Lenders Requirement Legislative Requirement / Best Practice	Issue	Mitigation Measure/Action	Investment Needs / Resources / Responsibility	Timetable: Action to be Completed	Target and Evaluation Criteria for Successful Implementation
1	Best Practice Lenders Requirements (EBRD PRI,	Environmental and Social Management System	Appoint a qualified ¹ Environmental & Social Manager to take overall responsibility for the project compliance with ESIA, ESAP, SEP, RAP and Lenders requirements related to environmental and social issues.	Own resources: ATAS General Manager	Prior to first disbursement.	Environmental & Social Manager to be agreed with LTA. Environmental &

¹ With a University Degree in an environmental subject and an expected minimum of 10 years experience of environmental and social management of infrastructure projects

	IFC PS1)					<p>Social Manager named on ATAS organisation chart.</p> <p>Clear Roles and Responsibilities for the Environmental Manager as part of the job description. This is to be published in the Employment Policy Document.</p>
2	IC requirement; ESIA requirement Best Practice (ISO 14001) (EBRD PR1, EP4, IFC PS1)	Environmental and Social Management System	<p>Develop and implement an integrated environmental and social management system (ESMS) compliant with the requirements of ISO 14001. To include:</p> <ul style="list-style-type: none"> • Employer’s Requirement • Environmental policy • EU and Turkish Legislation, including International Regulations Register(updated from Annex C of ESIA) • Lenders Requirements: <ul style="list-style-type: none"> IFC Performance Standards on Social and Environmental Sustainability IFC General Environmental, Health and Safety Guidelines IFC specific Environmental, Health and Safety Guideline for Toll Roads ILO Conventions The Equator Principles The EBRD Environmental & Social Policy and Performance Requirements 	Own resources: Environmental Manager. Reviewed and agreed by the LTA.	Prior to first disbursement.	<p>Operational ESMS by start of construction covering both construction and operations. ESMS to be structured in accordance with ISO 14001.</p> <p>Project Policy Documents required by ESIA to include a copy of the Environmental Policy</p> <p>EMS Audit Reports</p>

			(2008) The EIB Statement of Environmental and Social Principles and Standards 2009. OECD Common Approaches			
3	EBRD PR1/ 2, 3, 4, 10, EIB PS 2, EIB Social Standards, International Labour Standards	Project policies and standards Labour Resources and Working Conditions	ATAS to prepare and implement a specific Employment Policy Document as set out in ESIA outlining policy and procedural requirements regarding labour and working conditions. This should be provided to and implemented for all ATAS, main contractor and sub-contractor employees. Employment Policy Document to be provided to Lenders TA for their approval before first disbursement.	Own resources: ATAS General Manager	Prior to first disbursement.	Employment Policy Document required by ESIA. Document to be prepared and implemented prior to first disbursement. Document to be reviewed and approval by LTA
4	Lenders Requirement EP3 (EBRD PR3, IFC PS3)	Environmental and Social Management System	ATAS to develop targets and objectives for resource conservation and energy efficiency to be set out in the EMS (compliant with ISO 14001) for construction and operation phases.	Own resources: Environmental Manager to prepared targets and objectives. To be reviewed and agreed by the LTA.	Within 6 months of first disbursement.	Targets and objectives in the EMS set out EMS Audit Reports
5	EBRD PR 2, EIB PS 2, EIB Social Standards, International Labour Standards	Labour Resources and Working Conditions	ATAS to develop and define, as part of the Employment Policy Document, a Labour and Working Conditions Policy for implementation during construction and operations and implemented by all parties including sub-contractors and the supply chain. The policy shall address: <ul style="list-style-type: none"> HR Function and management system 	Own resources: Human Resources Manager with support from Procurement Manager to	Prior to first disbursement. First audit within 3 months of construction commencement.	Employment Policy Document required by ESIA to include a copy of this policy 6 monthly audit findings against

			<ul style="list-style-type: none"> • Working conditions • Terms of employment • Child Labour • Forced labour • Equal Opportunities/non-discrimination • Workers organisations • Workers accommodation (based on Turkish Regulations and Workers' accommodation: processes and standards; A guidance note by IFC and the EBRD, September 2009) • Occupational Health and Safety • Grievance mechanism for all workers on project sites • Retrenchment (for operational phase) <p>The Project shall endeavour to employ local people from Turkey including Istanbul as far as possible and within the regulations of Turkish law.</p> <p>If workers are brought in from outside Istanbul they shall be housed in dedicated accommodation designed to meet the requirements of Turkish Regulations, international performance standards and IFC/EBRD guidance on workers' accommodation.</p> <p>Implementation of the Labour and Working Conditions Policy to be subject to periodic audits (at least annually) by ATAS. First audit to be within 3 months of construction starting.</p>	prepare policies. To be reviewed and agreed by the LTA.		<p>policy to be undertaken by LTA to include evidence of</p> <ul style="list-style-type: none"> • payscales commensurate with equivalent roles on similar projects.- the wage paid to the workforce should benchmark the local cost of living • payments to workers, including non-employee workers, are made in a timely manner. • overtime, payments are made in a timely manner. • Employment records • Record of worker grievances and how they were addressed
6	EBRD PR 2, IFC PS 2, EP	Labour Resources and	As part of the implementation of the Employment Policy Document requirements, the workers grievance	Own resources: Human	Prior to first disbursement.	A Grievance mechanism described

6		Working Conditions	mechanism shall be agreed prior to first disbursement. The grievance mechanism shall meet both Turkish Regulations and PS/PR2 requirements; and be widely publicised. It should allow issues to be raised anonymously by workers.	Resources Manager to develop mechanism. To be reviewed and agreed by the LTA.		in Employment Policy Document (required by ESIA) and publication of mechanism on site and office notice boards.
7	Legislative Requirement Best practice. (EBRD PR1, IFC PS1)	Management System: achieving consents and meeting Permit Requirements	Appoint a qualified ² full time officer to manage the application for, compliance with and discharge of permit requirements. Roles and responsibilities should include: <ul style="list-style-type: none"> • manage the process of obtaining all permits, licences and approvals (“permits”) and shall work other managers/directors • establish and maintain procedures for the management of permits; • determine the requirements for permits; • identify the issuing authority and the applicant; • programme their acquisition; • apply for the permits, including the required documentation; • communicate with relevant legal authorities and other interested parties; • ensure that any fees are paid; • copy all relevant documents to the Employer/Client; • monitor and report on the status of the applications and legal amendments, • secure, or cause to be secured, permits without undue delay; • follow up approval status. 	Own resources: ATAS General Manager	Within one month of first disbursement.	Permit officer to be agreed by LTA and shown in the organisation chart. Job description to show clear roles and responsibilities and to be published in the Project Policy Documents.

² With an expected minimum of 10 years experience of achieving permits for infrastructure projects in Turkey

8	Best Practice Lenders Requirements (EBRD PR1, IFC PS1)	Environmental and Social Management System	<p>An organisational structure clearly showing the lines of EHSS responsibilities for all project participants is required to be maintained. Roles to include environmental, health and safety, Labour and working conditions, stakeholder engagement through Community Liaison Officer, land acquisition, permitting and contractor management and supervision.</p> <p>Competent staff to be appointed and maintained in EHSS critical roles, which are to be defined within the project management systems.</p> <p>Training and awareness raising to be provided.</p>	Own resources: ATAS General Manager.	<p>The Organisation Structure to be agreed prior to first disbursement as part of the Employment Policy Document.</p> <p>Competent Staff to be appointed to the EHSS critical roles within one month following first disbursement.</p>	<p>Detailed organisational chart and description of responsibilities shared between ATAS and the contractors/ subcontractors to be provided, and</p> <p>EHSS critical roles and responsibilities to be defined and to be published in the Employment Policy Document.</p> <p>EHSS critical staff with a clear job description (including details of their roles and responsibilities) to be in substantive post.</p>
9	Best Practice Lenders Requirements (EBRD PR1, 2, IFC PS2)	Environmental and Social Management System	Requirements for discharging environmental, labour and social requirements and OHS to be reflected in contracts with sub-contractors/contractors and training awareness-raising to be provided.	Own resources: ATAS General Manager.	Ongoing	Relevant clauses to be included in contracts with sub-consultants. Sub-consultants performance to be monitored by ATAS and reported in

						monthly reports. Independently audited by LTA.
10	Best Practice	Design Change Management	<p>Develop a methodological approach for managing design changes, and assessing them from environmental and social perspective, to ensure the changes are ‘not environmentally (or socially) worse than’.</p> <p>The mechanism to include appropriate provisions for the public disclosure of agreed changes.</p>	<p>Own resources: ATAS Design Manager to develop methodology. To be reviewed and agreed by the LTA.</p>	3 months prior to the first disbursement.	Design change procedure. Report of the changes that have been considered in the form of a table including information on the proposed change, screening method, conclusions regarding significance of material change and environmental /social effect and follow-up/mitigation measures, if required.
11	Lenders Requirements (EBRD PR5, IFC PS5, EIB Social Standards)	Resettlement	<p>Land Acquisition, Compensation and Resettlement Plan (LACRP) to be developed, as set out in the Resettlement Framework, to fully comply with Lenders requirements for land acquisition and economic displacement. The Lender approved LACRP to be implemented.</p> <p>The LACRP will contain:</p> <ul style="list-style-type: none"> - an entitlement matrix - an acquisition and compensation procedure (including arrangements for consultation) - the grievance procedure. - the approach to maintaining access and enabling continuation of commercial activities 	<p>Own resources: DLH, ATAS General Manager as necessary.</p>	LACRP prior to first disbursement. Census to be completed to inform the LACRP.	LACRP submitted to Lenders for approval. LACRP requirements discharged at appropriate time. Reviewed and agreed by the LTA.

			<p>at the Kumkapi Fish Market, as well as the details of its subsequent resettlement.</p> <ul style="list-style-type: none"> - details on compensation for those individuals or businesses affected by resettlement and the formula for the calculation of financial (or other) compensation - details on how the views and wishes of those affected (as far as is reasonable and practical) will be taken into account, and how viable sites for the continuation of established businesses, and for domestic resettlement will be identified. 			
12	EBRD PR10 & 7, IFC PS7 & 4, EP5, EIB Consultation, Participation & Public Disclosure.	Stakeholder Engagement Plan	<p>The Stakeholder Engagement Plan (SEP) covering the design, construction and operation phases shall be implemented to ensure an ongoing process of dialogue is established with affected parties and the general public about environmental and social issues during implementation of the Project. SEP to be updated for each phase and programme of the activities. During the construction and operation of the Project the SEP shall provide for:</p> <ul style="list-style-type: none"> • regular liaison with neighbourhood elected leaders, district councils and the municipal authority to keep them advised of the project programme, progress and planned activities • timely and appropriate (at least two weeks in advance) disclosure of information about planned activities to Project neighbours and the local community prior to and during construction including, in particular, information about any disruptive activities such as transport of abnormal loads or noisy 	<p>Own resources: ATAS Director of Communication to implement SEP. To be reviewed and agreed by the LTA.</p>	<p>Within one month of the first disbursement.</p>	<p>Evidence of SEP implementation, including consultation events and meetings held, updated register of Stakeholders.</p> <p>Grievance records, number of complaints submitted, number of unresolved complaints within 1 month timeframe in SEP.</p>

			<ul style="list-style-type: none"> activities • timely and appropriate disclosure of information regarding any significant changes in the Project , for example local re-alignment of the route or changes in the construction programme • timely and appropriate information about any non-routine activities during operation that could cause disruption, for example major maintenance or repair works • clear information about Emergency Planning arrangements for the local community explaining what they need to do in the event of an incident affecting the Project. • Maintenance of a grievance mechanism and records of grievances to be maintained. ATAS and its contractors will seek to resolve all grievances within 1 month, records should show whether this is achieved or not. Where grievances may take longer to resolve, ATAS will inform the complainant. <p>Information shall be disseminated through the Project website, supplemented with use of newspapers, TV and radio, local newsletters/leaflets, posters, emails, direct mailings and other forms of communication.</p> <p>Communications shall be designed specifically to reach the relevant stakeholders in a culturally appropriate manner and shall be freely accessible.</p>			
13	Best Practice Local regulations Lenders requirements (EBRD PR4, IFC PS4)	Traffic Management	<p>Detailed construction traffic management plan to be prepared and following review and comment from the Lenders; necessary approvals shall be obtained from relevant authorities, and properly implemented to minimise negative impact on community during construction.</p> <p>Plan to include driver awareness, road safety audits,</p>	Own resources: ATAS Construction Manager to prepared plan. Review by the LTA and	One month prior to the start of construction works on site.	TMP agreed with municipalities. Implementation in accordance with the plan on site

			signage, information and awareness raising among the general public. Communication with public to be via an agreed mechanism and commensurate with the issue.	required approvals from relevant authorities.		
14	Best Practice Local regulations Lenders requirements (EBRD PR4, IFC PS4)	Site Security	Site Security Plan (SSP) to be detailed (based on outline draft currently included in H&S Plan). National Law for Private Security Services (No.5188) should be addressed. Security aspects to be considered in the detailed risk assessment. Voluntary Principles on Security and Human Rights to be considered. SSP to be approved by Supervision Organisation. Site Security plan to be also prepared for O&M phase. Training and awareness to be provided for construction workers on site security arrangements.	Own resources: ATAS Health and Safety Manager to prepared plan. To be reviewed and agreed by the LTA.	One month prior to the start of construction works on site.	SSP. Evidence of implementation on site.
15	Legislative Requirement Lenders Requirements	Occupational Health and Safety	Appoint a Health and Safety Manager ³ to ensure project compliance with Health and Safety legislation based on Employers requirements and Lenders requirements (including EU requirements) and promote OHS.	Own resources: ATAS General Manager	Within one month of first disbursement and prior to any construction works.	Health and Safety Manager to be agreed with LTA and named on ATAS organisation chart. Clear Roles and Responsibilities for the Health and Safety Manager as part of the job description and to be published in the Project Policy Document.

³ With a NEBOSH Construction Certificate or Turkish A Class Occupational Safety Certificate an expected minimum of 10 years experience of Health and Safety for infrastructure projects in Turkey.

16	Lenders Requirements	Occupational Health and Safety	Appoint Health and Safety professionals to achieve ratio of minimum 1 to every 250 workers. The ratio should be increased as appropriate for the risk of the works being undertaken.	Own resources: Health and Safety Manager	Prior to any construction works	OHS professionals and qualified safety workers in the agreed ratio. Details to be provided of the Health and Safety professionals employed to be provided in the Sponsor's Monthly Reports.
17	Legislative Requirement (Article 78, Act 4857 and 92/57/EEC Temporary and Mobile Construction Sites). Lenders Requirements (EBRD PR2, IFC PS2)	Occupational Health and Safety	Detailed Health and Safety Plan to be developed for all stages of the project. This is to include detailed risk assessment as required per Turkish Law (Article 78, Act 4857 and 92/57/EEC Temporary and Mobile Construction Sites. Health and Safety Plan to include: risk assessments, training, EHS operational control, PPE, performance monitoring and reporting through the contractor and sub-contractor chain. HSP to be approved by Supervision Organisation	Own resources: Health and Safety Manager to prepare plan. To be reviewed and agreed by the LTA.	Within one month of first disbursement, prior to any construction works and updated to reflect different project phases	H&S Plan pertinent and appropriate to the stage of the works. The plan should include risk assessments
18	ESIA requirement Best practice	Environmental and Social Mitigation and Compensation measures	ATAS to update the Environmental and Social Management Plan (ESMP) in Annex D1 of the ESIA to detail all of the mitigation measures specified within the ESIA and ESAP. The ESMP shall detail the measure, the programme for delivering the measure, and the resources required. ESMP shall cover adequately training, requirements, EHS	Own resources: Environment Manager to prepare plan. To be reviewed and agreed by the LTA.	Within 3 months of first disbursement and prior to any construction works.	ESMP, containing all measures from the ESIA, ESAP and a resourced programme for delivery.

			operational control, performance monitoring and reporting through the contractor and sub-contractor chain The mitigation measures specified in the table in Appendix 1, which are based on those specified in the ESIA, are to be included in the ESMP. The current version of the ESMP will be publically available on the Project website at all times.			
19	ESIA requirement Best practice	Environmental and Social Mitigation and Compensation measures	ATAS and its contractors to implement the updated ESMP ensuring that the mitigation measures are discharged at the most appropriate time. The implementation shall be recorded in a three monthly report: this report shall detail the measures that were completed within the last three months and the actions to be progressed within the coming three months. Appendix 1 details mitigation measures based on the requirements of the ESIA: these are to be implemented as part of the ESMP, and the target and evaluation criteria applied.	Own resources: Environment Manager to implement and prepare. Reports to be reviewed and agreed by the LTA.	Within 4 months of first disbursement.	3 monthly reports and evidence on site of implementation of measures.
20	Lenders Requirement PR3 EP 3 Best practice (EBRD PR3)	Pesticide use and management	Formulate and implement an integrated pest management (IPM) program that will entail coordinated use of pest and environmental information along with appropriate available pest control methods. Pesticides will be handled, stored, applied, and disposed in accordance with relevant Turkish Law and FAO (Food and Agriculture) International Code of Conduct on the Distribution and Use of Pesticides.	Own resources Environmental Manager to prepare programme. To be reviewed and agreed by the LTA.	Within 4 months of first disbursement.	Integrated pest management programme agreed by the LTA.

A1 Appendix 1 Key Mitigation Measures

This Appendix is based on the mitigation requirements specified in the ESIA, developing as necessary the measures to ensure compliance with the Lender Group requirements. It is to be implemented in conjunction with the ESAP.

Ref. No.	Subject	Mitigation Measure ⁴	Project Phase for implementation	Target and Evaluation Criteria	ESIA (2011) section
A1	Expropriation of Property	The Project design shall be modified where feasible to reduce the number of buildings to be expropriated to a minimum. Expropriation of property and land will be carried out in accordance with the LACRP.	Pre-construction	Register of properties to be expropriated to be maintained by ATAS. Census completed. To be provided to the LTA for verification.	4.3.3.1
A2	Traffic Noise Study	A detailed Traffic Noise Study shall be carried out during development of the detailed design to identify and predict traffic noise levels at sensitive receptors and determine the optimum noise abatement measures to achieve compliance with Turkish standards and with the IFC threshold of 3 dB(A) maximum additional noise impact for each receptor. Potential noise reduction measures may include: <ul style="list-style-type: none"> • paving with porous asphalt to reduce road-noise • installation of noise barrier walls along the route where feasible 	Pre-construction	The results of the study should be used to identify which noise reduction measures will be implemented as part of the scheme.	9.7

⁴ The measures and environmental standards specified shall be implemented and achieved for the Project insofar as they reasonably practicable. This means measures which are technically (to the current state of technical knowledge) and financially feasible, having regard among other things to local conditions and circumstances, and to the cost-effectiveness of the measure.

		<ul style="list-style-type: none"> insulating hospitals, schools and other sensitive structures. <p>Studies will be reviewed and approved by Supervision Organisation.</p>		All noise reduction measures will be agreed as part of the detailed design process, and form part of the scheme as-built.	
A3	Hazardous Material Safety	<p>Selection, storage, use and disposal of hazardous materials shall be strictly controlled during construction in accordance with relevant national and EU Directives requirements regarding worker health and safety and environmental protection, and good industry practice.</p> <p>Hazardous Materials Management Plan applicable to all sub-contractors to be prepared by ATAS to ensure compliance with Turkish regulations and EU requirements; to be approved by Supervision Organisation.</p>	Pre-construction, Construction	Preparation of Hazardous Materials management Plan (HMMP)	13.4.2
A4	Access	<p>The Project design shall provide improved pedestrian crossings at designated points as per Employer’s Requirements. This shall include pedestrian footbridges at existing crossing locations on the European Side, including linking the Metro station with the Yenikapi ferry terminal. Pedestrian footbridges shall be designed with ramps or other facilities (such as elevators) for the use of pushchairs, wheelchairs and baggage trolleys.</p> <p>The planned pedestrian footbridge located at km4+615m shall be moved 200 m further to the east of Yenikapi to provide better connectivity to Kumkapi Train Station subject to Design Changes approval from the DLH and relevant authorities.</p> <p>The existing three footbridges on the Asian Side shall be replaced with upgraded structures providing proper and adequate access for all users.</p>	Pre-construction, Construction	<p>Project construction drawings and as-built records.</p> <p>In the event that proposed works are found not to be feasible during detailed design, ATAS will develop and implement alternative designs that fulfil the stated objectives. To be recorded through the design change</p>	<p>2.1.3</p> <p>2.2.3</p> <p>2.3</p> <p>Table 11-2</p>

		<p>Two other footbridges will be retained.</p> <p>The Project design shall include, where existing road space is available, paths with a minimum width of 2.5 m to cater for pedestrians and cyclists along the project route. Where roadspace is not available for the provision of this pedestrian and cyclist facility (this is typically due to the presence of archaeological and cultural heritage structures) or where there are overriding health and safety risks from adjacent road traffic associated, then a reduced path will be provided where possible and in consultation with relevant authorities.</p> <p>An additional pedestrian underpass/overpass or another structure serving similar purpose shall be provided as part of the Project design to provide access to the Marble Tower at Mermerkule, subject to consultation and the required approvals from DLH and relevant authorities.</p> <p>Disability requirements of the EU to be considered.</p>		<p>management procedure, and reviewed and agreed by the LTA.</p>	
A5	Tunnel Safety	<p>The tunnel shall be designed and constructed to comply with the American Design Code NFPA 502 in relation to safety and with EU Directive 2004/54 on the minimum safety requirements for tunnels in the Trans-European Road Network.</p> <p>Design to be approved by Supervision Organisation.</p>	Pre-construction, Construction.	<p>Project construction drawings, records of approvals and as-built records.</p> <p>Safety inspection records.</p>	2.3.10
A6	Risks from Earthquake Floods and Storms	<p>Further studies shall be carried out to assess the risks from earthquakes, tsunamis, floods and storms and the Project shall be designed and constructed to address these risks, including meeting or exceeding the seismic standards required by the Turkish Seismic Code (2007) as per Design Manual which is subject to Supervision Organization approval.</p>	Pre-construction, Construction	<p>Risk reports prepared by ATAS and reviewed by LTA, and subsequent design change to be recorded through</p>	2.3.10.1

		<p>Specific measures shall be planned to mitigate the effects of tsunami waves and to prevent inflow into the tunnel including increasing the height of the sea wall and elevating the approach to the tunnel so that the entrance is above wave heights forecast in the design scenarios.</p> <p>Further studies shall be carried to assess the risk from ground liquefaction (from earthquakes) and the tunnel and approach road structures shall be located at sufficient depth below the sea bed to protect the structure from liquefaction risk. Additionally, appropriate ground improvements shall be carried out as part of construction.</p>		<p>the design change management systems.</p> <p>Project construction drawing, records of approvals and as-built records.</p>	
A7	Low Noise Surfacing	<p>The use of low-noise road surfacing shall be adopted at locations along the route where there are sensitive receptors who are being significantly impacted by the project (as identified in the detailed Traffic Noise Study: see A2 above).</p>	Pre-construction Construction	Project construction drawings, approvals and as-built records.	9.7
A8	Drainage Interface	<p>A review of the proposed drainage system shall be carried out to consider how the system will interface with the existing storm water network and to ensure an appropriate drainage arrangement is provided. Design to be reviewed by Supervision Organisation. Drainage design, especially drainage interface section, should be in line with requirements and standards outlined by the relevant authorities and in the Employers Requirements.</p>	Pre-construction Construction	A report shall be produced following the review, which shall identify issues to be addressed by detailed drainage design	2.3.8
A9	Design Criteria	<p>The road drainage system shall be designed in accordance with the Employers Requirements and to allow for containment of foreseeable major spills of fuel or other transported liquids on roadways. Design should consider vehicle run-off, oil/fuel spillage and interceptors. Drainage design, especially drainage interface section, should be in line with requirements and standards outlined in the relevant authorities and the Employers Requirements.</p>	Pre-construction Construction	Project design calculations, design approvals and as-built records.	7.5

A10	View of the Old City	<p>The Project shall not impact on the silhouette of the historic peninsula of Istanbul as seen from the Bosphorus. Elements of the Project shall be designed so that no structure exceeds approximately 7 m above existing ground-level so that the Project remains below the line of the old sea walls and the city beyond them and no structure intrudes into the view of the old city. Mitigation measures requested by UNESCO shall be discussed and implemented in consultation with DLH and other relevant authorities.</p>	Pre-construction Construction	Project construction drawings, records of consultation and as-built records.	11.5.2
A11	Archaeological Remains	<p>Construction near historic features shall be planned and undertaken so as to minimise the risk of any physical damage. Personnel operating equipment in the vicinity of historic features shall be trained and informed of the need to take particular care not to cause damage, and the records of this training shall be kept.</p> <p>All proposed structures such as new junction at Yenikapı and Samatya underpass shall be designed to minimise the disturbance to archaeological deposits subjecting to relevant local authorities.</p> <p>The Preservation Councils (Council No 4 , Council No 5, Council No 6, and the Renovation Council) have approved the project route subject to the following conditions being met:</p> <ul style="list-style-type: none"> • Results of the archaeogeophysical survey shall be submitted to Protective Council No 4 and the Renovation Council. • The project route shall not enter into the buffer zone of any designated historic sites. • Where the archaeogeophysical investigations have identified the potential for archaeological remains to exist at the road section of Ataturk Caddesi joining to Yenikapi Interchange a Government-approved qualified archaeologist (a representative of Preservation Council) shall be present on site to observe during site clearance and excavation of areas where there is 	Pre-construction Construction	<p>Project construction drawings and as built records.</p> <p>Records of training.</p> <p>Evidence of survey results being submitted to Councils, and written records of approval by Protective Councils</p> <p>Appointment of government approved archaeologist.</p> <p>Production of Archaeological Mitigation Design (to be approved by</p>	<p>2.2.3</p> <p>11.4.2.1</p> <p>11.4.2.2</p>

		<p>potential for finds. Finds shall not be disturbed until they can be properly investigated and assessed by a competent specialist and they shall then be removed to an appropriate museum or similar facility.</p> <p>An archaeological watching brief will be maintained by a government approved archaeologist (a representative of Preservation Councils) at the locations specified in Table 11.2 of the ESIA and any other locations that are required following consultation. In the event that archaeological remains are identified, a chance finds procedure will be implemented to ensure that such remains are properly recorded and removed to an appropriate museum or similar facility for study and long-term curation.</p> <p>Where there is evidence of palaeo-environmental deposits (evidence of past history in fossils, organic residues, minerals, etc) soils shall be sampled and analysed by a suitably qualified specialist.</p> <p>Results of all investigations shall be published.</p> <p>Detailed archaeological method statement for recording archaeological remains at Yenikapi interchange to be prepared and to include detailed descriptions of the methodologies to be employed for:</p> <ul style="list-style-type: none"> • Removal of modern material that overlies archaeological layers • Archaeological excavation and recording of archaeological remains and artefacts, including digital capture techniques, where appropriate • Palaeoenvironmental sampling of suitable archaeological deposits. <p>Excavation, conservation and storage of fragile and/or financially valuable artefacts.</p>		<p>Protective Councils), to include:</p> <ul style="list-style-type: none"> • Detailed archaeological method statement for recording archaeological remains at Yenikapi interchange. • Chance Finds Procedure, to be implemented in the event that archaeological remains are identified by the watching brief. <p>Preparation of a detailed methodology for the excavation of human remains.</p> <p>Post-excavation assessment report. Project design for post excavation analysis.</p>	
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		<p>Chance Finds Procedure, to be implemented in the event that archaeological remains are identified by the watching brief to be prepared and to include detailed descriptions of the methodologies to be employed for:</p> <ul style="list-style-type: none"> • Methodology for protection of archaeological remains from construction activities, prior to archaeological excavation and recording • Excavation and recording of archaeological remains and artefacts, including digital capture techniques, where appropriate • Palaeoenvironmental sampling of suitable archaeological deposits. • Excavation and storage of fragile and/or financially valuable artefacts. <p>Human Remains A detailed methodology for the excavation of human remains will be produced, including provision for appropriate storage and reburial according to local custom/religious practice.</p> <p>Post-excavation assessment report to include the following, as a minimum:</p> <ul style="list-style-type: none"> • Full lists of archaeological artefacts and samples obtained by the archaeological excavations and watching brief • An assessment of the condition of artefacts and statement of potential for further study • A full stratigraphic record of deposits, structures and artefacts encountered during the archaeological excavations. <p>Project design for post excavation analysis to be prepared and include detailed methodologies for :</p> <ul style="list-style-type: none"> • Analysis of materials identified by the post-excavation assessment as having potential for further study • Analysis of palaeoenvironmental samples and samples for 		<p>Academic report of the results of the archaeological excavations and post-excavation analysis.</p> <p>Production of 'popular report' to disseminate the results of the investigations to the wider public. Report to be published in an appropriate format.</p>	
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		<p>scientific dating of archaeological deposits.</p> <ul style="list-style-type: none"> • Procedures for the disposal of artefacts and samples for which long term storage is not considered appropriate. • Procedures for the long term storage of archaeological artefacts 			
A12	Public Information and Education	<p>ATAŞ shall develop a route-wide public information and education scheme to inform the local community and visitors to the Coastal Park of the historical context of the area and its archaeological significance as part of the SEP. The form and detail of this public scheme shall be developed in consultation with the Municipality of Istanbul and UNESCO. Public information and education proposals to be included in the Coastal Park Reinstatement Plan (A15).</p>	Pre-construction Construction	<p>Records of consultations and written description of scheme.</p> <p>Strategy for public information regarding archaeological investigations.</p> <p>Evidence of implementation on site.</p>	4.3.3.3 11.4.4
A13	Temporary Land for Construction	<p>As far as possible the ATAS shall make use of areas of vacant and unused land for temporary construction purposes in order to minimise adverse impacts on existing land use.</p> <p>Land used temporarily during construction shall be reinstated as soon as practicably possible after completion of works in the relevant section. Where compensation is required, it will be determined in line with the LACRP.</p>	Construction	<p>All land identified for use must be detailed in Construction Management Plan (CMP) prepared and maintained by ATAS, including provisions for on-site security and procedures for reinstatement/hando</p>	4.5

				<p>ver at completion of construction.</p> <p>Areas for use must be shown on construction phase drawings.</p> <p>Records of land temporarily used being returned to owners.</p>	
A14	New Borrow Pits and Sources of Materials	<p>No new borrow pits or quarries shall be established for the Project and all material will be obtained from existing licensed facilities.</p> <p>Materials shall be sourced from as close as possible to the Project so as to minimise the impact of transport.</p> <p>Where practicable recycled materials and materials certified as being from “green” or lower carbon sources shall be used.</p> <p>Aggregates and road asphalt shall be sourced from quarries, borrow pits, crushing plants and asphalt plants operating with valid environmental and other permits and licences and where the sites are managed in full compliance with applicable environmental standards and specifications.</p> <p>Dedicated asphalt and hot-mix plants shall be located as far as possible from the nearest sensitive receptor (e.g. residential houses, schools, hospitals, places of worship, play areas), in locations to be approved by the local environmental authorities, and with emission controls in accordance with the local environmental regulations and EU standards.</p>	Construction	<p>CMP must include :</p> <ul style="list-style-type: none"> • details of all sources for materials • identification of opportunities for use of recycled or low carbon sources • locations of asphalt and hot-mix plants <p>Records of construction materials supply sources.</p>	5.2

				Local authority approvals.	
A15	Impact on Coastal Park	<p>The ATAS shall minimise the period during which any area of the costal park is made inaccessible and to facilitate safe access to remaining useable areas.</p> <p>Where footbridges providing access are to be removed, replacement structures shall be built before the old bridges are demolished.</p> <p>The tunnel boring operation shall be started from the Asian side to avoid impacting on the coastal park and the historic peninsula from tunnel construction activities.</p> <p>ATAS shall seek to re-open any parts of the coastal park as soon as is practicable and safe to do so and shall maintain access to the shoreline and fishing ports at all times.</p> <p>ATAS will prepare a Coastal Park Reinstatement Plan for approval by DLH and relevant authorities and this will illustrate how the remaining parks of the Coastal park (post-construction) will be protected and improved. The Project design shall provide for replacement car parking areas and bus stops for people visiting the Coastal Park.</p> <p>Mitigation measures are to be reviewed following the public consultation exercise.</p>	Pre-construction Construction	<p>Construction programme.</p> <p>Project construction drawings.</p> <p>Provision of replacement structures and maintaining access to shoreline and fishing ports to be detailed in CMP, and cross referred in ESMP where appropriate.</p> <p>Proposals for alternative parking and reopening of coastal park areas to be included within ESMP and/or Coastal Park Reinstatement Plan.</p> <p>Approved Coastal Park Reinstatement Plan</p>	<p>2.2.3</p> <p>4.3.1</p> <p>4.5</p>

A16	Noise Regulations	<p>Construction of the Project shall comply with the noise standards set out in the Turkish Regulation on the Assessment and Management of Environmental Noise (CGDY) and the Turkish Regulation on Control of Excavated Soil, Construction and Demolition Wastes.</p> <p>In selection of construction equipment shall be selected in accordance with EU Directive 2000/14/EC, where applicable and relevant.</p>	Construction	<p>Records of noise complaints, and remediative actions taken if required</p> <p>Records of noise monitoring on site, and remediative actions taken if required</p>	9.8.2
A17	Timing of Noisy Activities	<p>Noise-generating activities will be performed during night time only when essential and in accordance with a special permit obtained for the purpose from the relevant authority taking into account the Istanbul Metropolitan Municipality, Department of Environment Protection and Control, Directorate of Environment Protection Letter dated 14.04.2011.</p> <p>Generally, blasting or other very noisy activities shall not be carried out when nearby schools, hospitals, places of worship, restaurants and places of entertainment are in operation. If noisy activities cannot be avoided at such times, scheduling of these works shall be discussed with the relevant premises to agree on suitable working periods and mitigation measures.</p>	Construction	<p>Register of permits obtained.</p> <p>Records of discussions with premises, and production of specific working methodology to minimise disturbance as far as is practicable,</p> <p>Records of noise complaints, and solutions where applicable</p> <p>Records of blasting.</p>	9.8.2

A18	Noise from Construction Plant and Equipment	<p>The selection of all construction equipment will be based on European Directive 2000/14/EU on sound emission of equipment operated outdoors where applicable and relevant.</p> <p>Where construction equipment is provided with sealed acoustic covers or enclosures these will be kept closed whenever the machines are in use.</p> <p>Machines will be shut down or throttled down to a minimum when not in operation.</p> <p>Maintenance procedures will be implemented in order to keep equipment in good working condition to minimise extraneous noises caused by poor performance.</p> <p>If practicable and safe, audible reversing alarms will not be used near sensitive receptors.</p> <p>Where practicable, demolition works will be carried out using equipment which breaks concrete by bending rather than by percussive methods.</p> <p>The slurry treatment plant located at the Asian side will be acoustically shielded such that the external sound pressure level is below 85 dB(A).</p>	Construction	<p>Records of noise complaints.</p> <p>Records of noise monitoring on site.</p> <p>Reports of regular ESMP / ESMS audits</p>	9.8.2
A19	Location of Noisy Activities and Equipment	<p>Noisy activities taking place within construction sites shall be located as far as possible away from sensitive receptors including homes, places of worship, schools and hospitals. In particular:</p> <ul style="list-style-type: none"> • crushers shall be sited at least 50 metres from sensitive receptors • excavation of hard materials within 50 metres of sensitive receptors shall be carried out by hydraulic or electrical power piling within 100m of sensitive premises shall be carried out 	Construction	<p>Records of noise complaints, and actions taken to address these</p> <p>Records of noise monitoring on site, and remediative</p>	9.8.2

		<p>using bored piling or casings driven by torque and hydraulic pressure.</p> <p>Should an emergency or temporary situation arise where the above distance are not possible, then ATAS will undertake prior consultation with the relevant authorities to ensure that the temporary impacts on potential receptors are minimised through the use of additional mitigation (e.g. additional acoustic screening, limitations on construction activities etc.) and good construction management and monitoring.</p> <p>On site structures such as containers, offices, hoardings shall be used to screen sensitive receptors from noise sources as far as possible. Where necessary movable noise barriers (2-2.5 m high) shall be used to ensure receptor noise levels are less than the limit value adjacent to noisy activities.</p>		<p>actions taken if required.</p> <p>Location of noisy activities, and proposed screening, to be detailed in CMP.</p> <p>Reports of regular ESMP / ESMS audits</p>	
A20	Vibration Regulations	<p>ATAŞ shall monitor vibration on commencement of relevant activities to ensure the limits for vibration established in the Turkish Regulation on the Assessment and Management of Environmental Noise (CGDY), are not exceeded. If they are exceeded measures shall be taken to reduce vibration.</p> <p>The ATAS shall identify locations such as universities, hospitals and recording studios which may contain equipment sensitive to vibration and hold discussions with the relevant institutions to ensure construction is managed to avoid adverse effects on use of the equipment.</p>	Construction	<p>Records of vibration monitoring on site.</p> <p>Records of vibration complaints.</p> <p>Records of discussions with institutions.</p> <p>Production of detailed methodology for managing and avoiding impacts</p>	9.8.2

				upon sensitive receptors. Methodology should also contain procedures for identifying and addressing issues that may arise during construction.	
A21	Vibration due to Blasting and Piling	<p>Blasting for the NATM tunnelling works shall be carried out using modern, controlled blasting methods which maximise blast efficiency, limit noise and vibration, protect the surrounding rock mass and maximise the accessibility of drilling work. An emulsion type explosive suitable for hard rock and wet conditions, with low production of smoke and odours and safe handling, shall be used.</p> <p>Blasting and percussive piling in the vicinity of historic structures and other sensitive premises shall not be permitted. All blasting and piling shall be undertaken in accordance with the Employer’s Requirements. Where piling in the vicinity of historic structures and other sensitive premises is essential, bored piles or casings driven by torque and hydraulic pressure shall be used.</p>	Construction	<p>Detailed blasting and vibration method statement should be produced; to include methodology for blasting, health and safety arrangements, and details of any roads or nearby properties that require closure/evacuation during the works</p> <p>Records of blasting.</p> <p>Records of vibration monitoring on site.</p>	<p>2.4.2.4</p> <p>9.8.4</p> <p>11.4.2.3</p>

				Records of vibration complaints, and remediative actions taken if required	
A22	Vibration Monitoring	<p>Vibration monitoring shall be undertaken to demonstrate compliance with guidance on acceptable vibration at the foundations of buildings as given in Employer’s Requirements and British Standard BS7385. Monitoring shall be carried out prior to and during piling activities at buildings within 100 metres of piling locations. The guideline values shall be reduced to 50% or less for historic buildings that may be in poor repair and houses.</p> <p>If the limits are exceeded on a regular basis (for more than 3 days in a 6-day period), then construction shall stop and the cause of the vibration shall be investigated and if necessary remedial action shall be undertaken, for example selecting a different construction technique. The new construction method shall be monitored to ensure it is operating within the vibration limits.</p> <p>The following structures shall be inspected prior to and during construction to check for any surface or structural damage and if any impact is detected work shall cease until remedial measures are taken and alternative methods shall then be used to avoid further damage:</p> <ul style="list-style-type: none"> • standing sections of the City Sea Walls along the Project route • protected historic chimneys at Kazlıçeşme • Mermerkule • Church of Ss. Sergius and Bacchus /Mosque of Küçük Ayasofya • House of Justinian (in the Palace and Harbour of Boukoleon). 	Construction	<p>Records of vibration monitoring on site.</p> <p>Records of vibration complaints, details of how complaints have been addressed.</p> <p>Structures inspection records, details of remediation required if necessary.</p>	11.4.2.3
A23	Protection of	ATAS shall adopt good construction site practice for protection of soils	Construction	Soils and	6.5

	Soils	and to follow IFC EHS Guidelines on Construction Materials Extraction and the IFC EHS Guidelines for Toll Roads. Specific measures shall include but not be limited to: the protection of newly exposed soil surfaces from erosion; the proper removal topsoil, overburden, and low-quality materials; its stockpiling near the site and preservation for rehabilitation.		Contaminated Materials Method Statement to be produced, demonstrating adherence to IFC EHS Guidelines. Method Statement should also include health and safety procedures, and emergency procedures for containing and managing accidental spillages.	
A24	Contaminated Materials	<p>Procedures shall be set up in a soils and contaminated materials method statement for identifying and dealing with contaminated materials when encountered during construction, including treatment and disposal of contaminated soils.</p> <p>Contaminated material shall be contained on site, remediated or disposed of in an appropriately licensed disposal facility.</p> <p>Fuel, oil and chemical spillages on site shall be contained immediately and the contaminated soil removed from site for suitable treatment and disposal.</p> <p>To minimise any risk of adverse effects on the sea of Marmara, drainage from the works shall be collected, and treated to remove contaminants prior to discharge in accordance with required permits.</p>	Construction	<p>Evidence of implementation of Soils and Contaminated Materials Method Statement.</p> <p>Records of off-site disposal.</p> <p>Register of permits obtained.</p>	6.5 7.4.5

A25	Disposal of Surplus Spoil and Materials	<p>Surplus spoil from the cut and cover and shaft excavations shall be removed for off-site disposal.</p> <p>Inventories of construction materials shall be managed to minimise the amount of surplus material requiring disposal and where possible any surplus materials shall be returned to the supplier, alternative uses shall be found or the material recycled.</p> <p>Surplus tunnelling spoil shall be disposed of at locations as approved by the relevant authorities. No excavated soil, construction and debris wastes shall be disposed of or deposited in seas, lakes, rivers, streets, forests and any other place that may cause adverse effects on the environment, except at recovery, storage, treatment and disposal facilities operating under a valid licence from the relevant authorities.</p> <p>Spoil and other surplus material arising from the works which is classed as 'acceptable fill' shall, wherever practicable, be recovered and used in the construction works. Relevant authorities shall be consulted regarding this on a site by site basis to ensure the re-use of waste materials is acceptable. Surplus material which cannot be utilised on site shall be made available to third parties for reuse on local development projects. These requirements should be met in the construction management plan and waste management plan.</p>	Construction	<p>Evidence of implementation of Soils and Contaminated Materials Method Statement.</p> <p>Records of off-site disposal.</p> <p>Inventories of construction materials/ spoil and waste materials from construction.</p>	<p>2.4.2.2</p> <p>3.3</p> <p>5.3</p>
A26	Waste Management	<p>A Waste Management Plan complying with international best practice, EU Waste Framework Directive and relevant Turkish regulation and covering all types of construction waste shall be developed and implemented by ATAS and all its contractors.</p> <p>All workers to be trained in WMP requirements.</p>	Construction	<p>Preparation of waste management plan and evidence of implementation.</p> <p>Record of training in WMP</p>	5.3

		<p>Wastes shall be collected and stored on site in accordance with the Waste Management Plan in containers of a suitable size and design to be provided for secure storage and segregation of all wastes. Containers shall be clearly labelled with the type of waste and placed in dedicated areas. A plan showing where wastes of different types can be deposited shall be available to staff.</p> <p>Biodegradable waste shall be collected daily and shall not be permitted to accumulate such that it may present an environmental hazard.</p> <p>The site shall be regularly inspected to ensure waste facilities are correctly used and are kept clean and tidy.</p> <p>The ATAS shall segregate materials suitable for recycling, including stripped road surfacing material and demolition wastes, and to recycle these wastes either within the Project or elsewhere where the facilities and markets exist for this in the area.</p> <p>Waste shall be transported in marked vehicles designed to minimise the risk of release of materials and windblown debris. Drivers employed by the ATAS shall be trained in the handling and disposal of their cargo and shall carry documents describing the nature of the waste and its degree of hazard. Waste transport and disposal subcontractors shall be required to comply with the same requirements.</p> <p>Full records shall be maintained of the type, quantity, composition, origin, disposal destination and method of transport for all wastes.</p> <p>Waste Management Plan (WMP) should also refer to health and safety procedures, and emergency procedures for containing and managing</p>		<p>requirements. Reports of audits; Records of regular site inspections, Records of transportation and off-site disposal of waste.</p>	
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		accidental spillages. WMP to be reviewed and agreed by the LTA.			
A27	Hazardous Waste	<p>All hazardous waste including asbestos, dyes, fluorescents, mercury, acids and similar materials shall be collected and stored separately in Temporary Hazardous Waste Storage Areas and disposed of in accordance with the provisions of the National Hazardous Waste Control Regulation and EU waste directives. Access to hazardous waste areas shall be restricted to suitably trained staff.</p> <p>Category III waste oils not appropriate for refining and regeneration, posing risk to human and environmental health if used as fuel, must be treated as hazardous waste and handled, managed and disposed of in accordance with Turkish regulations and in a suitably licensed waste facility.</p> <p>Hazardous and non- hazardous waste management plans shall be developed and implemented during construction.</p> <p>Old road surface material shall be re-used in paving where practicable, or stockpiled for other uses. Old asphalt may contain tar and polycyclic aromatic hydrocarbons and may require management as a hazardous waste. Any old road surface material to be tested before re-use.</p> <p>All hazardous materials used in slurry treatment shall be stored in a secure, bunded area and used under careful supervision to minimise any risk of accidental releases into the environment.</p> <p>No hazardous materials shall be stored in excavated areas and all handling of hazardous materials shall be under special supervision.</p>	Construction	<p>Staff training records.</p> <p>Records of off-site disposal of hazardous waste.</p> <p>Preparation of written management plans and evidence of implementation.</p> <p>Reports of ESMP / ESMS audits.</p> <p>Records of regular site inspections,</p> <p>Record of old road surface material tests.</p> <p>Evidence that appropriately registered waste contractors are being contracted.</p>	<p>5.2</p> <p>6.5</p> <p>7.4.2</p> <p>7.4.3</p> <p>7.4.5</p> <p>13.4.2</p>

		<p>Suitably sized impervious bunds or other containment shall be installed where hazardous materials are handled (e.g. fuel stores and loading areas concrete mixing, hazardous material stores) to prevent hazardous materials entering the site drainage.</p> <p>Spills of hazardous materials shall be immediately contained, cleaned up and disposed of in accordance with a Project spill response plan. Hazardous wastes shall only be transported by specialist ATAS vehicles or by sub-contractors holding all necessary authorisations waste registrations.</p>			
A28	Cement and Concrete	<p>Use of cement and wet concrete in or close to any exposed areas or any watercourse shall be carefully controlled and all washing waters from equipment used to mix or transport cement and concrete shall be collected and recycled as far as possible and any residues disposed off-site at a suitably licensed facility.</p> <p>HSMP should also include or refer to health and safety procedures, and emergency procedures for containing and managing hazardous substances, including spillages.</p>	Construction	<p>Preparation of Hazardous Substances Management Plan (HSMP) and evidence of implementation.</p> <p>Records of off-site disposal of hazardous wastes.</p>	6.5 7.4.9
A29	Fuels, Oils and Chemicals	<p>Fuels, oils, chemicals and stores of other harmful substances shall be stored on an impervious base protected by a bund of a capacity equal to 110% of the storage capacity of the largest tank.</p> <p>All fuel stored on site shall be kept in appropriately labelled drums or bulk tanks located in a designated place away from any surface waters (reference to requirements of the Regulation on Safety and Health Signs (No. 25325) and Turkish Standard (TS) EN 3864, and EU Directive 92/58/EEC should be made), open drains or manholes unless these are connected to an oil interceptor.</p>	Construction	<p>Reports of ESMP / ESMS audits.</p> <p>Records of regular site inspections,</p> <p>Records of treatment and disposal of waste</p>	6.5 7.4.3 7.4.6 7.4.9 7.4.10

		<p>Refuelling shall take place well away from any surface water in areas with impervious bunding or other containment.</p> <p>Drip trays shall be used for fuelling mobile equipment.</p> <p>All necessary precautionary and good construction site management measures shall be undertaken during re-fuelling of vehicles or equipment shall take place within excavated areas. Generally, such practices will be avoided but this will not be possible in at all times during the construction of the tunnelling section of the project.</p> <p>Waste oils and oily wastes shall be managed in accordance with the system of categorization under the Waste Oils Regulation:</p> <ul style="list-style-type: none"> ○ Category I waste oils shall be recycled by way of refining or regeneration at facilities licensed by the Ministry of Environment and Forestry. ○ Category II waste oils may be used as secondary fuel in facilities licensed by the Ministry for this purpose. <p>Chemicals used in TBM tunnelling to protect and lubricate the TBM and to stabilise the grout used to seal the tunnel lining segments, shall be selected to be of no or low hazard to the water environment. Despite their low environmental hazard these substances shall be treated as hazardous in the event of their disposal as waste.</p> <p>Bitumen compounds used in laying the wearing course of the road and specialist chemicals used in tunnelling and waterproofing of structures shall be prevented from discharging to the environment and all handling of these materials shall be under strict supervision.</p>		oils.	
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		Chemicals used in for sub-sea grouting shall not be allowed to enter sea or inland surface waters. All chemicals shall be contained and handled to avoid risk of contaminating water within the tunnel.			
A30	Water Pollution Control Regulation 2004 No.25687	A permit for discharge of effluent either to surface water or sewers under the Water Pollution Control Regulation 2004 No. 25687 shall be obtained and any discharges made shall be in accordance with the permit conditions and in accordance with the requirements of EHS Guidelines to protect public health and safety and conserve water resources.	Construction	Register of permits obtained.	7.4.2 7.4.4
A31	Disposal of Sewage	Sewage collected from sanitary facilities located in site offices, at work camps and at portable WCs shall either be collected onsite and transported by tanker for disposal at the local sewage treatment works or discharged directly to sewers in accordance with a permit obtained under the Water Pollution Control Regulation 2004 No. 25687. No direct discharge to surface waters shall take place.	Construction	Preparation of Water Pollution Management Plan (WPMP) and evidence of implementation. Register of permits obtained. Records of tanker deliveries to sewage treatment works.	7.4.2 7.4.4 7.4.7
A32	Wheel Washing	The effluent from wheel washing shall be collected and subjected to settlement to reduce suspended solids prior to recycling of the wash water as far as possible, and any surplus shall be discharged into the existing road drainage system. Collected soil shall be removed for disposal at a suitable licensed facility at least weekly.	Construction	Records of disposal at licensed facilities Reports of audits; records of regular	7.4.8

				site inspections	
A33	Protection of the Sea of Marmara	<p>The protect the sea of Marmara from the adverse effects of construction run-off the following measures shall be undertaken:</p> <ul style="list-style-type: none"> • Drainage from excavations shall be collected, and treated to remove contaminants prior to discharge in accordance with required permits • Perimeter drains shall be installed around all working areas to collect run-off and direct it to settlement tanks before discharge in accordance with required permits • Channels, bunds and sandbag barriers shall be provided on site to direct run-off to the collection system • There will be no direct discharge of contaminated run-off from work sites to the Marmara Sea or Kurbagali Creek • Run-off from construction sites shall be, as far as possible, discharged to the existing road drainage system • All exposed earth shall be surfaced or vegetated as per landscaping design as soon as possible after works have been completed to minimise erosion • Works shall be programmed to minimise surface excavation works during the rainy season • A plan shall be devised for management of the site during periods of heavy rainfall. High sediment generating activities such as road paving shall be avoided and exposed surfaces and stored materials covered to reduce erosion of sediments into surface waters • Spoil and soil storage areas and open stores of construction materials shall be designed and managed to control loss of sediments into run-off by minimising the length and angle of slopes. • The size and duration of exposure of areas of open ground shall be kept to the minimum needed for the works • Trafficked areas shall be covered with coarse stone ballast to reduce disturbance of soils • Sweeping rather than washing shall be used to keep roads and other surfaces clear of dust • Construction equipment shall be cleaned away from surface 	Construction	<p>Preparation of written heavy rainfall site management plan and evidence of implementation.</p> <p>Records of regular site inspections.</p> <p>Reports of ESMP / ESMS audits.</p>	7.4.5

		<p>waters and in areas connected to the sewerage system</p> <ul style="list-style-type: none"> • Biodegradable cleaning agents shall be used for removal of asphalt residues from road laying plant • All existing manholes shall be covered and temporarily sealed to prevent construction materials entering the drainage system • Surface water drains within the site shall be kept clear and clean at all times • All facilities and structures shall be regularly inspected and maintained to ensure proper and efficient operation at all times, and especially after heavy rainfall. Sediment deposits shall be regularly removed and disposed of either on site (if uncontaminated) or at a suitably licensed facility. 			
A34	Control of Dust and Emissions	<p>Turkish Regulation on Control of Excavated Soil, Construction and Demolition Wastes requires measures to be taken to minimize dust emissions from excavations. The following measures shall be adopted to control the release of dust and other emissions from construction:</p> <ul style="list-style-type: none"> • Dust generating areas shall be controlled by water spraying, particularly under dry weather conditions • Stockpiles shall be sited to minimise the potential for dust generation taking into account prevailing wind directions and the locations of sensitive receptors. Dust generation shall be controlled using wind shields and water spraying as necessary in dry periods • The drop height of dusty materials shall be kept as low as possible. • If crushing of construction material or waste is required, crushers and stockpiles shall be located away from sensitive receptors • On-site speed limits shall be applied and enforced for trucks travelling on unpaved surfaces (10 km/h) • Trucks transporting dusty materials off-site shall be covered before leaving the site • Construction vehicles shall not be permitted to keep engines running while waiting to enter the site or waiting on-site • Wheel washing facilities shall be installed for use by all trucks 	Construction	<p>Production of Air Quality and Dust Management Plan (AQDMP).</p> <p>Reports of audits; records of regular site inspections,</p> <p>Records of dust and air quality complaints, and remediative action taken</p> <p>Equipment maintenance records.</p>	8.9.2

		<p>leaving the site so as to minimise the spread of dust and dirt onto neighbouring roads</p> <ul style="list-style-type: none"> • Public roads used by site traffic shall be swept regularly to prevent accumulation of dust and dirt • Site machinery shall be shut down or throttled down to a minimum when not in use • Equipment shall be regularly maintained to keep it in good working condition to minimise exhaust gas emissions caused by poor performance • Training shall be provided to operators of equipment and truck drivers to ensure awareness of requirements for control of dust and other sources of air pollution 		Records of training provided to operators.	
A35	Monitoring of Dust	<p>Construction-dust deposition levels around at the nearest sensitive receptors to construction sites and at control locations shall be monitored monthly using dust deposit gauges. If the annual average deposition rate exceeds 0.35 grams per square metre per day, or exceeds the same value by more than 50% in any one month; ATAS will implement all reasonably practicable measures to reduce dust emissions in accordance with the TA Luft guidance and Turkish Regulations. The level of dust deposition at control locations shall be considered in determining what is reasonably practicable in the circumstances.</p>	Construction	<p>Monitoring records.</p> <p>Records of remediative actions undertaken if dust levels are exceeded.</p>	8.9.2
A36	Trees and Amenity Planting	<p>The ATAS shall consider the potential loss of trees in deciding on temporary work areas, with the aim of avoiding unnecessary felling.</p> <p>A detailed tree survey shall be carried out to determine the species, age, height and condition of all trees to be felled and this information will be used to plan replacement planting.</p> <p>All felled trees shall be replaced by new planting on at least a one-for-one basis, and three-for-one for large and old trees. Species shall be selected with a view to using native species where suited to the location. A mix shall be used to provide early cover using fast-growing species</p>	Construction	<p>Method statement for tree survey and replacement planting, including areas agreed for replacement planting</p> <p>Records of survey results.</p>	10.5

		<p>and longer term succession. Final planting plan to be included in the Coastal Park Reinstatement Plan (A15).</p> <p>If there is insufficient land available for replacement tree planting along the roadside and in the coastal park, alternative planting areas shall be identified elsewhere in the city.</p> <p>Actions shall be taken to improve the amenity and biodiversity value of remaining and new areas of planting by replacing poor specimens and filling gaps during the construction phase. Final planting plan to be included in the Coastal Park Reinstatement Plan (A15). Regular maintenance around areas under the control of ATAS will be undertaken during the operational phase of the project.</p>		<p>Reports of audits; records of regular site inspections,</p> <p>Records of tree felling.</p>	
A37	Wildlife Habitats	<p>Vegetation clearance and felling of trees where birds may be nesting shall be undertaken only outside the nesting period between March and August.</p> <p>Trees to be felled shall first be inspected to identify whether bats are roosting or hibernating in the trees and, if this is the case, the affected animals will be relocated to a suitable alternative site. If bats are disturbed alternative habitat shall be provided in the form of bat boxes (artificial roosts) located in suitable trees.</p> <p>Bat specialists with local knowledge must be consulted with regard to providing suitable alternative roost sites, taking into account seasonal constraints.</p>	Construction	<p>Bat Relocation method statement developed with local expert to be produced, if relevant, in consultation with relevant authorities.</p> <p>Appropriate schedule for tree felling and records of tree felling.</p> <p>Reports of audits; records of regular site inspections</p>	10.4.2 10.5

A38	Surface Run-Off	<p>During construction site run-off shall be collected, treated and discharged in accordance with required permits.</p> <p>During the operation phase all road and tunnel drainage shall be collected at sumps located at the low points along the route (at underpasses and in the tunnel) and discharged to the municipal storm water sewer system in accordance with required permits.</p> <p>Dewatering shall be discharged to the sea if of suitable quality or to the sewage system. Permits for any discharges shall be obtained from the competent authority and appropriate pre-treatment shall be undertaken before any discharge to sea.</p>	Construction Operation	<p>Register of permits obtained.</p> <p>Reports of audits; records of regular site inspections</p>	<p>2.4.6 7.5</p>
A39	Dealing with Spills	<p>All waste spills shall be promptly cleaned up.</p> <p>Spill Response Kits including absorbent materials suitable for the materials to be handled on site, shall be held at secure, clearly signposted locations. Instructions shall be provided with the kits and personnel shall be trained in their use. They should be provided at locations of high risk activities e.g. refuelling areas.</p> <p>Spillages shall be immediately contained on site and all contaminated materials including soils shall be removed from the site for suitable treatment and disposal.</p> <p>All staff and sub contractors shall be required to report any incidents and these will be subject to investigation and remedial and preventive actions shall be taken.</p> <p>The drainage system shall be designed in accordance with the Employers</p>	Construction Operation	<p>Records of transportation and off-site disposal of contaminated and hazardous waste.</p> <p>Register of spill incidents and remediative actions undertaken.</p> <p>Staff training records.</p> <p>Project design calculations and as-built records.</p>	<p>5.3 7.5 13.4.2</p>

		<p>Requirements and will allow for containment of major spills. Where road drainage is contaminated by spills this shall be separately collected and subjected to appropriate treatment prior to disposal in an appropriately licensed manner.</p> <p>Spills of hazardous materials shall be immediately contained, cleaned up and disposed of in accordance with a Project Spill Response Plan. Hazardous materials shall only be transported by an officially licensed company holding all necessary authorisations.</p>		<p>Reports of audits;</p> <p>Authorisations of specialist</p>	
A40	Noise Monitoring	<p>A Noise Monitoring Programme shall be set up to measure construction noise levels at the closest sensitive receptors as work starts on each new section along the route. If levels at receptors exceed the standards, measures will be taken to reduce emissions so that the limit values are met. Lessons-learnt from preceding work-sections shall be considered when setting up and performing the new sections of road works.</p> <p>ATAS shall ensure that local residents and managers of other sensitive facilities are kept advised of planned noisy periods and shall respond to any questions or complaints in accordance with the Grievance Procedure established for the project.</p> <p>ATAS shall carry out noise monitoring during the year after opening of the Project to determine whether environmental noise standards are being met. Monitoring locations shall be selected at representative buildings along the scheme which could be sensitive to noise. The success of noise mitigation measures and the need for further mitigation will be evaluated from the results of these measurements.</p>	Construction Operation	<p>Monitoring programme.</p> <p>Monitoring results.</p> <p>Records of noise complaints.</p> <p>Records of noise monitoring after opening.</p> <p>Where locations are identified in which additional noise reduction measures are required, these will be designed, agreed and implemented as soon as is practicable</p>	9.7 9.8.2

				following the identification of need for further measures.	
A41	Emergency Planning and Response	<p>A comprehensive Emergency Preparedness and Response Plan shall be prepared for operation of the tunnel to address all foreseeable incidents including fire, explosion, road accidents, earthquake, tsunami, flooding, terrorist activity and other threats. The plan shall consider restrictions on materials that can be carried through the tunnel (e.g. explosives, gases etc.).</p> <p>The plan shall be prepared in consultation with the local emergency services, and shall include plans to prevent, prepare for and respond to emergencies affecting road users (vehicles and pedestrians) and the community. All necessary information shall be conveyed to road users and the wider community.</p> <p>Frequency of testing emergency response plans to be risk based and tailored to construction activities and potential impact to sensitive receptors. Consultation with local emergency services should be undertaken.</p> <p>The plan should include offsite and areas overlapping ATAS responsibility areas. EC Tunnel Directive 2004/54/EC to be complied with.</p> <p>Road safety audit to be undertaken by qualified independent 3rd party.</p> <p>An Emergency and Disaster Management Committee shall be set up to be responsible for planning measures to prevent and respond to emergencies in the tunnel. For the construction period this will also</p>	Construction ; Operation	<p>Preparation of Emergency Preparedness and Response Plan and evidence of implementation.</p> <p>Records of consultations.</p> <p>Records of committee meetings.</p> <p>Training and awareness to be provided for all staff.</p> <p>Road safety audit report follow up actions to be closed out.</p>	<p>2.5.1</p> <p>2.5.4</p> <p>13.7.2</p>

		<p>include a representative from the contractor.</p> <p>The Operations Building shall be designed to include parking for special fire trucks needed for the tunnel and a room for the emergency team and associated equipment.</p> <p>Adequate arrangements to be in place during construction, and operation phases.</p> <p>To be reviewed and agreed by the LTA.</p>			
A42	Improvement and Reinstatement of Coastal Park	<p>ATAS shall compensate for the loss of costal park areas by carrying out improvements to the remainder of the park after construction in consultation with the DLH and relevant authorities. Improvements to be included in the Coastal Park Reinstatement Plan (A15).</p>	Post-construction	<p>Proposals to be included within ESMP Coastal Park Reinstatement Plan</p>	4.3.3.3
A43	Air Quality Monitoring	<p>ATAS shall monitor ambient air quality at a continuously operating air quality monitoring station to measure ambient air concentrations and determine whether ambient air quality standards are being exceeded. If continuous monitoring indicates that ambient concentrations are increasing to near the limit value, variable message signs will be used to slow down traffic to reduce emissions. Depending on the measured effect of traffic on air quality, other locations may be selected for monitoring monthly average concentrations.</p> <p>Consideration to be given to increasing the flow rate as an additional mitigation measures to reduce pollutant concentration near vent shafts.</p>	Operation	<p>Monitoring records.</p> <p>Records of remediative actions undertaken if ambient air quality standards levels are exceeded.</p>	8.9 13.2.2
A44	Air Quality	<p>The Project shall work with the municipal traffic authorities (Istanbul</p>	Operation	Records of liaison	8.9

	Management	<p>Traffic Control Centre (IBB)) to design and develop traffic management and other initiatives to encourage drivers to minimize emissions. These may include:</p> <ul style="list-style-type: none"> • supporting public campaigns on regular vehicle maintenance • raising awareness regarding the relationship between driving behaviour and emissions through public information • installing speed control displays to limit speed • using the Project's variable message signs to allow vehicle speeds to be controlled to minimise congestion. 		with IBB, including details of monitoring/mitigation agreed as a result of discussions.	
A45	Operational Waste	All operational waste shall be managed in accordance with legal requirements, including wastes generated from treatment of road drainage and from clean up of spills.	<p>Operation</p> <p>Operational Waste Management Plan to be provided at least 6 months prior to the start of operations.</p>	<p>Records of transportation and off-site disposal of waste.</p> <p>Reports of audits; Records of regular site inspections.</p> <p>Register of spill incidents.</p>	5.4