

Euro-Asian Construction Corporation
«EVRASCON» JSC



ENVIRONMENTAL
MANAGEMENT PLAN

**“Western Europe-Western China”
International Transit Corridor**
**«Reconstruction of the road «Shymkent-Border of Zhambyl region»
(section 1 km 593-632)**

Shymkent

2018

Approved by: _____

TABLE OF CONTENTS

1. Introduction
 - 1.1 Project description
 - 1.2 Environmental Management Plan
2. Guided by the principles of the EMP
 - 2.1 Methodology
3. Mitigation of environmental
4. Monitoring mechanism
5. Measures to reduce emissions of pollutants into the atmosphere.
6. Measures to prevent accidents.
7. Public awareness activities
8. Budget estimates
9. Institutional framework for implementing the monitoring plan and to reduce environmental impact
10. Managing the impact of the project on the environment
11. Acquisition of land
12. Plan for Emergency Response
13. Reporting on the implementation of the EMP and EMP
14. Conclusion

Application

- Appendix -1: Environmental Management Plan
- Appendix -2: Environmental Monitoring program
- Appendix -3: Schedule control of emissions into the atmosphere
- Appendix -4: Schedule the quality control of discharge water
- Appendix -5: Schedule control standards of physical factors on the control points
- Appendix -6: Schedule of internal check
- Appendix -7: Schematic drawing of the site km 593-632 Shymkent-Border of Zhambyl region.
- Appendix -8: Driving shift camp
- Appendix -9: Brief plan to monitor and reduce the impact on the environment
- Appendix -10: Additional information

ABBREVIATIONS:

IBRD-	International Bank for Reconstruction and Development
BW -	Bad weather
BR -	Building Regulations
E -	Efficiency
CIS-	Commonwealth of Independent States
CSU -	Concrete-sorting unit
CP -	Check-point
CR -	Committee for Roads
CSP -	Crushing and Screening Plant
CCS -	Consultant Construction Supervision
E-	Environment
EIA-	Environmental impact assessment
MPR-	Monitoring plan and reduce to environment impact
E-	Environmental
EMP -	Environmental Monitoring Plan
GS -	Gas Station
IEM -	Industrial environmental monitoring
PM -	Production monitoring
KZT. -	Kazakhstani tenge (currency of the Republic of Kazakhstan)
ME-	Ministry of Environment
MoTC -	Ministry of Transport and Communications
MAC -	Maximum allowable concentration
MPE-	Maximum permissible emissions
MLL -	Maximum limit level
RD-	Regulatory documentation
OM -	Operation and Maintenance
P-	Pollutants
APM -	Air point monitoring
PMC -	Project Management Consultant
RDCR -	Regional department of the Committee for Roads
RK-	Republic of Kazakhstan
SPZ-	Sanitary protection zone
SRN-	Sanitary rules and norms
SS-	State Standard
State RPLM-	State Research and Production Center for Land Resources and Land Management
STA -	State Territorial Administration
MSW -	Municipal Solid Waste

1. Introduction

1.1 Project Description

The autoroad "Khorgos - Almaty - Shymkent –Republic of Uzbekistan Border" 593-632 km of existing roads and it is located on the territory of South Kazakhstan region. Constructed section is located at territory of Tulkubas region. It's starting from the existing road in area of junction of ramp №3 of Interchange at PK 0+00 (km633+867) of road A2, crossing the road «Badam-Zhaskeshu-Tulkubas», further comes along at the south side of v. Beshta, Kenaf, crossing road of «Michurino-Tastumsyk», «T. Ryskulov-Tulkubas», «Akbiik-Zhabagly», in region of 601 km of existing road «Khorgos-Almaty-Shymkent-Republic of Uzbekistan border». Bypassing the settlements of Azattyk, Kyzylasker, Kizen, Akbiik, Shukyrbulak, Ryskulov center, v. Shakpak-Baba. The ending point of section is at PK 394+33 at existing road A-2 km 593, on the border with Zhambyl region.

The works quantities also include the construction of 2-lane tunnel. The section of tunnel passes through Boraldaytau mountain range, which is located at Tulkubas region, nearby Shakpak-baba village, the length of tunnel is 860m from PK 330+00 to PK 370+00.

1.2 Environmental Management Plan

Principles for Security Policy IBRD (International Bank for Reconstruction and Development) confirm, that environmental management plan (EMP), which aims to develop measures to mitigate and manage the possible consequences, which must be carried out during the project, to: avoid, reduce, mitigate or offset the negative impact on the environment.

In this regard, certain measures have been taken to prevent and reduce negative impacts on the environment, which were incorporated into the project design and additional recommendations to further prevent or reduce the effects listed in the EIA, as reflected in the proposed EMP.

2. The basic principles of the EMP

2.1 Methodology

The monitoring plan and reduce the environmental impact is preparing for all types of identified environmental impacts prior to construction, operation and monitoring activities.

The methodology consists of the following stages:

- identify actions to reduce and protect the environment for each of the activities of the project and the environmental component;

- ways to reduce, and improve the compensation measures for each of the identified impacts and risks;
- develop a monitoring mechanism proposed mitigation measures;
- assessment of budgetary requirements for mitigation of project implementation and monitoring measures;
- definition of the responsibilities of the various agencies involved in the project implementation and monitoring of mitigation construction.

Monitoring plan and reduce impact to the environment has been prepared in accordance with the above criteria and are presented in Appendix-1 and Appendix-2, each of the components considered in the relevant sections. Plan to monitor and reduce the impact on the environment is included in all bidding documents for the project and will be part of the contract for the civil works. Strict implementation of the plan and compliance with the project management practices and adequate building standards will significantly reduce the negative impact of the project.

3. Mitigation Measures

This section includes the principles, procedures and mitigation measures that are necessary to ensure the most appropriate environmental mitigation and improvement plans used at various stages of the project. In order to prevent and minimize the consequences as a result of the project includes measures / management plans based on the appropriate technological design, improvement or adjustment.

This plan has been recommended for the determination of actions in order to avoid and minimize/control the consequences arising from the various phases of the project, i.e., before construction, during construction and operation, for each of the expected impact, as described in the EIA report.

Mitigation measures have been developed in order to avoid or mitigate potential negative impacts.

4. Mechanism of Monitoring

Monitoring of environmental components and mitigation measures during the construction and operational phase is a key component of environmental monitoring plan (EMP) to ensure the protection of the environment. The purpose of monitoring is to:

- 1) to monitor changes in the environment at different stages of the project cycle, in comparison with the baseline;
- 2) management of environmental issues arising from the construction and installation works by means of qualitative and reliable monitoring of compliance with environmental standards.

The monitoring mechanism is developed for each specific type of impact, and includes:

- place monitoring (space adjacent to the project activities, sensory receptors, or in the zone of influence of the project);
- monitoring tools, i.e. monitoring parameters and control methods (visual inspection, consultations, interviews, surveys, field measurement or sampling and analysis);
- frequency of monitoring (weekly, monthly, seasonally, annually or in the performance of certain activities).

The monitoring program will also include regular monitoring of construction work for compliance with environmental requirements in accordance with the regulations, specifications and environmental monitoring plan. The purpose of such monitoring is to assess the effectiveness of the mitigation measures and the immediate formation of additional mitigation measures and/or modification of existing ones, to meet the environmental requirements as needed during construction (Appendix-2).

In addition, in accordance with the requirements of the Republic of Kazakhstan and the IBRD, the contractor developed a plan for environmental management. Thus, the EMP developed for compliance with safety regulations set by the IBRD to prevent, minimize, mitigate or compensate for potential adverse impacts and also have to inform the potentially affected people and to consult with relevant organizations in the preparation and implementation of the project. This policy applies to all projects financed by the IBRD, including those concerning the private sector, and all components of the project. Domestic claims procedures are described in detail and included in the section of the manual as follows: (I) the selection and review of the main issues at the outset of this project to continue throughout the project cycle; (II) assessment of the possible impact, preparation and compilation of mitigation measures and monitoring programs and institutional arrangements, as well as creating conditions for the integration of safeguards in the design and implementation of the project; (III) in the project are prepared and carried out consultations and distributed information available to potentially affected people form, manner and language, (IV) plans are communicated to the public, with information on the different stages of the project cycle updated. Accordingly, this sequence is used in the development of MPR, as well as in the process of updating and training MPR ensuring compliance with the security policy of IBRD (International Bank for Reconstruction and Development).

Environmental parameters that need to qualitatively and quantitatively measure and compare selected as "indicators" and are recommended for monitoring during project implementation. These monitoring indicators will be constantly monitored to ensure compliance with national standards or the IBRD, and compared with the baseline established at the design stage. The list of indicators and regulations that apply to comply with the rules listed below:

- Air Quality - Sanitary and epidemiological requirements for atmospheric air quality of urban settlements and rural inhabited areas, soils and their security, content areas of urban and rural settlements, the conditions of work with sources of physical factors affecting the human" (The Government Decree of the Republic of Kazakhstan No.168 dated 25.01.2012)
RD - 52.04.186-89 "Guidelines for the control of air pollution"

- Noise levels - ICN 2.04-03-2005 "Interstate construction norms. Noise protection", GOST 12.1.003 – 83 "Noise. General safety requirements", GOST 12.1.012-2004 "Vibration safety. General Requirements".

- Soil quality – "Standards of the Maximum Allowable Concentrations of the Hazardous Substances, Harmful Microorganisms and Other Biological Materials Being the Soil Pollutants" approved by the Order of the Ministry of Health of the RK No.99 dated 30.01.2004 and Order of the Ministry for Environmental Protection of the RK No.21C dated 27.01.2004.

- The quality of surface and groundwater – "Sanitary requirements for water sources, water intake sites for drinking purposes, drinking water installations and places of cultural and domestic water use and safety of water bodies.(Resolution of the Government of the Republic of Kazakhstan dated January 18, 2012 No.104.).

- Technical Regulations "Requirements for the safety of drinking water for the population" Resolution of the Government of the Republic of Kazakhstan № 456 dated 13.05.2008

- The number of identified endangered species of wild animals and migratory birds - in comparison with the basic environment.

Ecological monitoring of construction serves as the oversight, whose main purpose is to ensure compliance with the EMP. Monitoring is a process that ensures that the deviation from the EMP is not observed, or may be corrected as soon as possible and any unintended consequences are quickly detected and eliminated. Special items EMP should be monitored and included in the monitoring plan. During the construction of environmental monitoring will be protected from the potential sites of roadside erosion, restoration of quarries after operations, air monitoring jobs and material depots, air emissions of concrete and asphalt plants, preservation of archaeological monuments and cultural heritage, including cemeteries, public relations and security.

Monitoring is carried out to assess the possible impact for the first 3 years after project completion. Regular monitoring of the state of the road surface, bridges, culverts, drainage facilities and structures of slopes is important from an environmental point of view, but is being developed as part of regular road maintenance. In addition to these activities, information activities about the locations, types and consequences of accidents or accidents required to carry out in cooperation with the traffic police. Recommended monitoring the quality of air, noise and water, landscaping and beautification and feedback are also included in the monitoring plan.

The monitoring plan and details of the monitoring sites and performance of the project during construction and operation, subject to environmental control, are presented in Appendix 2.

5. Measures to reduce emissions of pollutants into the atmosphere.

The factory has a complete set of asphalt dust and gas cleaning equipment. Emissions from the drying drum is cleaned in a bag filter FM 720/48 type with control tower -99%. Silos is imported powder with air filter with control tower 99%.

The project provides for special measures to reduce emissions into the atmosphere:

- to minimize the unit to operate at idle.
- to ensure the reliability of internal combustion engines, hydraulic systems loading mechanisms.
- dust (irrigation) inert materials roadway.

6. Prevent accidents measures.

The planned activities will focus on measures to ensure safe operations and technical reliability of all operations of the production cycle.

When the work will be carried out the requirements of the legislation of the Republic of Kazakhstan and international regulations on industrial safety accident prevention and mitigation. This will be the following preventive measures:

- assess the risk of accidents at the site, to determine the risk to personnel, population and environment;
- developed and implemented the necessary instructions and plans staff prevention of emergency situations. Including a work plan with dangerous materials (diesel, fuel, etc.);
- a schedule of supply of construction work, regulating the procedure for the movement of construction equipment and vehicles;
- conducted training, coaching and training of personnel safety, fire safety, emergency response;
- checked the reliability of construction machinery and equipment used in manufacturing.
- planning for the evacuation of staff and the public in case of an accident. Readiness of construction machinery and equipment will be analyzed by specialists and experts, as well as the regulatory authorities of Kazakhstan.

Besides the above example, the elements minimizing the occurrence of an emergency situation will be as the following measures relating to the human factor:

- regular safety instruction:
- availability of personnel working in hazardous objects required tolerances and work permits (crane operation, etc.);
- training and instruction on handling hazardous for humans and the environment Substances (fuels and lubricants);
- emergency preparedness and response planning;

- a ban on the use of alcohol and drugs in the workplace.

Also, in order to prevent emergency situations provided complex technical and technological measures.

7. Informed public measures

In accordance with the laws of the Government and the IBRD requirements, the requirements of the project include:

- throughout the construction period, to organize meetings with stakeholders and NGOs and subsequently to consider their views when developing projects and plans. Questions and concerns raised during the public meetings held in the feasibility stage will be considered.
- council of local citizens (community) holds talks with victims.
- holding public meetings, discussions, in accordance with the legislation of Kazakhstan.

In order to comply with the above requirements, the following actions are planned:

Information about the activities of meetings will be available to the public by means of:

- Mass media publishing
- Publications in regional newspapers

8. Budget estimate

The budget estimate is being prepared for all mitigation and monitoring indicators in the frames of EMP. The estimate for performance of EMP on construction period is 13 886 450,00 KZT.

9. Institutional framework for implementing the monitoring plan and to reduce environmental impact

The Contractor shall be responsible for the implementation of the monitoring plan and reduce the impact on the environment during construction work in the first place, is responsible for overseeing and monitoring the implementation of the plan. To implement the plan for environmental management contractor enters into a contract with an accredited laboratory, a contract for the removal of solid waste, and enter into contracts with developers for the development of projects of the EIA, MPE and

registration permits (Act on the user rights of land, subsoil use contract, ecological passport of the enterprise, permission sanitary and epidemiological surveillance, water use on the issue.) and etc. To accept to work one specialist on environment and a professional specialist in occupational health and safety, which will work in close cooperation with environmental officers Supervision Consultant construction (CSC) and the Committee for Roads (CfR). According to the plan of internal audits to organize internal audits to ensure the timely adoption of corrective measures identified during the audit nonconformities and implementation activities of the program of industrial environmental monitoring:

- 1) the following manufacturing instructions and regulations on environmental protection.
- 2) implementation of permit conditions on emissions into the environment.
- 3) the correctness of the accounting and reporting of the results of industrial ecological monitoring.
- 4) compliance with fire safety regulations.
- 5) implementation of regular payments for environmental pollution.
- 6) monitoring of process parameters on the enterprise.
- 7) monitoring of compliance with the requirements in the field of operating systems.
- 8) compliance with the approved maintenance regime for the control of production and the technical condition of production equipment.
- 9) compliance with safety rules and fire safety at the company.
- 10) control the emissions of pollutants.
- 11) reporting on the program of industrial environmental monitoring.
- 12) constant monitoring of processes that have a negative impact on the environment.
- 13) clear the area of debris and recycling of industrial waste.
- 14) regular monitoring of the use of petroleum products.
- 15) reinstatement (technical and biological) of disturbed lands.
- 16) the exclusion of the Strait of oil and waste oil on the soil cover.

10. Management of the Project-related environmental impacts

EMP has been prepared in accordance with each exposure identified and presented in annex 1. This EMP is divided into three parts: pre-construction, during construction and monitoring, each of which includes the activities of the project to address the elimination of its influence the following steps:

- event
- impact
- mitigation measure
- responsibility for the implementation of
- responsibility for supervision

11. Acquisition of land

The projected road is located at Tulkubas region of South Kazakhstan region. The length of road is 39 km. According to BR (Building Regulations) 3.03-09-2006 "Autoroads", the designed road in terms of traffic intensity belongs to the I-b technical category, with four-lane traffic and a dividing strip of 5 meters.

12. Emergency Response Plan

Contractor JSC «Evrason» jointly with the Department of SKR of Emergency Situations of Kazakhstan should be put in place plans for emergency response and procedures in order to limit and decrease the damage caused by accidental spills, snow and others. This requires the establishment and development of relations and response systems, to minimize the effects of these situations, as well as to minimize the time required to respond to these situations in order to protect people, property and natural resources. The Contractor shall submit a security plan approved by accidents and hazardous chemical spills. The plan should also be part of detours in the event of an emergency. Contractor in case of emergencies reported on the situation in South Kazakhstan Region Department for Emergency Situations of the Republic, as well as inform the Committee for Roads.

13. Reporting on the implementation of the EMS and EAP.

The contractor in cooperation with the specialist environment shall prepare a monthly report the status of implementation of the EMP. Such reports shall contain information on the main activities during the reporting period, conducted mitigation measures and any publications on issues arising with suppliers, local governments, affected communities, etc. Monthly Report on the status of the Contractor shall be represented by the CR CCS, Department of San-epidemiological surveillance, SKO Department of Ecology, Ministry of Emergency Situations, Land Administration, Department of Forestry, Department of Natural Resources and regulation, local tax authority. The report should fully comply with tons of EMP and EMP reports indicating the areas and the measures taken. The monthly report should include the results of the EMP and environmental monitoring, as well as the results of the site visit. The report shall be submitted during the first week of each month, quarterly reports on

the IEE and the EMP must be submitted to the 7th, following the reporting month clause 4.21 FIDIC. Promptly report appears in the pollution of the environment and planned mitigation measures. The Contractor shall establish and maintain procedures for defining responsibility and authority on the identification and study, taking measures to mitigate the effects caused on the environment.

14. Conclusion

Construction work could be the cause of a temporary negative impact on the environment. Temporary construction works would have a greater impact than the activities associated with the permanent work. For this reason, the program of environmental management and monitoring designed for both temporary and permanent jobs, which are produced during the construction.

Proper and timely implementation of the various conditions of the EMP in terms of mitigation, monitoring and capacity-building will minimize the adverse environmental impacts associated with the project construction and operation. To ensure that the adverse effects of the project will be properly monitored, the tender and contract documents for the construction work for the project should include the EMP. Regular monitoring and reporting on the implementation of the EMP must be taken to ensure that mitigation measures are implemented, as appropriate, and creating conditions for the development and implementation of corrective actions as necessary.

Environmental Specialist is also responsible for the implementation of the EMP. Capacity building programs are invited to strengthen the capacity of the Legal and Economic Department (for environmental issues).

The project will have an overall beneficial effect, as well as some of the negative consequences that will be carefully monitored and mitigated. Thus, compliance with EMP will fully meet the requirements of the Bank, as well as the Law "On Subsoil and Subsoil Use", the Land Code, Environmental Code.

APPENDIX – 1

Appendix - 1: Environmental Management Plan

<u>Environmental elements</u>	<u>Basic design elements and associated roads and their location</u>	<u>Types alleged effects</u>	<u>Period of work execution</u>	<u>Mitigation measures Environmental Impact</u>	<u>Responsible for execution of works</u>
Land resources	Autoroad "Shymkent-Border of Zhambyl region" Site km 593-632	Exclusion of land from agricultural use	Before the start of construction work	Registration of land use rights, Art. 31,43,44 of the Land Code of the Republic of Kazakhstan. Act on the right of permanent use	Employer CfR
	The objects of temporary use: - Bypass - Construction site - Makeshift camp - Asphalt concrete mixing plant -Cement concrete plant	Temporary occupation of land	Before the start of construction work	The Contractor shall provide a receipt of all necessary approvals and obtain all necessary permits documents, registration of temporary right of land use Art. 32, 36, 43 of the Land Code of the Republic of Kazakhstan (the Act) and the Technical Specifications P 100, c.104. The contract rent rotational village Construction of the access road to the surface area, lease agreement	Contractor Engineer- Ecologist
	Borrow pit: All objects of permanent and temporary use specified in the plan, showing the location of application objects №1.	Landscape change	Before the start of construction work	Direct negotiations, contract for subsoil use under the law of Kazakhstan "On Subsoil and Subsoil Use" dated 24.06.2010. Registration of land art. 32,36,37,43 Land Code of the Republic of Kazakhstan (the Act), the conclusion of Sanitary Control to background radiation. Development of the draft organization of work and rehabilitation of quarries, development of EIA permit for emissions into the environment. Before removing the memory bandwidth is cleaned area in felling trees and shrubs	Contractor

<u>Environmental elements</u>	<u>Basic design elements and associated roads and their location</u>	<u>Types alleged effects</u>	<u>Period of work execution</u>	<u>Mitigation measures Environmental Impact</u>	<u>Responsible for execution of works</u>
				felling and removal of elements in place in consultation with the Employer.	
Land (soil covering)	Subgrade soil are mainly represented by sandy loam and loam. The most unfavorable factor in this case is the presence in the area of soil with abundant moisture in excess of allowable BR RK 3.03-09-2006*, and requires the appointment of a complex engineering and materials science activities to eliminate the adverse effects of the soil on the bearing capacity of the pavement. According to the materials research conducted soil in accordance with GOST 25100-95, and in accordance with BR 2.03.11-85 aggressive to concrete brand W4 of the water permeability. The corrosiveness of the soil with respect to lead sheathed cable in accordance with GOST 9.602-89 - average.	Destruction, damage and contamination of soil and food production work waste.	During the production of works	Removal of topsoil RT (topsoil) storage and preservation in piles for later use in reclamation. r.100, p.400,500 "Technical Specifications." Strengthening of slopes paintings and existing gullies to prevent soil erosion. Excluding flooding of areas adjacent to the highway, land degradation from traffic pollution. Monitoring soil quality according to the plan for environmental monitoring and the conclusion of its holding with a specialized organization. Excluding Strait oil and waste soil. Park the road construction equipment only in the designated areas. Implementation of land reclamation. Cleaning of territories from garbage and waste disposal.	Contractor Engineer- Ecologist

<u>Environmental elements</u>	<u>Basic design elements and associated roads and their location</u>	<u>Types alleged effects</u>	<u>Period of work execution</u>	<u>Mitigation measures Environmental Impact</u>	<u>Responsible for execution of works</u>
Air environment	Highway "Shymkent-gr. Zhambyl region" Section 593-632 km, construction sites, dirt pits, shift camp.	Dusty air pollution and emissions of exhaust gas: CO, NO ₂ , SO ₂ , hydrocarbons, soot	During the construction		
				To carry out systematic dedusting water. Transport of materials in closed canopy vehicles. Installation of speed limit signs of movement. Use of high-quality fuel. Conduct environmental monitoring agencies under contract with the sanitary epidemiology supervision or by independent accredited laboratories in accordance with the plan for environmental monitoring. Develop EIA, obtain the opinion of the state examinations, receive permission to emit emissions in all operating areas in accordance with Art. 69 Environmental Code. When laying asphalt mixes containing toxic hydrocarbons should be ensured in the work area even rhythm of technological tools and transport. Uploading of asphalt mixes are produced only in the receiving hoppers pavers. Compliance with the repair of machines. Traffic control.	Contractor

<u>Environmental elements</u>	<u>Basic design elements and associated roads and their location</u>	<u>Types alleged effects</u>	<u>Period of work execution</u>	<u>Mitigation measures Environmental Impact</u>	<u>Responsible for execution of works</u>
				Strict compliance with sanitary norms SanPiN«Requirements for atmospheric air of populated areas» No.3076 dated 18.09.2004, No.841 dated 3.02.2004, approved by Ministry of Health of Republic of Kazakhstan. "Sanitary requirements to air quality in urban and rural settlements, soils and their security, content areas of urban and rural settlements, the conditions of work with sources of physical factors affecting the human "(Resolution of the Government of the Republic of Kazakhstan No.168 from 25.01.2012,	
	Settlements are located along reconstructed road: the distance to the property from 50 meters	Exposure to noise and vibrations, air pollution	During construction work	The Monitoring the condition of roads and the implementation of "Requirements for atmospheric air of populated areas" SanPiN 3076 from 18.09.2004 "The content of the exposure zone number from 841 03.2004." According to the environmental monitoring plan before the start of the construction work to perform air quality monitoring, to determine baseline air, noise and vibration in accordance with S100, clause 106 "Technical specifications" in the areas where settlements at a distance of less than 200 m from the working area to carry out work only in the daytime (8-18 hours) Arrangement of plants to produce sound-absorbing areas or in tents (compressor)	Contractor

<u>Environmental elements</u>	<u>Basic design elements and associated roads and their location</u>	<u>Types alleged effects</u>	<u>Period of work execution</u>	<u>Mitigation measures Environmental Impact</u>	<u>Responsible for execution of works</u>
				used in the road construction machinery housings and hoods. The operating personnel must be provided with noise protection facilities in areas with a noise level of 85 dBA. Speed Limit Truck traffic in the settlements. Control of the optimum mode of construction equipment. Controlling the level of noise (should not exceed health standards dBA established for settlements and work area of the RK Ministry of Health, the order No.139 dated 24.03.2005.	
Water environment	Water bodies that are in close proximity and crossing the road construction site: -r. Arys - r.Jabigly Camps and work areas for drinking water: - ACP - Underground career - the road - CCP	Water pollution in the construction of roads, bridges, culverts, water intake for technical necessary	In the production process.	Quality control of surface water sources to carry out under contracts with agencies sanitary-epidemiology or independent accredited laboratories according to the Environmental Monitoring Plan. The quality of water from surface sources must match the "Sanitary requirements for water sources, places of water intake for drinking purposes, drinking water supply, places of cultural and community water use and water security facilities" Government Resolution on January 18, 2012 Resolution number 104. The device of water treatment plants in the discharge of water from the road and bridges. In the case of waste water and petroleum oil wells produce clean rainwater. Extraction of water for technical	Contractor

<u>Environmental elements</u>	<u>Basic design elements and associated roads and their location</u>	<u>Types alleged effects</u>	<u>Period of work execution</u>	<u>Mitigation measures Environmental Impact</u>	<u>Responsible for execution of works</u>
				needs only be equipped on the water intake sites, in places agreed with the supervisory authorities of the water sources. Placement of construction sites in the construction of bridges, traffic engineering and parking of vehicles on the territory of the coastal strips of water protection zones is not allowed. Doing work in floodplains is allowed only with the permission of water protection and sanitary-epidemiological bodies. Washing of vehicles and road-building equipment must only be installed in locations equipped with treatment facilities. Pollution of waterways industrial and domestic waste is not allowed. To prevent water erosion must be made to strengthen the bottom of the slopes and river beds culverts. When the device is necessary to bridge piers sheet piling device. Water used for drinking, should be sanitary epidemiological conclusion.	
Flora and fauna	Roads and all work areas	Damage, destruction, pollution, trees and shrubs and animal habitats	During the production of works	Obtaining permission for felling of trees and shrubs from the Customer State forestry bodies. Reinstatement by biological reclamation. To reduce the impact on the flora of the territory should be performed dedusting work areas. To skip the cattle need a device and installation of road	Contractor

<u>Environmental elements</u>	<u>Basic design elements and associated roads and their location</u>	<u>Types alleged effects</u>	<u>Period of work execution</u>	<u>Mitigation measures Environmental Impact</u>	<u>Responsible for execution of works</u>
				underpasses signs warning about the likelihood of collisions with animals. Moving the road equipment must be done no closer than 5 meters from the trees.	
Earth, air, water, soil covering	SCP, ACP, construction site, CCP	Dusting, levels of air pollution, soil pollution, noise impacts Water pollution	During the production of works	Getting permission documents: Act on the right of land use contract Subsoil / Environmental Passport enterprise Resolution Gostekhnadzor Resolution sanitary supervision ensure the development of the EIA project and MPE emission permit Art. 69 Environmental Code of Kazakhstan. Permission for use of water, reclamation project. Environmental monitoring of emissions toxic gases, dust generation, noise and vibration in the use of equipment as well as the contamination of soil carried out according to environmental monitoring plan. Process monitoring of the enterprise, systematic control of the storage of bitumen and building materials, avoiding the Strait, Debris and waste products are stored in designated areas, followed by removal to a landfill. Water for drinking is stored in germeti-cal capacities in strictly designated area no closer than 75 m from the working area, it has a quality certificate. The Contractor shall be responsible for sanitary living conditions in the workplace.	Contractor

<u>Environmental elements</u>	<u>Basic design elements and associated roads and their location</u>	<u>Types alleged effects</u>	<u>Period of work execution</u>	<u>Mitigation measures Environmental Impact</u>	<u>Responsible for execution of works</u>
				Cement silo for concrete plant must be equipped with necessary filters, which must be regularly cleaned or updated. In the process of crushing the rubble under constant water irrigation.	
Fuel storage and chemicals	The production base	Contamination of soil, air, risk of fire	During the production of works	Store all fuels and lubricants produced in sealed containers having fencing and fire equipment. Filling road-building machinery performed tanker "on wheels", which has a certificate of compliance and permit the carriage of dangerous goods. Not allowed spilling fuel and oils. Regular monitoring software uses aniyu-fuel. In case of spillage of oil strait place filled with sand, it is collected in special containers and transported in the designated areas. All-purpose machines must be equipped with a container with sand, pallets, shovel. collected in special containers and transported in the designated areas. All-purpose machines must be equipped with a container with sand, pallets, shovel.	Contractor
Production wastes	Work site	Pollution and littering the construction site camps, working area	During the production of works	Construction and household waste, waste products are stored in strictly designated areas. Recovery of waste and waste production in the landfill in accordance with the Treaty and the resolution Akimat. To conclude a contract with the organization for the export of sewage from septic tanks	Contractor

<u>Environmental elements</u>	<u>Basic design elements and associated roads and their location</u>	<u>Types alleged effects</u>	<u>Period of work execution</u>	<u>Mitigation measures Environmental Impact</u>	<u>Responsible for execution of works</u>
				concreted.	
Social environment and public relations	"Shymkent-border of Zhambyl region" Section 593-632 km settlements located along the reconstructed highway	Gaseous pollution, dust, noise, vibration, violation of social and social conditions	During the production of works	<p>Before start of construction contractor, together with the customer and local government holds public hearings on the construction project to assess the impact on the environment and socio-economic status of the population.</p> <p>To ensure optimal operation of vehicles and road construction machinery.</p> <p>Regularly dust removal in the settlements to ensure the safety of residents of settlements in places of works installed traffic signs regulating the speed and direction of organizations transport-ta. Mounted guards working area and arranged pedestrian crossings. Installed visual-information boards, which shall include the name organizations working, office location and contact numbers. Conduct environmental monitoring of air, water sources, soil, noise exposure (according to the schedule of monitoring). All the complaints and suggestions of the population are registered and their implementation shall be communicated to the population. In the localities to carry out work only in the</p>	Contractor

<u>Environmental elements</u>	<u>Basic design elements and associated roads and their location</u>	<u>Types alleged effects</u>	<u>Period of work execution</u>	<u>Mitigation measures Environmental Impact</u>	<u>Responsible for execution of works</u>
				daytime.	
Natural, historical and architectural monuments	"Shymkent-border of Zhambyl region" Section 593-632 km	The destruction and damage	During the production of works	Contractor shall carry out a full scientific research (R & D) on the monuments of archeology and historical heritage located on the territory. Drawing up a report on the results of scientific research. Coordination of research results into the local executive bodies. (on the construction of the road right of way no historical and architectural monuments)	Contractor
Reporting on the implementation of the Plan for the protection of the environment and environmental monitoring		Ensuring compliance with environmental legislation, minimize exposure natural resource production processes on the environment and human health	During the production of works	The contractor should be fully reporting requirements IEE and EMP indicating areas and measures taken. The monthly report should include the results of the EMP and environmental monitoring, as well as the results of the site visit. The report shall be submitted during the first week of each month, quarterly reports on EMP and EMP must be submitted to the 7th, following the reporting month Article 4.21 FIDIC. To submit a report at the facts of environmental pollution and planned mitigation measures in shortest terms. The Contractor shall establish and maintain procedures for defining responsibility and authority on the identification and study, taking measures to mitigate the effects caused on the environment.	Contractor

APPENDIX – 2

Appendix - 2: Environmental monitoring program

Characteristics	Location	Number of points	defined parameters	frequency	Responsible authority	
					Executor	Leader
1	2	3	4	5	6	7
Control of pollution air	Construction of the road (km593-632)	6pc.	nitrogen dioxide carbon monoxide soot Saturated hydrocarbons inorganic dust Sulfur dioxide	Once a month		Contractor. Environmental Specialist
	Rotational Village	2pc	nitrogen dioxide carbon monoxide soot Saturated hydrocarbons inorganic dust Sulfur dioxide	Once a month		
	ACP,CCP	2-pc	nitrogen dioxide carbon monoxide soot Saturated hydrocarbons inorganic dust Sulfur dioxide	Once a month		
	pits	2-pc	Nitrogen dioxide, carbon monoxide, soot, saturated hydrocarbons, inorganic dust, sulfur dioxide	Once a month		

Characteristics	Location	Number of points	defined parameters	frequency	Responsible authority	
					Executor	Leader
1	2	3	4	5	6	7
Control of water resources	Open waters in the immediate vicinity of the construction of the road and cross the highway: r.Arys r. r.Jabigly	3pc	pH, sodium + potassium, potassium, calcium, magnesium, copper, zinc, lead, manganese, arsenic, phosphate, chromium, iron, chlorides, sulfates, ammonia nitrogen, nitrate, fluoride	Once a month		Contractor. Environmental Specialist
	Rotational village. ACP. CCP. CSP	2pc		Once a month		

Characteristics	Location	Number of points	of defined parameters	frequency	Responsible authority	
					Executor	Leader
1	2	3	4	5	6	7
Control of noise and vibrations	Near the industrial area (CSP)	5pc	Noise and Vibration	Once a month		Contractor. Environmental Specialist
	CCP	5pc	Noise and Vibration	Once a month		
	laboratory	5pc	Noise and Vibration	Once a month		
	ACP	5pc	Noise and Vibration	Once a month		
	On the border of settlements.	5pc	Noise and Vibration	Once a month		
Control of soil covering	On the border of SPZ prom. ACP areas, CCP. At the checkpoints along the highway, career	10pc	pH, solid residue salt, oil	As necessary		Contractor. Environmental Specialist

1. Industrial environmental monitoring is carried out in enterprises, organizations and other business entities in accordance with Article 132 of the Environmental Code of Kazakhstan on 09. 01. 2007. The purpose of monitoring is to identify baseline indicators of soil in areas exposed to human impact.

2. Sampling points and venue measurements ustanavlivayutya contractor according to Art. 106 "Technical Specification

APPENDIX – 3

Appendix - 3: Schedule the control of emissions of pollutants into the atmosphere

№ Check-point	Place of measurement	Controlled substance	Frequency control	periodicity control in period-UMC time / day	Standard		By whom carried out control	Methods of control
					MPE emissions r/c	mg/m ³		
1	2	3	4	5	6	7	8	9
T.1 T.2	Construction site (on the border of SPZ)	Nitrogen dioxide, carbon monoxide, carbon black Saturated hydrocarbons inorganic dust Sulfur dioxide	Every three month				Accredited laboratory	Confirm methods
T.1 T.2	Construction site (on the border of SPZ)	Nitrogen dioxide, carbon monoxide, carbon black Saturated hydrocarbons inorganic dust Sulfur dioxide						Confirm methods
T.1 T.2	Crushing and Screening Plant (on the border of SPZ)	Nitrogen dioxide, carbon monoxide, carbon black Saturated hydrocarbons inorganic dust Sulfur dioxide						Confirm methods
T.1 T.2	ACP-CCP	Nitrogen dioxide, carbon monoxide, carbon black Saturated hydrocarbons inorganic dust Sulfur dioxide						Confirm methods

T.1 T.2	rotational camp (on the border of SPZ)	Nitrogen dioxide, carbon monoxide, carbon black Saturated hydrocarbons inorganic dust Sulfur dioxide					Confirm methods
T.1 T.2	Borrow pits	Nitrogen dioxide, carbon monoxide, carbon black Saturated hydrocarbons inorganic dust Sulfur dioxide					Confirm methods
T.1	boiler house	Nitrogen dioxide, Nitrogen oxide Carbon monoxide, hydrogen sulfide, carbon Sulfur dioxide, a mineral oil Oil, Saturated hydrocarbons	Every three month			Accredited laboratory	Confirm methods

APPENDIX– 4

Appendix - 4: Schedule the quality control of waste water

№ п/п	№ Number overflow, category sewage	Sampling (receiver wastewater, withdrawals)	Controlled substance	Frequency control	By whom carried out control	Quality control procedure
1	Water outlet №1 - production and household wastewater	Rotational camp, the main drive №1	suspended solids COD Chloride sulfates Phosphates anionic surfactants	Once month a	Accredited laboratory	Upon the confirm methods
2	Water outlet №1 - production and household wastewater	Rotational camp, the main drive №2	suspended solids COD Chloride sulfates Phosphates anionic surfactants	Once month a	Accredited laboratory	Upon the confirm methods
3	Natural water (surface waters in the immediate vicinity of the construction of the road and cross the highway)	r.Arys r.Jabigly	pH, sodium + potassium, calcium, magnesium, copper, zinc, lead, manganese, arsenic, phosphate, chromium, iron, chlorides, sulfates, ammonia nitrogen, nitrate, fluoride	Once month a	Accredited laboratory	Upon the confirm methods

APPENDIX – 5

Appendix - 5: Schedule control standards of physical factors on the control points

Number source Number of control points	Place of measurement	Controlled substance	Baseline	periodicity control	By whom carried out control	Quality control procedure
1	2	3	4	5	6	7
T.1 T.2	Near the industrial site (CSP)	Noise and Vibration		Once a month	Accredited laboratory	Upon the confirm methods
T.1 T.2	Cement-concrete plant (on the border of SPZ)	Noise and Vibration		Once a month	Accredited laboratory	Upon the confirm methods
T.1 T.2	Bridge over Kokparsay during device bored piles	Noise and Vibration		Once a month	Accredited laboratory	Upon the confirm methods
T.1 T.2	Bridge over r.Sary- Bulaksay (while the device bored piles)	Noise and Vibration		Once a month	Accredited laboratory	Upon the confirm methods
T.1 T.2	ACP	Noise and Vibration		Once a month	Accredited laboratory	Upon the confirm methods
T.1 T.2	On the border of settlements	Noise and Vibration		Once a month	Accredited laboratory	Upon the confirm methods
T.1 T.2	Overpass for the passage of agricultural machinery	Noise and Vibration		Once a month	Accredited laboratory	Upon the confirm methods

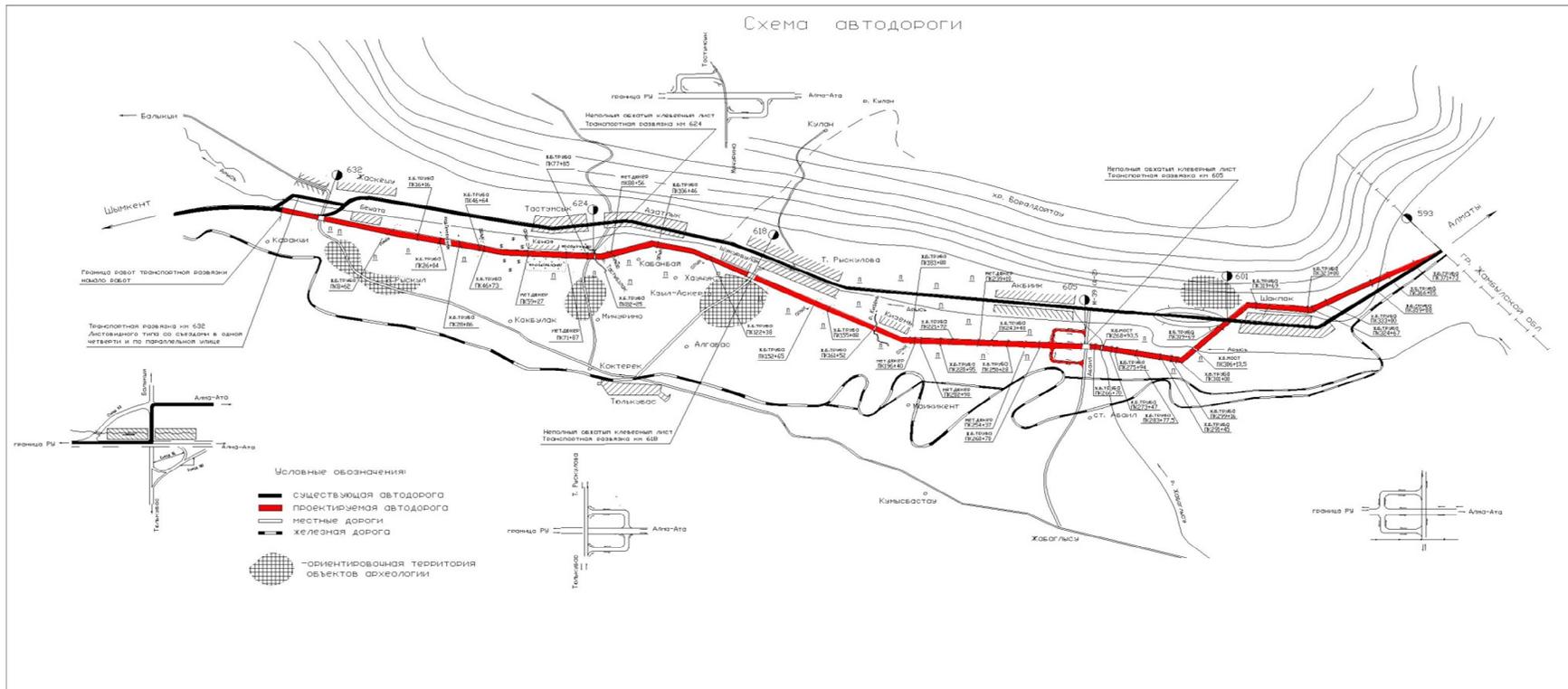
APPENDIX – 6

№	Type of inspection	The frequency of inspections	Method for	Location	Responsible for the performance of inspections
1	Check the regularity of air sampling	monthly	Checking accounting documentation	Territory of the enterprise	Responsible for environmental activities on the premises
2	Checking compliance with the rules of the staff handling waste, preventing the proliferation of waste on the territory of the enterprise	monthly	visual	Places (area, containers), waste storage	
3	Checking and provide regular reports on the implementation of IMC OSI	monthly	-	-	Environmental Specialist

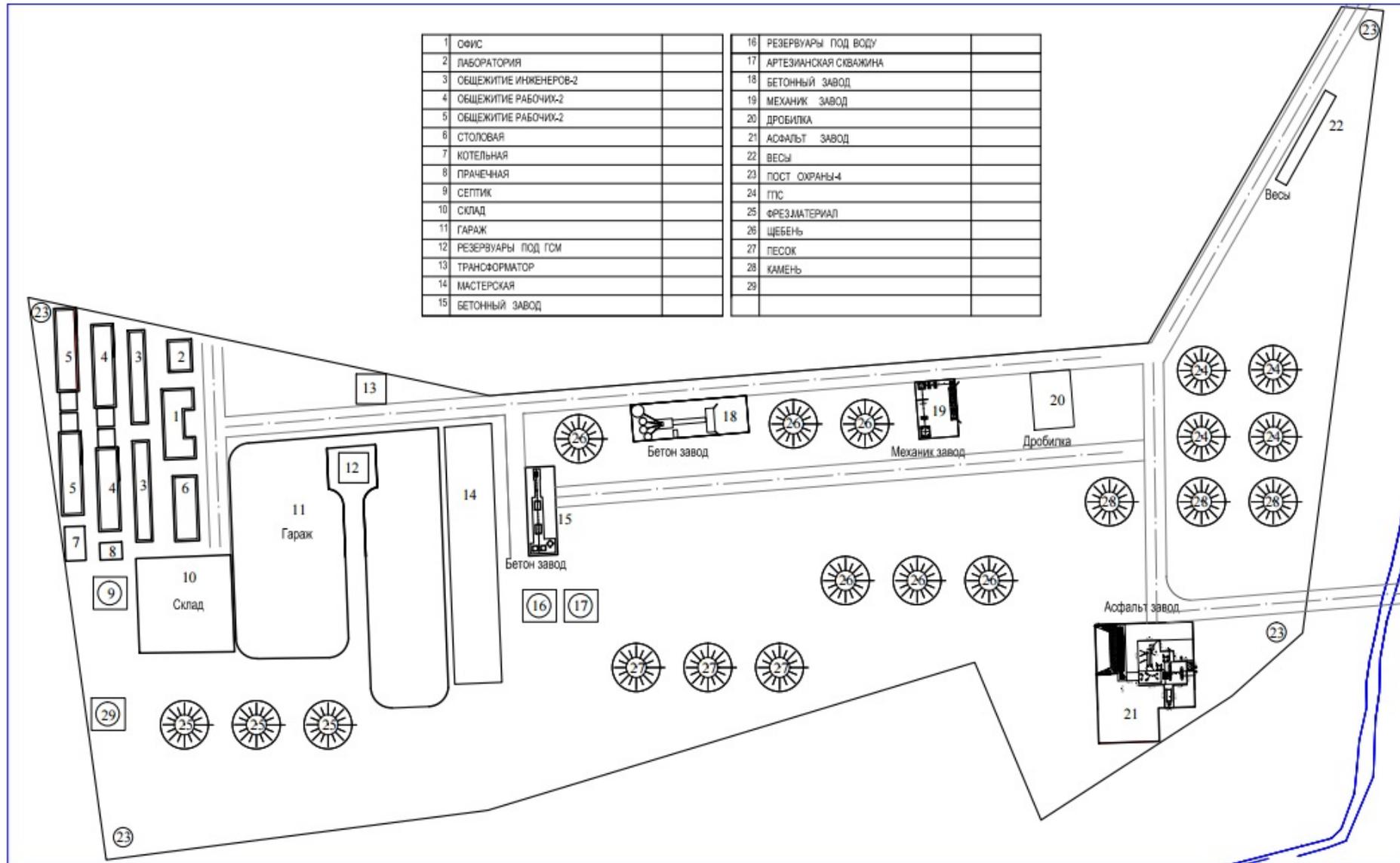
Appendix - 6: Plan a schedule of internal audits

APPENDIX– 7

Attachment -7. Sketch Drawing of section 593-632 «Shymkent - Zhambyl region border».



APPENDIX– 8



APPENDIX – 9

Reconstruction of the Road A-2 "Reconstruction of the Road A-2" Khorgos - Almaty - Shymkent - border Republic of Uzbekistan " km 593-632, Contract, SWRP-593-632-ICB(W)-2017

№ п / п	Name of event	Procedure	Frequency of execution
1	2	3	4
Air quality monitoring			
1 . 1 .	Instrumental measurement of baseline environmental conditions	The locations of pollution sources	Start of construction
1 . 2 .	Live instrumental measurement of air pollution	The locations of pollution sources	At least once a month, or more frequently at the request of the Engineer
Dust suppression			
1 . 3 .	water spraying during road construction works	The site of the road construction works	In dry and windy weather every 2 hours during the working hours
1 . 4 .	Hydration stored materials, closing tarpaulins	Places storage of bulk materials	Always
1 . 5 .	When transporting bulk materials can not be loaded above the lateral and rear walls	Transport	Always
1 . 6 .	When transporting bulk materials should be closed clean tarpaulin	Transport	Always
1 . 7 .	When you stop working and transport equipment engines must be turned off	The site of the road construction works	Always

Reconstruction of the Road A-2 "Reconstruction of the Road A-2" Khorgos - Almaty - Shymkent - border Republic of Uzbekistan " km 593-632, Contract, SWRP-593-632-ICB(W)-2017

1 . 8 .	Vehicles running on diesel fuel must be equipped with exhaust gas neutralizers	Transport	Always
Water quality monitoring			
2 . 1 .	A qualitative analysis of water (baseline)	In places the river's mouth, which will be carried out road construction work	Before starting work

Appendix - 9: Brief plan for monitoring and reducing impacts on the environment

1	2	3	4
2.2.	Carry out monitoring of water quality	In places the river's mouth, which will be carried out road construction work	At least once a month, or more frequently by the request of the Engineer
2.3.	All water and other liquid waste arising in the areas to be collected and taken to a particular place or manner of the sites do not cause pollution	The locations of water bodies	Always
2.4.	It is prohibited to drain and dump any materials and substances resulting from the execution of works in water sources and reduced place relief	At the locations of water bodies, and in low relief areas	Always
2.5.	It is necessary that all permanent and temporary streams and watersheds on the construction site and outside kept clean, free of debris and wastes	At the locations of water bodies, and in low relief areas	Always
2.6.	In the production of excavation permit for dumping ground outside the boundaries marked on the temporary removal gen. construction plan	The locations of water bodies	Always
2.7.	Avoid indiscriminate storage of soil seized in the waters of the river	The locations of water bodies	Always
2.8.	Don't allow the water body solid, insoluble subjects, waste production, domestic and other origin	The locations of water bodies	Always
2.9.	Don't earth-based construction machinery and vehicles on water protection zone and lane	The locations of water bodies	Always
2.10.	Equipped places of temporary stay of workers formed a reservoir for collecting household sewage and containers for collection and storage of solid waste	The locations of water bodies	Always

1	2	3	4
2.11	It is necessary to instruct the working personnel to comply with environmental requirements and environmental measures	In the field of road construction works	Before starting work

Monitoring of noise and vibration

3.1.	Instrumental measurement of baseline noise and vibration	In the nearby locality on the border of the SPZ	At the beginning of the construction
3.2.	Current instrumental noise and vibration monitoring	In the nearby locality on the border of the SPZ	At least once a month, or more frequently at the request of the engineer

Storage of fuel and chemicals

4.1.	Storage of fuel and lubricants provided at specialized service stations under a contract. Filling road-building machinery performed a filling machine. Accordingly, there are will not be t environmental contamination.		
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Protection of cultural, historical and archaeological sites

5.1.	To ensure the integrity and conservation of historical and cultural heritage will be respected security zone within a radius of 200 meters from the axis of the projected road	The locations of the objects of historical and cultural heritage	Always
5.2.	In case of geological, geomorphological, hydrogeological objects having special scientific, environmental, cultural and other value is necessary to stop work and notify the authorized body	In places of work	In the event of the case

Public relations

6.1.	Informing the public about the project through the media (newspaper advertisement), internet	Inhabited locality	Before starting work
6.2.	Notify the public about the conduct of road construction near settlements	Inhabited locality	Before starting work
6.3.	Distribution of booklets and leaflets with information about the project	Inhabited locality	In the course of road construction works

1	2	3	4
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Earthworks			
7.1.	Removal of topsoil before the start of the work, followed by removal of the storage area	The site of the road construction works	Before the construction
7.2.	Using the surplus soil or soil to restore groundwater reserves, quarries or other areas	The site of road construction, or borrow pit	During the whole of the construction and after completion
7.3.	Restoration of the natural landscape and vegetation on the completion of all works	During the all road construction works	Upon completion of the project
7.4.	Restoration of land, which were installed roadside service buildings	During the all road construction works	Upon completion of the project
7.5.	Removal of all debris and material used outside the construction site to the landfill waste disposal	During the all road construction works	Always

APPENDIX – 10

Appendix - 10: Additional Information

1. The climatic characteristics of the area

In the climatic, the territory of South Kazakhstan region is heterogeneous. The natural environment is a complex set of factors composing-Climature, soil, vegetation, water, fauna and others. Moreover, factors such as climate, soil and vegetation, developing in the relationship, define a certain natural area.

The reconstructed road section is located in the desert and is characterized by cold winters with little snow, hot, sunny summer, large diurnal amplitudes and annual temperature fluctuations.

Climate

The reconstructed road section is located in the desert and is characterized by cold winters with little snow, hot, sunny summer, large diurnal and annual amplitudes of temperature variations.

The climate is continental desert. Winter brief, the average January temperature is between -2° and -9° . Even in the cold of winter thaw and rains come. Spring is short, at that time the largest amount of precipitation falls. Summers are hot, long, with plenty of sunny days; average July temperature of $+22^{\circ}$, $+24^{\circ}$. The autumn is continuous, warm, mostly sunny.

Data from Meteorological station of Tulkubas region.

Road-climatic area IV.

Wind region – 3.

Temperature of outer air $^{\circ}\text{C}$:

- maximum +44
- minimum –34
- annual average +12.7
- coldest day –25 (0,92)
- coldest 5 days –17 (0,92)

Normal freezing depth:

- clayey soil 0.38, penetration depth 0° - 0,48m.
- gravel 0m.
- annual average rains - 951 mm.

Estimated thickness of snowpack (with 5% exceedance probability) -54 cm.

Maximum among average speed of the wind on January – 4.3 m/sec.

Number of days with wind speed exceeding– 15m/sec –5 days.

Number of days with hail showers - 5

With ice-slick - 3
With silver thaw- 2

The duration of a period with average day temperature $\leq 0^{\circ}\text{C}$ day – 61 days

Average duration of snowpack–83 days

Direction of wind and speed of the wind is given in windrose, pic. 1.

1.3. Physic-geographical conditions

The area of the road is confined to the foothill alluvial-pro-alluvial accumulative plain. The relief of the inclined plain is generally wavy, capricious-valley, where the positive forms alternate with wide depressions. The slopes of the ridges and hills are flat, slopes with a flat bottom. In places, the relief is considerably dissected by valleys of rivers and streams and dry valleys. The route crosses the rivers Arys, Zhabagly, Kizen, the stream of Tastumsyk, many irrigation canals and streams.

1.4. Seismicity.

According to BG 2.03-04-2001 seismicity between km 593-632 – 8 scores.

The category of soil on seismic properties – *second*.

1.5. Water Supply resources.

For drinking water supply it is necessary to use water from the water supply network of settlements along the planned route.

To ensure the construction and reconstruction of the road when soaking the soils, it is recommended to bring the technical water from the Arys, the Zhabagly and the Tastumsyk streams.

2. Geological engineering conditions

2.1. Relief.

South-Kazakhstan region is located in a desert zone. The rivers belong mainly to the basin of the Aral Sea (the main Syrdarya).

Most of the territory is a plain, only in the east and in the central part of the mountain. The plain is composed of horizontally lying Tertiary and Quaternary sediments and is occupied by sandy deserts.

The projected section of the highway is built along a hill, which in turn is located within the foothill plain with a general slope of the terrain gravitating towards the Arys River.

The engineering-geological conditions on the surveyed section of the road km 632-593 represent loam light, light brown in color - from a turgid to a firm consistency, with a thickness of more than 6 m, except for the section PK 260 + 00-PK 264 + 00, represented by pebble soil with boulders and blocks. Soils are not saline everywhere.

The surface of the land between PK 0 + 00-PK 84 + 00, where certain types of road construction works have already been completed, is flat, planned, and only in the excavation area of PK 20 + 50-PK 25 + 00, is dug. The roadway cross-roads are crossed by irrigation ditches, canals and logs, as well as road roads and asphalt-concrete pavement. The largest logs (gullies) are on the PK 25B + 99, PK 28 + 57; PK 77 + 43 and PK 81b + 81, PK 106 + 46, PK 243 + 40, PK 260 + 70, 323 + 00, PK 359 + 88, PK 371 + 73. The depth of the logs is from 2 to 9 meters, the slopes are of average steepness and steep to steep.

On the bottom of the logs there are streams with a constant drainage.

Depending on the degree of work performed on the construction of the road, the section PK 0 + 00-PK 0 + 00, can be divided into five parts with the same conditions:

The first part of the site, where only the soil-vegetation layer was removed:

- between the PK 44b + 70-81v + 00 on the left lane;
- between the PK 44b + 70 - 70v + 50 and PK 81v + 30 - 84v +00 on the right lane.

The second part of the section, where PK 20 + 50 – PK 25v + 00, excavations were developed. This part is dug, the height of the slopes of the dredges is up to 8 m, the slopes are of average steepness. During the rains, pits and pits are flooded with water.

The third part of the site, where only the roadbed is piled, without road clothes, the height of the embankment is on average up to 1.5 m and only at the beginning of the route and within the dens, the height of the embankment varies from 2 to 8 m. This is between PK 0 00 - 4 + 13, PC 25 + 00 - 26 + 15, on the left lane and between the PC 0B + 00 - ПК4B + 13, PK 25B + 00 – Pk 26 + 15 and PK 77 + 43 – PK 81 + 30 on the right lane of the road.

The fourth part of the site where the roadbed is covered and the foundation of the pavement is made. Between PK 4 + 13 – PK 5 + 88, PC 8B + 00 - PK9B + 28, PK 16B + 56 – PK 20B + 50, PK 28B + 15 - PK 29B + 85, PK 37B + 74 – PK 44B + 70 - on the left lane and between PK 4B + 13 – PK 9v + 28, PK 16b + 56 – PK 20v + 50, PK 26v + 65 – PK 30v + 04, PK 37v + 74 – PK 44v + 80 and PK 70v + 50 – PK 77v + 43 - on the right lane of the highway.

The fifth part of the site where all the work has been completed and asphalt concrete is laid from one to three layers. This is between PK 9b + 28 – PK 16v + 56, PK 34v + 66 – PK 37v + 74 on the left and right lane of the road.

On the rest of the road, no work was done. The surface of the land is flat with gentle slopes, low ridges and hills.

Between PK 216 + and PK 223 a wide valley with slopes of average steepness and depth of cut to 27 m. On the bottom of the valley there is a stream with a constant flow.

On the rest of the route crosses shallow hollows (logs) without a constant watercourse, over them there is a runoff of surface waters only during the rainy and thawing of snow.

The valley of the river Arys PK 303-PK 308 has a depth of cut to 5 m, the flood plain of the river is composed of pebble soil. From the valley of the Arys River (high mark 970m) there is a constant general rise in the surface of the earth with well-marked hills and low ridges on the terrain.

From PK 349 + 00 the exits to the day surface of rock formations start, the difference in altitude from the soles of the mountains and their peaks is about 75 m, the lowest point at the bottom of the mountain valley is 1090 m, the slopes are of average steepness.

The surface of the road from PK 363 + 00 to PK 394 + 38 is slightly sloping with low gentle slopes of ridges and hills.

2.2. Geological lithological structure.

In the geological structure of the roadway strip, alluvial-proluvial deposits are represented by sandy loam, loam, pebble, rocky soils (Appendix-9). Loam is light silt, lying between PC501c-PC359 + 50 in profile, light brown, macro porous, hard, semi-solid consistency. Between PC272 + 00 and PC349 + 00, PC363 + 50 and PC394 + 35 in the lower part of the section, loam is dark brown, lumpy, semisolid to a turgid consistency with gravel and pebbles up to 25%.

Sandy loam silt with gravel and pebbles lies at the end of the route in the form of separate layers and lenses, the color of sandy loam is brownish-gray. In the floodplains and limits of river valleys, as well as foothill part pebble soil with sandy-sandy loam aggregate in an amount of up to 40%. The material is well and medium-hulled and consists mainly of sedimentary rocks.

Grassy soil - alluvium, is found in a mountain valley, forming the bottom and its slopes, sandy loam is the filler of the grit.

Rocky soils composing the mountain mass consist of interbedding: silicified shales, silicified sandstones and conglomerates with their calcareous cement. Rocky soils are strong, slightly weathered.

2.3. Underground waters

Underground waters by forming to depth 1-15m are not opened.

2.4. Physical-mechanical properties of soil

Within the road side reserves (side reserve), of roadbed of working road layer and base of culverts on identification code according to ST -25100 and SNIП RK 3.03-09-2006* seven types of Engineering Geological Elements (EGE) are defined.

The first EGE is a bulk ground from loam of light silty, compacted, mound earth, hard consistency with the inclusion of gravel to 10%, 35-V

The second EGE is a light silty loam, of natural composition, lies under the first IGE and the limits of the near-strips, the subsidence 35-V

Third EGE - loam light silty, dense with gravel, pebbles, non-shrinkage.

The fourth EGE is silty sandy loam, solid with gravel, tracing paper, dense, non-stop

Fifth EGE - gravel and pebble soil, item 6-B

The sixth EGE is a gritty soil, item 32

Seventh EGE - rocky ground, p.30-G

Soils of the second engineering-geological element have subsidence properties only from the external load when soaking.

When soaking, the subsidence of the soil from its own weight does not exceed 5 cm.

The type of ground conditions of the slope along the subsidence path is the first.

The distribution of engineering-geological elements in a section, their power and the nature of the relationship are reflected in the soil part of the longitudinal profile (Appendix 9) of the existing roadbed and side reserve strip and in the sheets of engineering and geological conditions of the culverts, and their physical properties and design parameters in the following table:

№ п/п	1.1.1.1 Description	Unit	Estimate indicators			
			1EGE	2EGE	3EGE	4EGE
1	Density of solid particles	Pd,г/cm ³	2,71	2,71	2,72	2,70

2	Density of soil	P, r/cm^3	2,04	1,68	1,94	-
3	Density of dry soil	Pd, r/cm^3	1,77	1,48	1,64	1,58
4	Coefficient of porosity		0,53	0,83	0,65	0,71
5	Natural humidity	%	13,9-19,3	6,5-18,3	14-20	12,2-15,8
6	Degree of humidity	Sr	0,71-0,99	0,16-0,6	0,58-0,8	0,46-0,6
7	Humidity at the rolling edge	Wp, %	18,6	18,3	15,8	17,3
8	Number of ductility	Jp, %	8,2	8,2	9,9	5,6
9	Yield index	Ji	< 0-0,08	< 0-0	< 0-0,02	< 0
10	Estimated earth resistance	kPa	-	150	180	147
11	Specific adhesion	C _I /C _{II} kPa	-	19/21	16/31	8/12
12	Angle of internal friction	f _I /f _{II}	-	4/5	21/24	16/24
13	Elastic modulus	MPa	54	-	-	-
14	Maximum dry density	r/m^3	1,77	1,77	1,77	1,80
15	Optimal soil moisture	%	16,2	16,2	16,2	12,1
16	The required density at K-0,95 (SNIIP RK 3.03-09-2002, table 7.22)	r/cm^3	1,00	1,73	1,73	1,76
17	Actual coefficient of compaction	-	-	-	-	-
18	Coefficient of relative compaction		-	1.17	-	-

2.5. Road pavement and roadbed

Road pavement on the road section (PK 9B + 28 ÷ 16B + 56, 34V + 15 ÷ 37B + 74) is from single-layer to three-layer asphalt concrete with thickness from 6 to 18cm. Asphalt-concrete pavement is new, durable except for the first lower layer. It is porous, low-density. On the right lane between PK 34B + 00 ÷ 37B + 00, single-layer, high-porous asphalt concrete shows plants such as camel thorns.

The basis of the pavement is represented by a gravel-sand mixture with inclusion of a large pebble, in places, enriched with crushed granular (40-70 mm) material up to 50%.

The thickness of pavement layers is given in Appendix 1.

Gravel-sandy material, densified according to strength, complies with GOST 9124-84, according to grain composition GOST 26607-94.

The roadbed on the left side of the road is marked between PK0 + 00 - 44v + 70, on the right, between PK 0 + 00 - 44v + 70 and PK 77v + 43 - 81v + 30. The earth is represented by bulk loam. Most of the mound is densely packed and only the curbs of high embankments up to 2 meters from the edge are not compacted. Confirmations are the gullies, which are formed as a result of erosion of under consolidated soils within high embankments.

Scours on the slopes are noted within the PK 0 + 00 - 4B + 13 and PK 25B + 00 ÷ PK 27B + 00. The length of the promenade ranges from 2 to 3.5 m, with a depth of up to 2.5 m and a width of 0.3 to 2 m. Slopes of roadbed overgrown with grass, sometimes shrub. The thickness of the compacted soil is shown in Appendix 9.

It should be noted that under-compacted soils are also noted in 2-4 m to the south of the PK 26c. The area of under consolidated soils in this part is 20x4 m at a depth of 1.5-2.3 m.

In the project it is necessary to provide backfilling of the clefts and compaction of the soils of the roadsides and slopes to the required density.

2.6. Soils of natural composition (road side reserves)

Soils of natural composition, lie below the embankment of the road in the beginning, the part of the road being built, and at the end.

The primers of the offshore strip (lateral reserve) are represented by loam, light silty, loam, light silty with pebbles, gravel, sandy loam with gravel, gravel-pebble soil, gum soil and rocky soil (limestone, schists, silicified, conglomerates).

Type of terrain by nature and degree of hydration - the first

Underground waters are noted only in river valleys and streams.

2.7. Artificial structures

The main artificial structures on the highway: overpasses, bridges, culverts through rivers, streams, dry valleys and canals, ravines and gullies.

The basis of culverts will serve as loam, pebble, grit.

Primers are not salted, weakly and medium-aggressive and non-aggressive in relation to concrete on Portland cement according to GOST-10178-76 and non-aggressive to sulfate-resistant cement in accordance with GOST 22266-76.

Underground waters within the culverts lie at a depth of 1.0 m to 5.0 m. The characteristics of the foundation soils and engineering-geological conditions of culverts are given in Appendix-6, bridges in passports, Appendix-5.

When carrying out soil "cushions" from the gravel and loam for calculation, use the characteristics given in Attachment 5.1.

2.8. Hydrography

The hydrographic network is represented in the form of permanent and temporary watercourses. An essential element in the hydrography of the territory in question is the irrigation canals, as well as small channels formed at the ground waters of the underground waters.

Watersheds of rivers, streams and dry logs are located in the altitude range 500-4100 m. at the level. The catchment areas are different and range from 0.1 km² to 2120 km². Virtually all watercourses that have a catchment area of more than 10 km², retain a small flow throughout the year.

The Arys River crosses the route for 603 km - in the upper reaches and at the traffic intersection PC0B + 00 take exit №3, ПК11B + 48.74. The river originates in the tract of Shakpak, located in the saddle between the Talas Ridge and Karatau from springs, at an altitude of 2550 m. The river flow here is formed at low altitudes, so it can be classified as a river of snow-rain food. The total length of the river is 346 km, the catchment area is 13870 km².

On the section of the bridge, the transport interchange PK0v + 00, exit # 3 r. Arys, the construction of the bridge was started in 1994 and is in the unfinished state.

At 603 km the river basin area in the alignment of the bridge is 38.6 km², the average slope of the riverbed is -105%. The catchment area in the alignment of the bridge is a foothill plain, mostly plowed. The river bed in the alignment of the bridge is well expressed. The width of the channel is 4-5 m. The banks are rather steep in height up to 2-3 m. The bed is overgrown with reeds and sedge.

At 605 km the route crosses the Zhabaglysu River. The river originates on the southern slope of the Tallas Range and the Alatau Mountains at an altitude of 3300 m. The basin area in the alignment of the bridge is 202 km², the length of the river is 34.2 km, the average riverbed slope is 75%. In the vicinity of the bridge, the valley of the river. Zhabaglysu is narrow, practically does not exceed the width of the spreading river bed. The bed is composed of gravel-pebbly soils of thickness 0.5 to 1.5 m. Below this layer are loam. The natural channel of the river approaches the bridge with several channels separated by small terraces, folded with loose material. There is practically no vegetation in the riverbed.

At the exit from the mountains on the river there is a water splitter, which is a dam with two holes of 3x4 m. The right hole has a damper bolt. The left-hand opening has a receiving well with an outlet to the canal with a hole of 2.0 m. The dam has a deflecting concrete channel 14-16 m wide. When the flood waters pass, this dam does not produce a redistribution of the runoff, since it does not create a large

regulating overhead. The maximum throughput of both holes without taking into account the accumulation in the upper dam is 92.0 m³ / sec. This hole is sufficient for safe passage of flood waters, because even with the maximum observed urgent flow of 156 m³ / s in 1959, the average daily water discharge was only 16.8 m³ / sec.

All considered watercourses belong to the watercourses of the middle reaches. Hydrographs in the high waters are multi-modal, of which thawed snow and rain peaks stand out. Outstanding peaks on these streams, were confined to falling rainstorms on melted drain.

The main features of the regime of watercourses of the regime of watercourses are determined by the conditions of their feeding. The main source of food for the rivers are thawed waters that form the main phase of the water regime - spring high water. The share of spring floods accounts for 70-90% of the annual flow.

Flooding begins on average in March-April. In the years with the early offensive of spring, the onset of high water is observed at the end of February, late dates fall at the beginning of May. Flood continues on average - 160 days. The duration of the flood is due to the prolonged melting of snow in the mountains. The peak of the floods on the rivers in the alignments of the bridge crossings is on the average in mid-April. The height of the flood wave can reach 1.2-2.0 m. The combined effect of melt and rainwater caused the formation of exceptionally high water discharge. According to the Surface Water Resources, the floods of 1958 and 1959 have a supply of about 1%.

At the end of the spring flood, the autumn low-water season begins. Against the background of intergroup rivers, short-term water level rises can occur, caused by rainfall. The amplitude of the level oscillations in this period is small and usually does not exceed 0.2 m.

2.9. Hydrologic exploration degree of a region

Hydrologically the location of the route is well known.

On large watercourses, intersected by a highway, observations of the runoff regime were carried out on almost all rivers. But observations of runoff on these rivers are of insufficiently high quality - the absence of observations on the peaks of flood or flood, their intermittence, the runoff layer has not been calculated.

The list of hydrological stations used for calculation and located in the immediate vicinity of the planned bridges is given in the table.

Table №1

№ п-п	River-destination	Supervision period	F, Km ²	Q m ³ /s	Runoff depth, mm	Part, k
1	Zhabaglysu – v. Novonikolayevka	Since 1936	172	156*	-	-
2	Aksu-v. Podgornoe	Since 1926	462	138*	819	0,005
3	Mashat- v. Antonovka	Since 1920	441	300*	-	-
4	Badam -Kyzyljar	Since 1953	1970	379	307	0,006

Note: *- water rate of reduced accuracy

2.10. Identification of maximum rate of standard exceedance probability.

According to the technical conditions, the road is classified as an I road category. In this regard, the calculations of the maximum water flow rates of the normative probability of exceeding on the watercourses crossed by the route are made for probabilities of 1 to 2% availability.

The hydrographic characteristics of the basins are determined by maps of scale 1:25 000 and 1: 100 000.

Calculations of the maximum consumption of meltwater are made in accordance with the requirements of SNiP 2.01.14-83. Average long-term runoff layer (ho). The coefficient of variation of the spring runoff layer (Cv), as well as the calculated ratio of the asymmetry coefficient (Cs) to the coefficient of variation (Cv) are determined by maps to SNiP 2.01.14-83. The coefficient of high water balance in the Ko River is determined by the rivers of the analogs (Table 1). The value 0.006 is assumed to be calculated.

Calculations of maximum storm drainage rates are made using the maximum flow rate formula (SNiP 2.01.14-83). For watercourses with catchment areas of more than 200 km², storm drainage calculations were made using a reduction formula. According to the received water flow, the normative probability of excess is assigned to the openings of artificial structures.

2.11. Ground reserves

Concentrated groundwater reserves are located along the road, near the existing highway.

All concentrated ground reserves are connected with the road with local roads with and without coating.

The location, area, reserves of the names of soils and physico-mechanical parameters of the soils are given in the passports of concentrated ground reserves and in annexes 7 and 8.

2.12. Road construction materials

For the installation of the pavement foundation and the roadside, it is envisaged to use a gravel-sand mixture from quarries and deposits located near the designed road.

The main characteristics of gravel-sandy material are given according to the data of its study in the laboratories of the Institute and the laboratory of LLP "Shymkent Kazdorproekt" of building materials or are given according to the catalog, where all the necessary characteristics and test parameters of samples of coarse soils are reflected.

Listed below are the recommended deposits and quarries:

The Kuibyshev field (under the catalog) is located 7 km to the east of the village. T. Ryskulov near the village of Akbiik - cone of the leader of the river Zhabaglysu. The genus of the material is a gravel-pebble sandy rock, with a thickness of 1.7 m, it is not flooded.

Grain composition, mm (total residues on sieves,%)

70	40	20	10	5	2,5	1,25	0,63	0,14	0,05
1,4	21,4	53,9	68,0	75,2	78,9	81,7	85,2	95,5	97,5

Fraction > 2,5mm, on abrasion II-1, losses 15,8%, on freeze resistance MP3-100.

Reserves of minefield 67.1 thous. m³.

1. Characteristics of the company as a source of pollution

During the construction of the road should take into account the impact of roads on the environment, as well as a combination of the road with the landscape, giving preference to decisions that have a minimal impact on the environment. In appointing the placement of artificial and roadside facilities, production bases, and temporary bypass roads and other temporary structures should take into account the requirements of legislation for the protection of the environment.

It should also be guided by the principle of conservation of natural landscapes, plantations and places of accommodation, food and migration routes of wild animals, birds and aquatic organisms.

Pollution occurs when the majority of processes associated with the construction or repair of roads, as well as with the preparation of road-building materials. It should be noted that the environmental pollution in the production of works, and the more different kinds of physical effects are

temporary, lasted only during the execution of engineering works. Therefore, despite the high intensity of the consequences of their actions on the environment is easier to prevent.

The calculation of emissions of harmful substances into the atmosphere in the reconstruction of the road have been adopted the amount of work on all structural elements of the road, the types of mechanisms used in the construction of their performance.

When their work in the air will be emitted products of combustion of diesel fuel: benzo / a / pyrene; aldehydes and nitrogen dioxide - 2 class of hazard; sulfur dioxide and soot - Hazard Class 3; carbon monoxide - 4 class of danger; hydrocarbons.

They also calculated the emissions during excavation and pavement device when loading and unloading, during transport and storage of building materials.

In addition to the work on the construction of the road, the company is supporting the production of: crushing and screening unit (DSU), cement and concrete unit (CSD) of the brand «Elkon»

2. Crushing and screening device

Mineral processing equipment capacity 176 t / h is designed for crushing granite rubble of fraction 0-5, 5-10, 10-20, 20-40 mm, used for road construction. The main technological process includes crushing and screening.

Crushed stone from the quarry dump trucks will be delivered in the DSU.

In warehouses of inert materials and finished products warehouse DSU provides dust control, with an efficiency of 85%. Dust control carried out 2 times a day: 1.2 liters per 1 m² of surface dusting. Also to eliminate dusting sorting and transportation provided tight tarpaulin shelter and installing screens on the conveyors in the longitudinal direction of galvanized cold-formed sections made in the form of a semicircle.

Cement and concrete knot mark «TWINMIX» 3,00 SVM (capacity 240 m³ / h (144 tons / hour) is intended for the production of mortar and concrete for SNIP 82-02-95, used for road construction.

Minerals (sand fraction 0-5 mm gravel fractions 5-20 mm) is delivered to the plant by car. Sand and gravel is discharged into open storage depots of mineral raw materials, which are open areas of 90 m² each.

Simultaneously with the filing of sand and gravel in the weight cement silo using a screw conveyor from a silo (silo 2 - 200 tons, the silo 1 - 1000 t, 1 m³ - 1400 kg) supplied cement. Cement for cement is delivered to the plant, it is discharged into the receiving pit canopy cars. From the pit via a pneumatic screw pump cement TC-1 output of 80 tons per hour is piped cement receiver(4 silo 100 m³).

When the auxiliary productions released into the atmosphere following materials: nitrogen dioxide, carbon monoxide, dust, organic, saturated hydrocarbons, inorganic dust.

All Instrumental and laboratory measurements are carried out on the boundary of the SPZ. Chemical laboratory must be accredited. Instruments and equipment must be certified and undergo periodic calibration.

3. Rotational camp

The room for Engineers, main office, a second office, laboratory, cottage house engineers - sources of air pollution are absent.

Boiler room. It is intended for heating buildings. The boiler runs on diesel fuel.

Diesel generator brands Miller. Emissions from this source are not regulated as a diesel generator is used as an emergency power source.

On the territory of the shift camp has parking 10 x 10 meters, which is also a source of emissions of pollutants into the atmosphere. At the entrance to and exit from the parking lot to the atmosphere of nitrogen oxide are distinguished, nitrogen dioxide, kerosene, sulfur dioxide, carbon monoxide.

Arrangement shift camp in Annex 8.

4. Characteristics of the company, as a source of water pollution

Water bodies that are in close proximity and crossing the road construction site:

- River Kokparsay -PK 755 + 42;
- River Sary Bulaksay - PK 864 + 68;

Water intake area.

Rotational town - PC 756 + 00.

Water supply is provided from the shift camp water storage tanks $V = 4,8\text{m}^3$ and $V = 15\text{m}^3$, filled with imported water.

Industrial needs (dust control):

To ensure the industrial area with water for industrial needs is planned to install tanks with a capacity of 50m³. The water must comply with GOST 23732-79.

Sewerage

On site accommodation camp will be set 11 intermediate manholes $V = 2 \text{ m}^3$ and 2 main storage wells $V = 30 \text{ m}^3$.

In the absence of a centralized sewerage system in the area is arranged in the lavatory two points with a capacity of 3.2 m³ cesspool.

Frequency of instrumental measurements is presented in Appendix 4.

5. Characteristics of the company as a source of industrial and domestic waste

In the operation of an object formed following types of waste:

- solid waste;
- waste luminescence interest bearing lamps;
- estimates from the territory;

- waste oils;
- of batteries;
- waste tires.

Solid waste - are produced in the non-manufacturing sector of staff of the enterprise, as well as cleaning shops and premises. MSW is disposed of on a contractual basis with the municipal economy after commissioning.

Spent fluorescent tubes - produced as a result of the exhaustion of the resource working hours. Ingredients such as lamps LB (%): glass - 92 feet - 4.1; sealant - 1,3; getinaks - 0.3; phosphor - 0.3; Metals - 2.0 (including the Al -84,6%, Cu-8,7%, Ni-3,4%, Pt-0,3%, W-0,6%, Hg-2,4%) .

Estimate from the territory. Formed at cleaning the territory, temporarily placed in a metal container, with the accumulation of transported together with MSW landfill after the conclusion of the contract. Departure V class of danger.

Waste oils - are formed in maintenance and inspection of road transport on the premises. For temporary accommodation oils provides special containers with lids indoor plants, oil facilities, or on the territory of the fuel transport shop. Stored indoors MTM. It is used for own needs of the enterprise. Waste oils are the amber list of waste AS030.

Used car tires - formed after the expiration date. Not a fire hazard, are resistant to water, air and precipitation. The old pneumatic tire is temporarily stored on the territory of MTM. It is used in the enterprise for landscaping as beds. Used tires are to the green list waste GK020.

Spent batteries with an electrolyte - formed after the expiration date. With the accumulation of surrender contractors in exchange for new ones. The collection and storage is carried out in temporary closed metal containers. MTM stored inside. Spent batteries are amber list wastes AA170.

6. Environmental Protection Plan

The Statute of the policy on protective measures in the field of environmental protection, IBRD stated that PUOOS lists mitigation actions and a set of measures that will be taken during the project in order to avoid, minimize, mitigate or compensate for adverse impacts on the environment .

Taking into account the specifics of the object of «EVRASCON» control on the sources recommended by the following methods:

- For organized emission sources instrumental or instrumental laboratory holding of direct instrumental measurements;
- For the fugitive sources - calculation method.

Schedule control emissions and discharges each source are shown in the tables in Appendix 3, 4, 5. The PEM is given in Appendix 1.

Monitoring of air quality will be carried out directly on the sources of emissions.

Priority controlled ingredients identified with the class of substances, criteria reflecting the toxic properties of the contaminants, the quantitative characteristics of the emission capacity of accumulation and their transformation into a hazardous chemical form, magnitude of the impact on health of population and biota, the organization of measurements and other factors.

On the enterprise in question control will be carried out on the sources of emissions that contribute most to air pollution.

According to a survey carried out analysis of the actual state of the atmosphere. The resulting values in the calculations of pollutants compared with the control value of the maximum one-time concentrations established in the inventory of emissions of harmful substances into the air, and with a maximum one-time maximum permissible concentration (MPC) for populated areas. In case of exceeding the air quality standards for any pollutants established cause of excess.

The accounting information on the results of laboratory and instrumental control of air quality should be provided in accordance with the order of the Minister of environmental protection №228-о from 25.08.2010 (addition to order №123-p of 24.04.2007g).

The results of the survey of air quality issued in the form of the report, which describes the weather and operating conditions under which the survey was carried out, these actual measurements with an indication of the timing of selection, an analysis of the state of the air in the control point, in case of exceeding air quality standards - causes of excess.

Reporting on the results of the PEC should reflect the full information on the implementation of the program for the period and the results of internal audits.

To report provides an explanatory note on the implementation of the works that make up the nature user in any form.

a. Methodology

MRD prepare for all identified impacts on the environment to prepare before the start of construction, operation and monitoring activities.

The methodology consists of the following steps:

- Determination of measures to reduce and protect the environment for each of the activities of the project and the environmental component;
- Ways to reduce the compensation and improvement of measures for each of the identified impacts and risks;
- Development of a monitoring mechanism for the proposed mitigation measures;
- Assessment of budgetary requirements for mitigation of project implementation and monitoring measures;
- Definition of the responsibilities of the various agencies involved in the project implementation and monitoring of mitigation measures.

EMP prepared in compliance with the above criteria.

б. Mechanism of monitoring

Monitoring of environmental components and mitigation measures during the construction and operational phase is a key component of environmental monitoring plan (EMP) to ensure the protection of the environment.

The purpose of monitoring is to:

- Monitor changes in the environment at different stages of the project cycle, in comparison with the baseline;
- Management of environmental issues arising from the construction and installation works by means of qualitative and reliable monitoring of compliance with environmental standards.

The monitoring mechanism is developed for each specific exposure and include:

- Venue monitoring (space adjacent to the project activities, sensory receptors, or in the zone of influence of the project);
- Monitoring tools, ie, monitoring parameters and control methods (visual inspection, consultations, interviews, surveys, field measurement or sampling and analysis);
- The frequency of monitoring (weekly, monthly, seasonally, annually or in the performance of certain activities).

The monitoring program will also include regular monitoring of construction work for compliance with environmental requirements, in accordance with the relevant standards, specifications, and environmental monitoring plan. The purpose of such monitoring is to assess the effectiveness of the mitigation measures and the immediate formation of additional mitigation measures and / or modification of existing ones, to meet the environmental requirements as needed during construction.

The main focus is to ensure that SPAG reliable information on the impact of activities on the environment, the impact of possible changes and adverse or dangerous situations.

The objectives EMP are:

- obtaining information for decision-making on natural resource environmental policy, quality objectives and instruments of environmental regulation of production processes, potentially affecting the environment;
- ensuring compliance with the requirements of environmental legislation of the Republic of Kazakhstan;
- minimizing the impact of natural resource production processes on the environment and human health;
- more efficient use of natural resources and energy;
- proactive operational response to emergency situations;
- formation of a high level of environmental awareness and responsibility of managers and employees of natural resources;
- informing the public about the environmental performance of enterprises and public health risks;
- increase the level of compliance with environmental requirements;
- increasing occupational and environmental effectiveness of the system of environmental management;
- consideration of environmental risks when investing and lending.

The PEM established mandatory list of parameters monitored during the production environmental control, the criteria for determining its periodicity, duration, and frequency of measurement tools used or calculation methods.

Environmental assessment of the efficiency of the production process in the framework of industrial environmental monitoring is carried out on the basis of measurements, and (or) on the basis of

calculations of the level of emissions into the environment, occupational hazards, as well as the actual volume of consumption of natural, energy and other resources.

The main element of industrial environmental monitoring performed to obtain objective data at specified intervals, a program of industrial environmental monitoring (PEM).

PEM carried out in accordance with the Environmental Code of the Republic of Kazakhstan from January 9, 2007 №212-III [1].

The monitoring procedure is performed with the following requirements:

- Obtaining of qualitative and quantitative indicators of operating system components;*
- Identification of all the operating system components change, caused by emissions and discharges of pollutants;*
- Presentation of research results, to the extent provided by the presence of all the original data to obtain permits for special nature.*

PEM for JSC «EVRASCON» provided in Appendix 1.

b. Protection of cultural, historical and archaeological sites

According to Article 52-1 "Peculiarities of protection and use of subsoil areas of special ecological, scientific, cultural or other value the law of RK dated 27.01.1996, № 2828" On Subsoil and Subsoil Use "In case of geological, geomorphological and hydrogeological objects having special ecological, scientific, cultural or other value, mining companies are required to stop work at an appropriate site and notify the authorized body for the study and use of mineral resources and the authorized body in the field of environmental protection.

According to Article 39. Preservation of historical and cultural heritage in the development of areas of the law of the Republic of Kazakhstan dated July 2, 1992 N 1488-CN "On protection and use of historical and cultural heritage"

In all kinds of development activities for the period of land allocation must be carried out research on the identification of sites of historical and cultural heritage at the expense of land users. It is forbidden to carry out all types of work that could endanger the existence of the monuments.

Enterprises, organizations, institutions, associations and citizens in case of detection in the process of such works and other objects of archaeological, historical, scientific, artistic and cultural value, are obliged to inform the state body for the protection and use of historical and cultural heritage and to suspend Continuing maintenance work.

d. Storage of fuel and chemicals

Storing interacting actively with water (cement, lime, salt and the like) is performed only in special storage under the roof, or in airtight containers.

Store all fuels and lubricants produced in the sealed storage containers or sealed with fencing, concrete base and fire equipment. The storage is located far from sources of water and low places.

Filling road-building equipment produced refuellers. Filling dump produced at the filling station by the contract. Construction equipment dressed in specially designated locations - at the filling station (gas

station), as well as specialized transport - tank trucks. Filling transport carried out in accordance with the requirements of safety and environmental requirements. If fuel is spilled during refueling of vehicles provided by the removal of contaminated soil. To eliminate spills has a sand box and a shovel. Place the spill of fuel and lubricating mother's abundantly available in the reserve is filled with sand. Sand is going to shovel into the dedicated hermetic vessel (for further neutralization the sand will be transferred to specialized institutions that are licensed for the collection, use, disposal, transportation and disposal of hazardous waste and specializes in neutralizing contaminated soil). For fire safety, each vehicle is equipped with fire extinguishers.

Based on the above, are not included in EMP requirements and activities related to the storage of fuel and chemicals.

e. Actions to inform the public about the progress of construction works

Before starting road construction works to inform the public through the media, public meetings were held with local akimats. About the ongoing road construction work as the population is notified by means of the media: are ads on television under the heading "Running line"; held public hearings with the local population; Post free ads in the newspaper.

j. Action and monitoring state of the environment in the event of emergencies

Working conditions and processes applied at JSC «EVRASCON» shall not be possible salvo emissions. However, we can not exclude the probability of their occurrence. In the event of an uncontrollable situation, the company needs to take all possible measures for its speedy end, localization and liquidation of consequences.

In such cases, it should be provided in the plan of liquidation of possible accidents, which defines the organization and production of rescue and recovery work, duties of officials involved in emergency response.

After the rescue and recovery operations of natural resources make the production impact monitoring program which is coordinated with the authorized body in the field of environmental protection, government health service and approved by the nature user.

It should be to conduct a comprehensive survey of the area subjected to the adverse effects to determine the actual violations and the most effective measures to clean up and restoration. To this end, in the process of liquidation of the accident surveillance conducted four times a day.

Placing points and system testing will be determined immediately after the establishment of the nature and extent of the accident on the results of the survey area and sources of accidental releases.

In the case of fixing emergencies related to environmental pollution, the management of the enterprise should be informed of these facts GTU DUS Shymkent Departament ecology SKO take measures to eliminate the consequences of the disaster, to determine the extent of the damage caused to components of the environment (air, soil, groundwater and surface water), to make the appropriate payments to the tax committee. After the elimination of the emergency at the plant should be revised measures to prevent similar situations.

After the liquidation of emergency the above kinds of observations go on permanent monitoring mode with concentration of observation points (sampling) within the zone of influence of the accident. These observations are carried out throughout the territory of the cycle of rehabilitation, including a period of two years after its completion..

z. Schedule of internal audits and the procedure to eliminate violations of the environmental legislation of the Republic of Kazakhstan

Internal audits are conducted by personnel responsible for environmental protection.

In the course of internal audits is monitored:

- 1) the implementation of measures envisaged by the EMP;
- 2) adherence to industry guidelines and regulations relating to environmental protection;
- 3) the conditions of environmental and other permits;
- 4) the correctness of the accounting and reporting of the results of industrial ecological monitoring;
- 5) other information that reflect the organization of production and environmental monitoring.

The employee (employees) performing an internal audit shall:

- 1) consider the report of the previous internal audit;
- 2) to examine each object on which the issuer of the environment;
- 3) make a written report to the head, if necessary, require some kind of corrective measures identified during the audit discrepancies, terms and order of their elimination.

Schedule of internal audits is presented in Appendix 6.

Contractor shall conduct a full scientific research (R & D)