



**REPUBLIC OF KAZAKHSTAN  
MINISTRY OF INVESTMENT AND DEVELOPMENT  
COMMITTEE FOR ROADS**

---

**ENVIROMENTAL MANAGEMENT PLAN  
BALKHASH – BURLYBAITAL ROAD SECTION  
(KM 1855 – KM 2152)  
Final draft**

---

**FINANCED BY INTERNATIONAL BANK FOR RECONSTRUCTION AND  
DEVELOPMENT AND THE REPUBLIC OF KAZAKHSTAN**

**June 2017**

*Prepared for:*

*Prepared by*

**Committee for Roads  
Ministry for Investment and Development  
The Republic of Kazakhstan  
32/1 Kabanbay Batyr Ave.**



**КАЗДОРНИИ**

**KazdorNII in association with SAPA SZ and KazCEP  
21 Manatau Str., 3rd floor, office 10, Astana  
Tel: +77172518117  
E-mail: [pmc\\_kazdornii@mail.ru](mailto:pmc_kazdornii@mail.ru)**

# TABLE OF CONTENTS

- 1. INTRODUCTION..... 4
- 2. PROJECT DESCRIPTION ..... 5
  - 2.1 GENERAL PROJECT INFORMATION..... 5
  - 2.2 PROJECT CHARACTERISTICS..... 6
  - 2.3 ROAD SECTION ..... 7
    - 2.3.1 ROAD SECTION IN KARAGANDA OBLAST ..... 9
    - 2.3.2 ROAD SECTION IN ZHAMBYL OBLAST..... 9
  - 2.4 TRAFFIC INTENSITY AND TRANSPORT MODE..... 10
  - 2.5 ARTIFICIAL STRUCTURES ..... 11
  - 2.6 BORROW PITS AND CONSTRUCTION MATERIALS ..... 16
  - 2.7 ROAD SUBGRADE ERECTION WORKS ..... 18
- 3. ENVIRONMENTAL AND SOCIAL BASELINE DATA..... 19
  - 3.1 ROAD SECTION IN KARAGANDA OBLAST ..... 19
    - 3.1.1 GENERAL DESCRIPTION ..... 19
    - 3.1.2 CLIMATE..... 19
    - 3.1.3 GEOMORPHOLOGY AND GEOLOGY ..... 20
    - 3.1.4 SOIL, SAND AND SOIL-FORMING ROCKS..... 20
    - 3.1.5 HYDROLOGICAL CHARACTERISTICS ..... 21
    - 3.1.6 FLORA AND FAUNA ..... 25
    - 3.1.7 LAND RESOURCES ..... 26
    - 3.1.8 PHYSICAL CULTURAL RESOURCES ..... 26
    - 3.1.9 SOCIAL AND ECONOMIC CHARACTERISTICS OF THE SECTION ..... 27
  - 3.2 ROAD SECTION IN ZHAMBYL OBLAST ..... 28
    - 3.2.1 GENERAL DESCRIPTION ..... 28
    - 3.2.2 CLIMATIC CHARACTERISTICS ..... 28
    - 3.2.3 GEOLOGICAL CHARACTERISTICS, RELIEF ..... 29
    - 3.2.4 HYDROLOGICAL CHARACTERISTICS ..... 29
    - 3.2.5 SOIL AND SOIL-FORMING ROCKS..... 31
    - 3.2.6 FLORA AND FAUNA ..... 31
    - 3.2.7 LAND RESOURCES IMPACTS..... 36
    - 3.2.8 PHYSICAL CULTURAL RESOURCES..... 37
    - 3.2.9 SOCIAL AND ECONOMIC CHARACTERISTICS OF MOYINKUM DISTRICT IN ZHAMBYL OBLAST ..... 38
- 4. ENVIRONMENTAL MANAGEMENT, MONITORING PLAN AND INSTITUTIONAL RESPONSIBILITY..... 44
  - 4.1 ENVIRONMENTAL MONITORING PLAN ..... 44
- 5. INSTITUTIONAL REQUIREMENTS ..... 46
  - 5.1 ORGANIZATIONS INVOLVED IN THE PROJECT ..... 46
  - 5.2 INSTITUTIONAL RESPONSIBILITIES ..... 46
    - GRIEVANCE REDRESS MECHANISMS INCLUDING GRIEVANCE DURING CONSTRUCTION ..... 48
    - GRIEVANCE REGISTRATION..... 48
    - GRIEVANCE PROCESSING..... 49
    - DISCLOSURE OF GRIEVANCE REDRESS PROCEDURE ..... 50
- 6. PUBLIC CONSULTATIONS AND DISCLOSURE ..... 52
- 7. ENVIRONMENTAL MANAGEMENT PLAN: MONITORING AND INSTITUTIONAL RESPONSIBILITY: BALKHASH – BURLYBAITAL ROAD SECTION..... 56

## ABBREVIATIONS

Akimat	Regional executive body in Kazakhstan
CfR	Committee for Roads (Ministry for Investment and Development)
DE	Design Engineer
ESS	Environment and Social Sphere
EMF	Environmental Management Framework
ESMP	Environmental and Social Management Plan
ESIA	Environmental and Social Impact Assessment
FS	Feasibility Study
H&S	Health and Safety
HGV	Heavy Goods Vehicle
ME RK	Ministry of Energy of the Republic of Kazakhstan
CfEMCSIOGS	Committee for Environmental Management, Control and State Inspectorate in Oil and Gas Sector
MID	Ministry of Investment and Development of the Republic of Kazakhstan
IBRD	International Bank for Reconstruction and Development
PAP	Project-Affected Persons
HCH	Historical and Cultural Heritage
PMC	Project Management Consultant
CSC	Construction Supervision Consultant
MP	Monitoring Plan
RK	Republic of Kazakhstan
RPF	Resettlement Policy Framework
RAP	Resettlement Action Plan
SEE	State Environmental Expertise
SoW	Scope of Work
WB	World Bank

## 1. INTRODUCTION

The total length of «Astana-Karaganda-Balkhash-Almaty» road section of the «Center-South Corridor reconstruction», «Border of the Russian Federation (to Yekaterinburg)-Almaty km 1855-2152» is about 297 km. Partial reconstruction and widening of the existing road within the existing right of way has been considered within the Center-South Road Project (CSRP) implementation and accordingly assessed as part of the Center-South ESIA (prepared by CfR and disclosed in March 2015). At the Government of Kazakhstan's request, the World Bank is considering the same 297 km road for financing under the East-West Road Project (EWRP) currently proposed for restructuring. The project covering the reconstruction of these 297 km divided in 6 different road sections passes through a variety of land forms, land-use types and (micro) climatic zones (see referenced ESIA, re-disclosed for the purpose of this EWRP restructuring).

The proposed road works include rehabilitation and widening from 2-lane to 4-lane road on the existing alignment connecting Astana and Almaty in order to achieve the following:

- Lower vehicle operating costs;
- Lower travel times;
- Greater access to markets and job opportunities;
- Higher economic opportunities; etc.

In accordance with the requirements of the Government of Kazakhstan, the Environmental and Social Impact Assessment (ESIA) reports have been prepared for a total of 660 km (in 18 designed road sections) of road rehabilitation investments for the initial Center-South Road Project (CSRP) implementation (Karaganda-Balkhash-Burylbaital-Kurty-Kapshagay road), which include also the assessment of the relevant 297km road (6 sections) from Balkhash to Burylbaital (1855-2152 km).

The ESIA reports development was conducted in accordance with the provisions of the Environmental Code of the Republic of Kazakhstan and other applicable legal and regulatory guidance documents of the RK that are regulating environmental protection and safety issues. The content and composition of the ESIA documents meet the requirements of «Guidelines for the Assessment of Proposed Economic and Other Activities on the Environment in Development of Pre-planned, Planned, Pre-design and Design Documentation approved by the Decree of the Minister of Environment of the Republic of Kazakhstan dated June 28, 2007 № 204-p».

Furthermore, in accordance with the World Bank requirements and operational procedures, the 660km Road Corridor has been defined as a Category «A» project, and the ESIA report has been prepared and approved in accordance with the World Bank Operational Procedures of «Environmental Assessment» OP 4.01 in September 2015. Accordingly, the ESIA report structure has been prepared as suggested by the World Bank's operational policies and related guidelines (triggered policies are OP 4.01, and OP 4.11 on Physical Cultural Resources). In addition, the current ESMP acknowledges (based on the impact analysis addressed in the original ESIA) measures relevant to the OP 4.04 on Natural Habitats and follows EHS guidelines. This ESMP work has been carried out by the Environmental Team experts from «KazdorNII» BJSC (Astana) together with the Appointed Sub-Consultant of «KazCEP» LLP in accordance with the Terms of Reference agreed with the Committee for Roads.

## 2. PROJECT DESCRIPTION

### 2.1 GENERAL PROJECT INFORMATION

Balkhash-Burylbaital: road section from 1855 km to 2152 km has a total length of approximately 297 km and is part of the initial Center-South» Road Corridor Project, which is a larger road segment with high level of traffic which connects Almaty and Astana.

Balkhash-Burylbaital road section is located in Karaganda and Zhambyl oblasts. This road will assure the significant part between Western Europe and Western China. This route objective is to provide all-weather highway through the western China, Kazakhstan and Russia. This route will have significant economic benefits and will greatly improve flow of goods, tourists to improve social contact between China and Kazakhstan.

The existing road is Category II road which was constructed in late 2006, and now, it is planned to reconstruct this road section and upgrade it to Category Ib Road (see technical parameters in section 2.2). This will mean that the original right of way of 40 m will be widened to 70 m along the entire length of the road, and the road itself will become four lanes, instead of two.

The design road crosses a variety of landscapes, land use types and (micro) climatic areas. The road alignment lies across Karaganda and Zhambyl oblasts

This project road section has been divided into several sections, located in Karaganda and Zhambyl oblasts with varying length from 40 km to 64 km, as shown in the Table 2.1.1. The detail design was completed at the end of 2016.

Table 2.1.1 Balkhash – Burylbaital road section (1855-2152) has been divided into 6 design sections/lots as listed in table below

No. of section	Section/Lot	Length from and to, Km	Length of each section, km	Design completion date	Road section on oblasts
1	«Balkhash-Gulshat»	1855-1905	50	September 2016	Karaganda
2	«Gulshat-Tasaral»	1905-1955	50	September 2016	
3	«Tasaral-Saryshagan»	1955-2005	50	November 2016	
4	«Saryshagan-Mynaral»	2005-2069	64	July 2016	Zhambyl
5	«Mynaral-Ulken»	2069-2105	36	September 2016	
6	«Ulken-Burylbaital»	2105-2152	47	April 2016	
	<b>Total:</b>		<b>297</b>		

The lengths of the road sections and oblast through which it will pass are presented below:

- Karaganda Oblast: Length of the road section is 150 km. The object is located in Aktogai district of Karaganda Oblast between Balkhash and Saryshagan village.
- Zhambyl oblast: Length of section is 147 km (from km 2005 to km 2152 of M3 road) passes through Kashkan Teniz village (1 km from the road), Mynaral village (7 km from the road), Ulken village (is relating to Almaty oblast and passes in 9 km from the road), Shyganak village (1 km from the road), and Burylbaital village (0,5 km from the road) of Moiynkum district.

This project is large and significant enough, which will have environmental and social impacts, as well as will require land acquisition along the existing route and for by-passes. All these land plots that are subject to acquisition are determined in the detailed project. The project impacts are site-specific; few impacts such as land acquisition for a new road section and bypasses are irreversible, but in most cases mitigation measures will be developed.

## **2.2 PROJECT CHARACTERISTICS**

Key technical characteristics of the existing road:

- road category – II;
- number of traffic lanes – 2
- width of traffic lanes – 3,75 m;
- width of carriageway – 7,5 m;
- width of roadway – 15 m;
- maximum estimated width of right of way – 40 m;
- maximum estimated speed – 80 – 100 km/h;
- average estimated speed – 60 km/h;
- road pavement type – bitumen;
- bridges and culverts – replacement and reconstruction is required

Key technical characteristics of designed road:

- road category – 1b;
- length – 297 km;
- subgrade width – 25,5 m;
- number of traffic lanes – 4;
- width of median – 3m;
- maximum estimated width of right of way – 70 m;
- maximum estimated speed – 120 km/h;
- average estimated speed – 80 km/h;
- bridges and overpasses – 13 Nos.
- culverts, including cattle passes and U-drains – 226 Nos.
- rest areas – 25 Nos.
- type of pavement and type of coverage – asphalt-concrete.

Estimated construction period: 3 years (36 months).

Construction works include the following:

- Site clearance and preparation;
- Borrow pits installation and operation;
- Construction of workers' camps, warehouses and workshops;
- Roadbed construction;
- Road surface construction;
- Road pavement construction;
- Construction of junctions and crossings;
- Construction of multi-level interchanges;
- Construction of bridges and overpasses;
- Installation of traffic signs and fences;

- Application of road marking;
- Construction of drainage channels for the roadway and bridges;
- Construction of training dikes near artificial structures

Typical road cross-section for the proposed widening in cases if the road passes through the flat terrain, undulating and hilly sections are shown below.

Typical section of the proposed road passes through the flat terrain. The topography of the area is flat with natural incline.

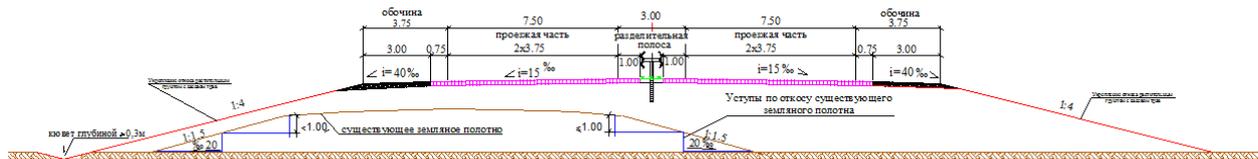


Figure 2.2.1 (a): Typical Road Cross-Section for the proposed rehabilitation and widening of the existing road.

Typical road section passes through hilly and twisting areas

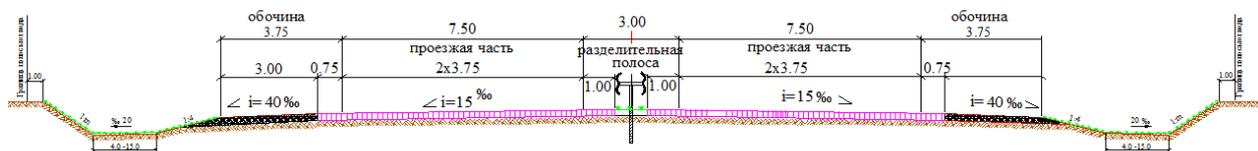


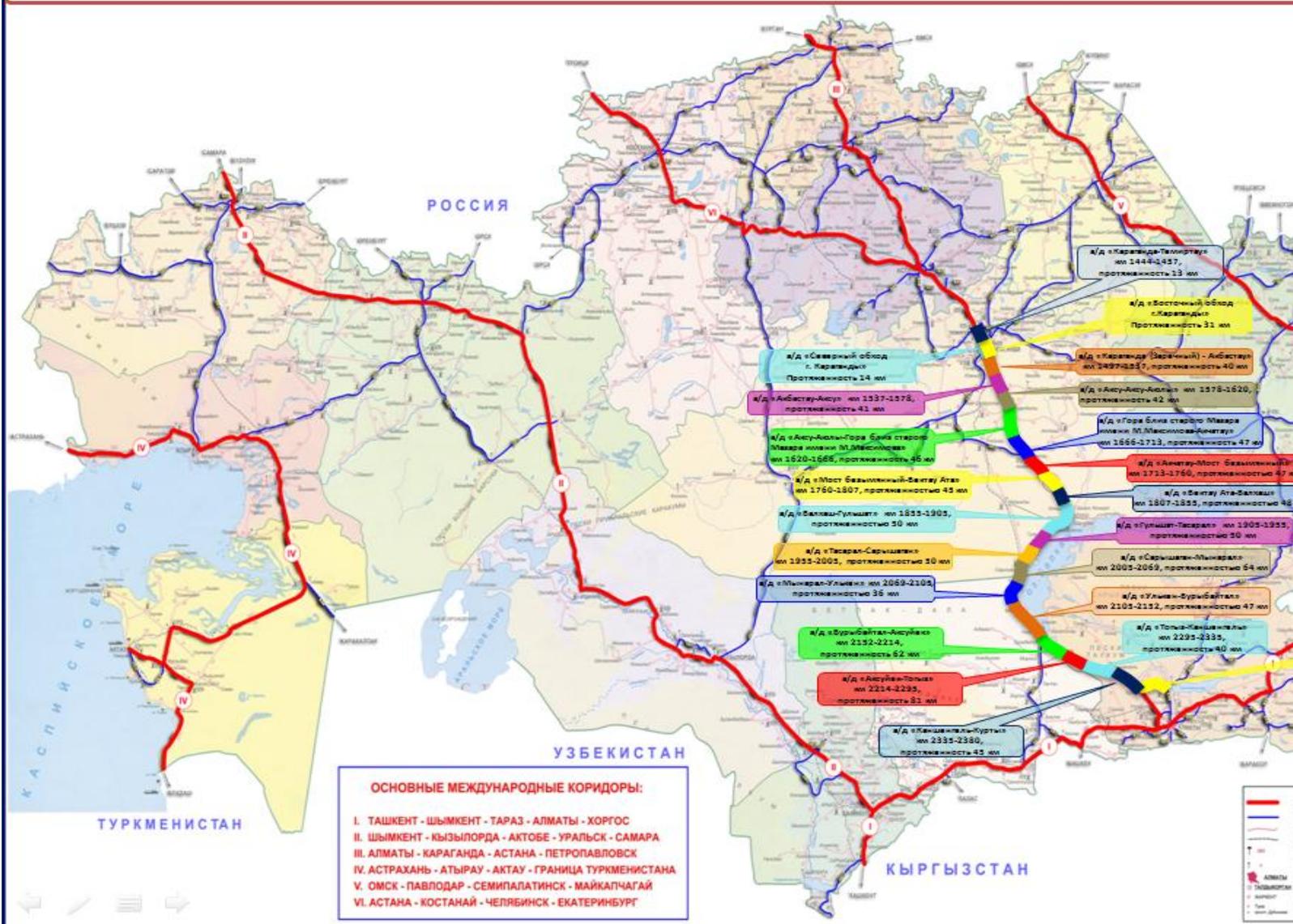
Figure 2.2.1 (b): Typical Road Cross-Section for the proposed rehabilitation and widening of the existing road.

## 2.3 ROAD SECTION

Location of Balkhash-Burylbaital road sections (6) of Centre-South Corridor is shown on the map of road network in Figure 2.3.

Figure 2.3 Karaganda-Balkhash-Burylbaital-Kurty-Kapshagai road section of Centre-South Corridor

# Схема автомобильных дорог коридора Центр - Юг



### 2.3.1 ROAD SECTION IN KARAGANDA OBLAST

Total length of road section in Karaganda Oblast is approximately 150 km, road section begins from km 1855 and passes through Aktogai district of Karaganda oblast between Balkhash and Priorsk.

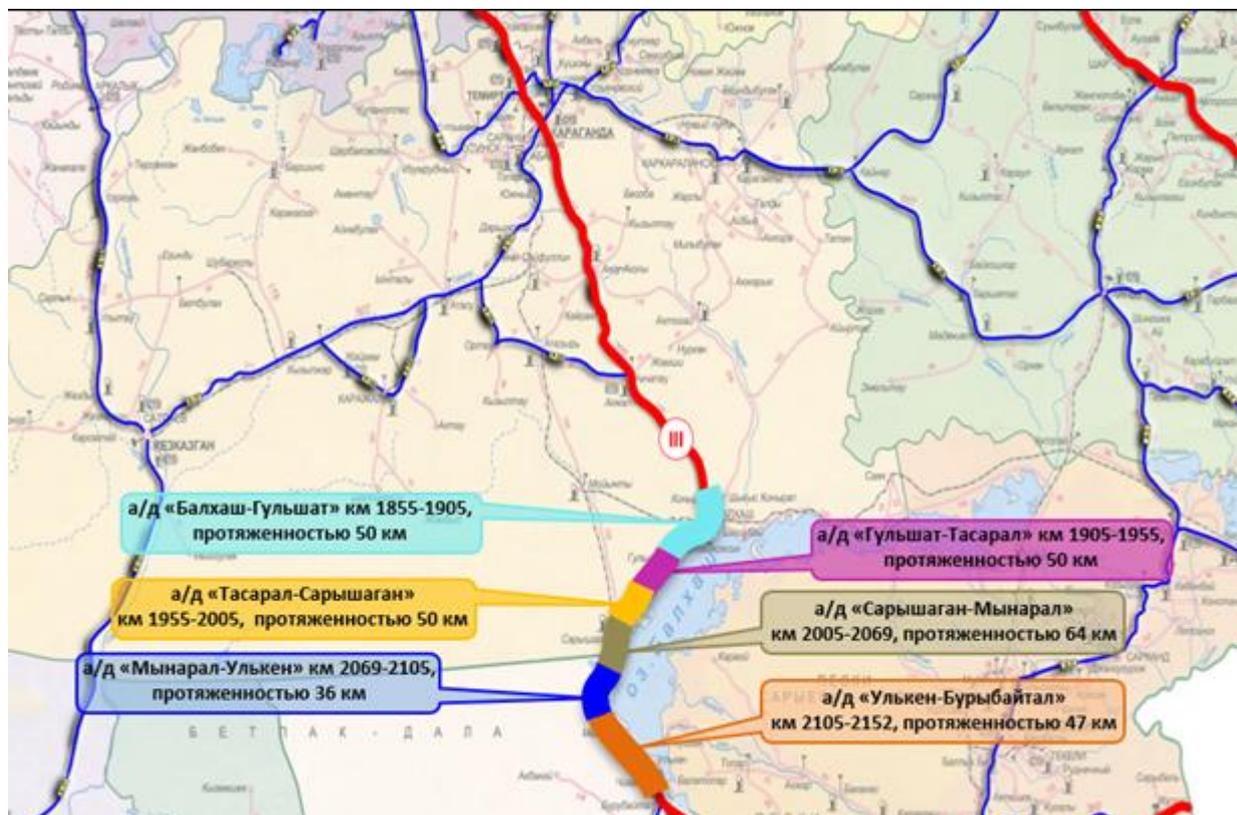
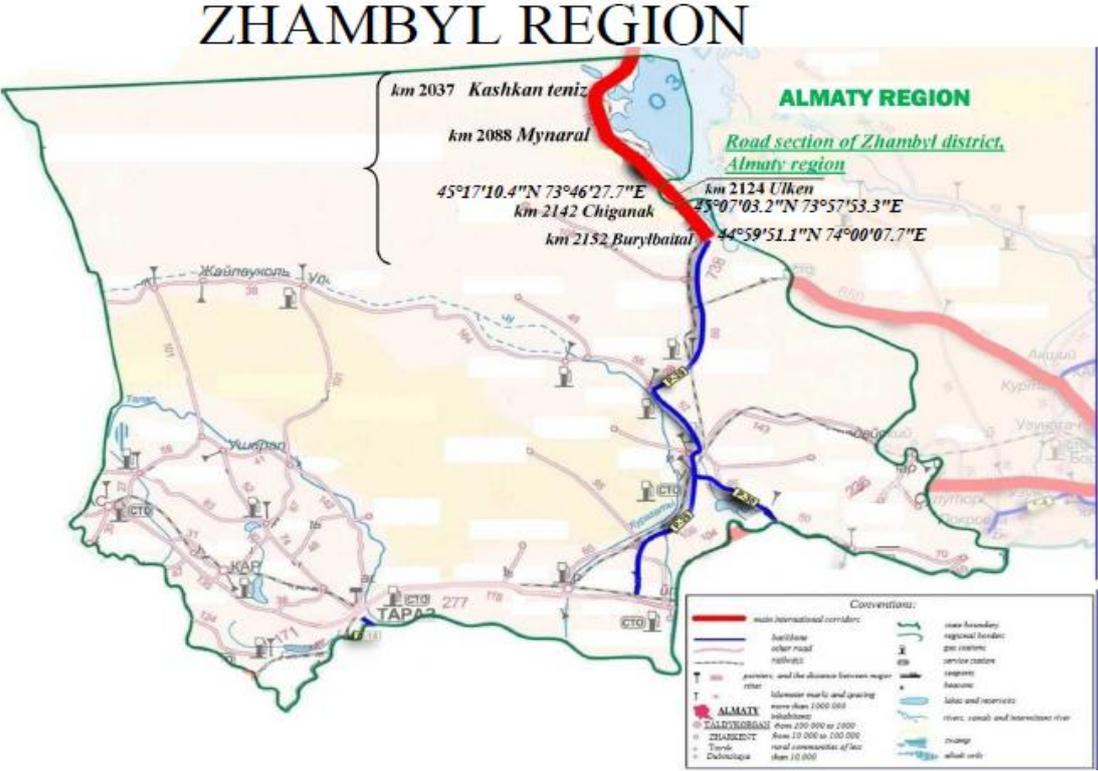


Fig 2.3 Six lots from km 1855 to km 2152

### 2.3.2 ROAD SECTION IN ZHAMBYL OBLAST

The length of section in Zhambyl oblast is approximately 147 km (from km 2005 to km 2152 of M3 road), passes through Kashkan Teniz village (1 km from the road), Mynaral village (7 km from the road), Ulken village (is relating to Almaty oblast and passes in 9 km from the road), Shyganak village (1 km from the road), Burylbaital village (0,5 km from the road) of Moiynkum district. Road section, which passes through territory of Zhambyl oblast is presented below.

**Fig 2.3.2: Road alignment of section on map of Zhambyl oblast along the existing road from Astana to Almaty.**



**2.4 TRAFFIC INTENSITY AND TRANSPORT MODE**

In roads classification, traffic volume is taken into account as one of many factors. Based on the information received from the Committee for Roads of the MID RK, the following traffic volume, specified in the Table 2.4.1., had been recorded in the past 5 years.

**Table 2.4.1 Information on traffic along Karaganda-Burybaytal Road Section for the period of 2010-2014**

Oblast	km	Traffic intensity	Year
Karaganda Oblast	1855 - 2005	4916	2010
		5023	2011
		7352	2012
		6489	2013
		9916	2014
Zhambyl oblast	2005-2214	2019	2010
		2093	2011
		3059	2012
		3517	2013
		5315	2014

The table above shows that the traffic intensity is increasing year after, due to which the road widening is required for further road safety compliance.

## 2.5 ARTIFICIAL STRUCTURES

According to the results of completed draft projects on six sections, it is planned to construct culverts, overpasses and bridges. Detailed information on the planned bridges is given below.

### ***Road section km 1855 – km 1905 (Balkhash - Gulshat)***

The working draft stipulates works on dismantle of the existing pipes and construction of new one with full replacement of all elements.

On PK 317+74,59 the construction of cattle pass on scheme 1x9 m, dimension G - (11.5+5.426+15.25) + 2 x 0.75m is provided for transition of bovine animals and for transition of agricultural equipment.

d – 1,5n – 8 pieces / 279,98 r.m.;

d – 1,5k – 1 piece / 36,23 r.m.;

d – 2kh1,5n-3 pieces / 108,81 r.m.;

d – 2kh1,5k-3 pieces / 49,35 r.m.;

d – 3kh1,5k-3 pieces / 46,34 r.m.;

on access track on PK 109+65,0 at the left - d – 1,0 m with length of 19,27 r.m.

on access track on PK 319+89,0 at the left - d – 1,0 m with length of 19,27 r.m.

Overpasses construction. The scheme of the overpass – 1x9,0 m.

Overpass dimension – (G-11,5) + (G-15,25)+2x0,75 m. Operating corridor – 0,75 m. Number of lanes – 5. Overpass length - 9,7 m. Crossing with the road at an angle 90 °. The overpass is asymmetrical, intended for the admission of 5 traffic lanes (lanes on 3,75 m) with safety strips on 2,0 m, and also the pedestrian traffic.

### ***Road section km 1905 – km 1955 (Gulshat-Tasaral)***

Design of small artificial structures is executed according to requirements of SNiP 2.05.03-84 \* «Bridges and pipes» under design load A14 and NK120 and NK180.

Determination of design discharge is made according to the requirement of MSP 3.04-101-2005 of 1% probability of exceedance. Mouth of pipe is appointed taking into account pass of the maximum discharge of thawed snow.

The working project provides works on dismantle of the existing pipes and construction of new with complete replacement of all elements.

According to the letter of akim of Tasaral rural district dated 26.05.2016 No. 257 cattle pass construction - reinforced concrete rectangular pipes with mouth 1 (0x2,5) m is provided for transition of bovine animals on PK175+18, PK354+85.

The working project on the main road provides the construction of new reinforced concrete culverts in number of 25 pieces with a total length of 785,5 r.m., among other:

d – 1,5 m – 20 pieces / 626,61 r.m.;

d – 2,0x1,5 m – 2 pieces / 66,11 r.m.;

hole. – 2 (2x2) m – 1 piece / 30,59 r.m.;

hole. – 1 (4,0x2,5) m – 2 pieces / 62,19 r.m. (cattle pass).

Reinforced concrete pipes  $d = 1,0$  m in number of 2 pieces, total length of 48,07 r.m. are provided on the access tracks.

All pipes on the main road are constructed on the foundation of type – III, on access tracks without foundation on crushed-stone bed.

Strengthening of slopes and watercourses of intake portal and outlet portal is made by in-situ concrete B20 F300 W6.

Circular reinforced concrete pipes are designed according to requirements of the standard project 3.501.1-144 inv. 1313/5 series 0-2; 0-4; rectangular – according to requirements of the standard project 3-501-104. Rings of circular and rectangular pipes on the road have been accepted according to development of «Kazdorproject» LLP, order No. 04-08. Strengthening works are accepted according to the standard project 3.501.1-156 «Strengthening of embankment slopes and watercourses at culverts».

For passing of agricultural machinery, local transport, cattle passing on PK41+50, PK285+20 the project provided the construction of 2 small reinforced concrete overpasses of 9 m long. Location of overpasses is determined according to letters from akims of Gulshat, Tasaral villages. The dimension of constructions for agricultural machinery passing has been accepted not less than 4.5 m. in accordance with requirements of SNiP 2.05.03-84\* «Bridges and pipes» c.1.21\*b and ST RK 1684-2007 «Bridge constructions and culverts on roads».

The overpass on PK41+50 - a dimension on width 2(G-12,7) with a width of carriageway of 8,7 m and strips of safety of 2 m. The overpass on PK285+20 - a dimension on width 2(G-11,5) with a width of carriageway of 7,5 m and strips of safety of 2 m.

The carriageway has been accepted according to development «Superstructures of road bridges from hollow slabs with 12 m and 18 m length under loading of A14, NK-120, NK-180» the order No. 01-08.

### ***Road section km 1955 – km 2005 (Tasaral-Saryshagan)***

The working draft stipulates works on dismantle of the existing pipes and construction of new with complete replacement of all elements.

According to letters of akimat of Priozersk No.11-26/1087 dated 27.10.2015 and the akim of Tasaral rural district the construction of two cattle passes - reinforced concrete rectangular tubing with hole 1(4,0x2,5) m is stipulated for transition of bovine animals on PK2+44, PK468+50.

The working draft on the main road provides the construction of new reinforced concrete culverts in number of 29 pieces with a total length of 918,25 r.m., including:

$d = 1,5$  m – 18 pieces / 576,72 r.m.;

$d = 2,0 \times 1,5$  m – 2 pieces / 48,92 r.m.;

hole. – 1 (2,0x2,0) m – 2 pieces / 73,4 r.m.;

hole. – 1 (2,5x2,0) m – 1 piece / 54,04 r.m.;

hole. – 2 (2,5x2,0) m – 3 pieces / 99,93 r.m.;

hole. – 1 (4,0x2,5) m – 2 pieces / 65,24 r.m.(cattlepasses);

at the access track on PK415+50 at the left -  $d = 1,5$  m with length of 28,01 r.m.

According to a design assignment, the bypass of settlement has been designed from a western side in area of Saryagash village with length of 6,917 km. Therefore, the designed road crosses railway tracks twice. According to "the act of the choice of the place of crossing of a railway track" dated 21.01.2016 the project provides construction of two road overpasses in different levels on the PK 359+34 and PK409+86.

The overpass on PK359+34 is located on intersection with railway tracks at an angle 27° on Saryshagan-Nowaly section of 1191 km PK3+75 and designed according to the scheme of 1x42 m. Dimension of the overpass 2x (G-11,5) +2kh0,75m.

The overpass on PK409+86 is located on intersection with railway tracks at an angle 53° on Saryshagan-Koktas section of 1196 km PK1+45 and designed according to the scheme of 1x33 m. Dimension of the overpass 2x (G-11,5) +2kh0,75m.

For passing of agricultural machinery, local and heavy truck transport the project stipulated the construction of 2 small reinforced concrete overpasses on scheme 1x15m on PK365+20, PK404+20 according to letter of akimat of Saryshagan v. No. 757 dated 22.10.2015. The dimension of structures for passing of agricultural machinery has been accepted not less than 4,5m according to requirements of SNiP 2.05.03-84 \* «Bridges and pipes» of c. 1.21\*b and ST RK 1684-2007 «Bridge constructions and culverts on roads».

Design of overpasses. Overpasses - a width clearance 2(G-11,5) with a width of carriageway of 7,5 m and strips of safety of 2 m. Operating corridors on all overpasses – 2x0,75 m. The angle of intersection is 90°. Taking into account multilane vehicle traffic, overpasses were designed separately under each driving direction on the separate foundations, working independently from each other. The overpass through the road on PK474+83,55 and the overpass through a railway track on PK477+37,34 is also provided.

#### ***Road section km 2005 – km 2069 (Saryshagan-Mynaral)***

On the designed road section there are 44 culverts, 1 bridge through dry valley and 1 overpass through railway bed.

From 44 pipes:

##### **1. Circular**

- opening of 1 m 19 pieces;
- opening of 1,5 m 17 pieces;
- opening of 2x1,5 m 1 pieces;

##### **2. Rectangular**

- opening of 2x2,0x2,0 m 1 pieces;
- opening of 2,5x2,0 m 1 pieces;
- opening of 2x2,5x2,0 m 2 pieces;
- opening of 4x2,5x2,0 m 1 pieces;
- opening of 4,0x2,5 m 2 pieces.

Length of pipes of 1 m opening in all cases exceeds 20 m and in most cases is 23-26 m. Technical condition of pipes is estimated as unsatisfactory.

#### ***Road section km 2069 – km 2105 (Mynaral-Ulken)***

The project has designed 21 small artificial structures and 1 bridge through dry valley on PK 216+33.08.

Including:

The small artificial structures, presented by culverts in the number of 20 pieces, from them:

On lengthening:

m d=1.0 - 4 pieces

m d=1.5 – 1 piece

m d=2x1.5 – 1 piece

m d=3x1.5 – 2 pieces

On dismantling of the existing pipes:

d=1.0 – 10 pieces, with replacement for the new pipes d=1.5 m

d=1.5 – 1 piece, with replacement for straight pipes 4x2,5 m (cattle pass)

d=1.5 – 1 piece, with replacement for m d=2x1,5.

The project has provided lengthening of the existing rectangular pipe with hole of 4x2,5 – 1 piece for a conveyer belt on «Zhambyl-Cement» plant. The construction of a rectangular culvert with hole of 4x2,50 is put on bypass of PK 127+80 near Mynaral village and serves for a cattle passing.

Culverts are supposed to be constructed in places of hollows and dens, crossing by the road. The existing culverts have been constructed in 2007, good condition, the project has provided lengthening of the existing pipes.

The bridge is through dry valley on PK 216+33.08

In the place of crossing by the road of an artificial construction the necessity for broadening of the existing bridge crossing to the technical category I arose. In this regard the bridge project scheme, similar to the existing, has been accepted. Foundations have been designed taking into account geological and hydrological conditions. Existing bridge opening provides the free passage of the maximum water discharge, equal to 38 m<sup>3</sup>/s. The widened part of the new bridge works for temporary and permanent loads independently, irrespective of existing, vehicle separation is carried out by guard rail, located on a dividing strip.

Due to the fact, that it is necessary to provide a standard cross slope, equal to 2,0% on the existing carriageway, replacement of a covering on new, including a monolithic plate of strengthening of 150 mm, and also a waterproofing and an asphalt concrete covering has been executed. All main technical characteristics of the bridge are tabulated.

**Table 2.5.1 Bridge technical characteristics**

No. c/sc	Name	Unit of measure	Index
1	Road category		I
2	Bridge scheme	m	2x18,0
3	Overall length	m	36,810
4	Width of road lane	m	3,75
5	Traffic lanes number	-	4
6	Bridge dimension	-	2(G11,5)+2x0,75
7	Intersecting obstruction	-	Temporary stream
8	Intersection angle of road axis with intersecting obstruction	-	90°
9	Transverse slope of carriageway	‰	20
10	Longitudinal Slope	‰	5

11	Width of dividing strip	m	1,56
12	Width of margin course of safety on bridge	m	2,0
13	Sidewalks bridge	m	0,75
14	Sidewalks quantity	pcs.	2
15	Overall width of bridge	M	27,6
16	Estimated temporary load		A14, HK-120, HK-180.

**Road section km 2105- km 2152 (Ulken - Burylbaital)**

Total of small artificial structures are 37 Nos.

All existing small artificial structures, based on the survey, are replaced by new ones taking into account the water flow (the bill is attached) or extended.

New from them:

- reinforced concrete pipes d-1.5 m - 13 pcs;
- reinforced concrete pipes d-2x1.5m - 6 pcs;
- reinforced concrete pipes - 2 x 2 m - 1 pc;
- reinforced-concrete pipes hole (2x2) 2 - 2 pcs;
- reinforced concrete pipes hole 4x2,5 - 1 pc;

Pipe extension:

- reinforced concrete pipes d-1.5 m - 5 pcs;
- reinforced concrete pipes d-1.5km - 1 pc;
- reinforced concrete pipes d-2x1,5 m - 3 pcs;
- reinforced concrete pipes d-3x1.5m - 2 pcs;
- reinforced concrete pipes d-3x1.5km - 1 pc;
- reinforced-concrete pipes of hole.-2,0x2,0 m - 1 pc;

Construction of new and extension of round culvert reinforced concrete pipes d-1.0m and d-1.5m was adopted according to the standard project "Links of round and rectangular pipes under the road for the load A14, NK-120 and NK-180 ", productive capacity 1 and productive capacity 2, developed by «Kazdorproject» LLP Kazakhstan, Almaty order No. 04-08.

The scopes of works on the installation of artificial structures are specified in the drawings and in the Bill of quantities.

**Bridges:**

**Bridge over Ushbalyk river** at PK57 + 71 is presented by a double-span structure of the bridge 2x 18.0 m. The estimated flow rate for these hydrological data is 80 m<sup>3</sup>/s. The bridge is broadened without length changing. The bridge dimension is 2 (G-11.5) + 0.75 + 1.55. The bridge length is 36.81 m. Abutment and intermediate bearings are on natural grounds. The type of superstructures is beam, continuous. Estimated loads A-14 and NK-120, NK-180.

**Bridge over Kairakty stream** on PK120 + 22 is presented by a single span structure of the bridge 1x 6.0 m. The estimated flow rate for these hydrological data is 44.2 m<sup>3</sup>/s. The bridge dimension is 23.66 m. Estimated loads A-14 and NK-120. The bridge length is 10.30m.

**Bridge reconstruction over Shyganak river** on PK266 + 40 was designed according to the terms of reference, increasing the width of the bridge. For this it is necessary to do the following actions. Carriageway, beams of superstructures, parapets and cross beams are dismantled. Pier cap is completely dismantled, then concrete procedure of new cross beams is made with width increasing. Also spread of foundation of bearing part is broadened by installing of new foundation blocks and pillars. Further, superstructures with length of 18 m of the plate type are mounted. Installation of si-

dewalk blocks, carriageway and guard rail and barrier railing is carried out. The river bed is strengthened with crushed-stone of 200 mm thick. The bridge overall dimension is 23.66 m. Estimated loads A-11 and NK-80. The bridge length is 22.10 m.

### **Overpass over 2-way railway road on PK 294 + 57**

The existing overpass crosses the 2-way railway «Almaty-Astana». The overpass includes plate superstructures, supports and connection with the embankment. The scheme of the overpass is 3x18,0 m. The total length of the overpass is 62 m, the width of the overpass is 12.0 m, it stipulates 2 traffic lanes on 3.75m with two safety strips on 1.5m, two sidewalks on 0,75m for pedestrians. There are perimeter, barrier and protective guard rails on the sidewalks. The overpass is located in the plan at an angle of 78 °.

The overall technical condition of the overpass through the railway PK294 + 57 km 2134/361 + 160 m, taking into account the identified defects is estimated as category II - operative structure.

The reconstruction of the overpass is divided into 2 stages:

- 1 stage - the construction of a new overpass;
- 2 stage - reconstruction of the existing overpass.

## **2.6 BORROW PITS AND CONSTRUCTION MATERIALS**

Natural sources for inert aggregates suitable for road construction are available in the needed quantities along the road alignment areas. Location of the existing licensed borrow pits at each road section will be determined by the designers.

District akimats and all other authorized institutions provided permits for the existing subsoil reserves and borrow pits, including environmental permits. It is available for use by the contractor depending on the contractor's precise requirements. The contractor is not normally interested in direct ownership of a borrow pit and enters into a contract with the owner/operator of the borrow pit to purchase the specified amounts of materials that are necessary for the project implementation.

The road contractor is responsible for maintaining the general public and private access roads between the borrow pit and the construction site.

Direct extraction of materials from the river beds is not allowed and is not approved by the Committee for Water Resources. Normally, borrow pits are not allowed to be established within the range of less than 500 meters from any river.

Every proposed borrow pit require approval from a range of local authorized institutions, including inter-regional commissions. When a contractor submits its application to receive permission to explore new borrow pits, it must attach the ESIA along with all the documentation and expertise conclusions to Oblast Department for Environment Protection to obtain permits for emissions and impacts. The final approval process includes the requirement that in a borrow pit opening stage the removal and storage of fertile topsoil must be carried out, and then, the fertile topsoil must be recultivated after the borrow pit closure. This document will be prepared after signing the prospecting and extraction contract. The general approval process for permission to use a new borrow pit from Oblast and District authorized bodies may take up to 2 years. Therefore, contractors will likely use the existing borrow pits with the existing already approved permits. Permits from water resources protection authorities are not required; however, the ESIA should contain the description of impacts on surface and groundwater resources.

For the existing borrow pits defined by the Design Engineers, all the ESIA procedures have been completed and environmentally accepted. There will be no adverse impacts on surface and ground-water resources, as well as other aspects. Nevertheless, once the borrow pits that are used will have been identified by the Contractor, due inspection will be carried out to confirm that those borrow pits are operating or operable in an appropriate manner. Detail information on existing borrow pits is provided in ESIA report, also in the detailed design for the respective detailed design project.

**Table 2.6 Borrow pits for construction materials at the road section km 1855 – km 2155:**

No	Soil reserve	Borrow pit location	Note
<b>Balkhash-Burylbaital km 1807-1855</b>			
1	Borrow pit No 1	PK310+00 (230 m to the left)	Balkhash lands
2	Borrow pit No 2	PK0+00 (250 m to the left)	Reserve lands
3	Borrow pit No 3	PK97+40 (230 m to the right)	Reserve lands
4	Borrow pit No 4	PK 174+00 (400 m to the left)	Reserve lands
5	Borrow pit No 5	PK250+00 (400 m to the right)	Balkhash lands
<b>Balkhash-Burylbaital km 1855-1905</b>			
1	Borrow pit No 1	PK289+60 (140 m to the left)	Gulshat lands
2	Borrow pit No 2	PK245+60 (250 m to the left)	Gulshat lands
3	Borrow pit No 3	PK123+60 (110 m to the left)	Chubar-Tobek lands
4	Borrow pit No 4	PK245+60 (450 m to the right)	Gulshat lands
5	Borrow pit No 5	PK63+60 (600 m to the left)	Gulshat lands
<b>Balkhash-Burylbaital km 1905-1955</b>			
1	Borrow pit No 1	PK220+52 (100 m to the right)	Zhylandy lands
2	Borrow pit No 2	PK305+38 (100 m to the right)	Kindik lands
<b>Balkhash-Burylbaital km 1955-2005</b>			
1	Borrow pit No 3	PK407+89 (100 m to the right)	Sakyrkoi lands
2	Borrow pit No 4	PK0+00 (100 m to the right)	Taskonyr lands
3	Borrow pit No 5	PK102+50 (100 m to the right)	Yeskor lands
<b>Balkhash-Burylbaital km 2005-2069</b>			
1	Borrow pit No 1	PK337+20 (400 m to the right)	Kashtengiz lands
2	Borrow pit No 2	PK608+20 (340 m to the right)	Kashtengiz lands
3	Borrow pit No 3	PK87+80 (400 m to the left)	Saryshagan lands
4	Borrow pit No 4	PK164+20 (290 m to the left)	Saryshagan lands
<b>Balkhash-Burylbaital km 2069-2105</b>			
1	Borrow pit No 1	PK132+00 (4000 m to the right)	Moiynkum district lands
2	Borrow pit No 2	PK218+00 (320 m to the left)	Moiynkum district lands
3	Borrow pit No 3	PK331+00 (700 m to the left)	Moiynkum district lands
<b>Balkhash-Burylbaital km 2105-2152</b>			
1	Borrow pit No 1	km 2110+00 (600 m to the right)	Ulken district lands
2	Borrow pit No 2	km 2154+500 (900 m to the right)	Ulken district lands
3	Borrow pit No 3	km 2130+900 (700 m to the right)	Ulken district lands
4	Borrow pit No 5	km 2150+200 (300 m to the left)	Ulken district lands

During investigation designing region was inspected in detail for presence soils, suitable for use at road reconstruction, as well as all necessary approval documents have been received.

The reserves that are under exploration are located in the territories occupied by low-value grasslands. Location of soil reserves, soil peculiarities and guidelines for its use, as well as data on transportation distance are specified in the soil reserves passports.

The proposed borrow pits are available for use by any contractor depending on the specific requirements of the contractor. The final decision in respect of the borrow pits selection will be made by the Contractor, and additional new borrow pits may be required. The contractor usually does not own and is not interested in the possession of a borrow pit. The contractor enters into a contract with the owner/operator of the borrow pit in order to acquire a certain amount according to the specification. The contractor will be responsible for the content of any public and private access roads between the borrow pit and construction site. Regarding closure of the borrow pits, the reclamation of the existing borrow pits is the responsibility of the borrow pits owners; while the Contractor bears responsibility only for new borrow pits suggested by the designers.

## **2.7 ROAD SUBGRADE ERECTION WORKS**

In the subgrade erection, loosening of the existing top layer to a depth of 30 cm is provided, then the alignment, profiling, after sealing and soil filling up is done to the design level. Vegetable mold that is subjected to removal is all over the band near the road. The average vegetable mold capacity is 0.15 m.

In the area of the bridge over the waterless valley, the roadbed of accesses in the sections of junction to the extreme supports is widened to 1.0 meters on each side of the support. Embankment slopes are constructed with a slope of 1:1.5 and fixed at the full height with the monolithic reinforced slabs 15 cm wide with the size of 2.5×2.5 m by the crushed stone layer 15 cm thick.

In widening the existing embankment with the height of up to 2 m, the surface of slopes should be loosened; ledges construction is provided for the height of the existing embankment of over 2 m.

Particular attention in the subgrade erection should be given to thorough layer-specific soil compaction in the embankment. The subsequent layer filling is only allowed after leveling and compaction of the underlying layer with the help of road rollers to the desired density with water irrigation.

In slopes flattening and in the widening area, new road construction and exits fixing, removal of soil-vegetable layer (SVL) with the thickness of 15 cm and its moving outside the right of way is carried out.

After the subgrade erection, SVL application will be provided for the slopes with the thickness of 20cm, as well as mineral fertilizers will be applied and perennial grasses will be planted by mechanized method.

### **3. ENVIRONMENTAL AND SOCIAL BASELINE DATA**

#### **3.1 ROAD SECTION IN KARAGANDA OBLAST**

##### **3.1.1 GENERAL DESCRIPTION**

The length of road section is 150 km, passes along the existing road. The object is located in Aktogai district of Karaganda oblast between Balkhash and Saryshagan villages.

**Karaganda Oblast** is located in the central part of Kazakhstan and the Eurasian continent. It is almost equidistant from the Arctic, Indian, Atlantic and Pacific Oceans. The climate is sharply continental and droughty. There are 9 districts in the oblast, as well as 11 cities, 9 of which are of national importance and regional subordination, 11 urban-type settlements, 422 villages. The existing road runs through Balkhash city and Saryshagan village in Aktogai District and Priozersk of Karaganda Oblast.

The oblast occupies the most elevated part of the Kazakh Uplands, Saryarka, which is unique, heterogeneous in geomorphic sense, high hills territory (absolute altitude is 400-1000 meters). The landscape has river valleys, dry riverbeds, hollow spaces, inland caves, lake basins, etc. The highest mountain groups are Karkaraly, Kent, Kyzylaray, Keshubay, Kyzyltas, Ulytau.

##### **3.1.2 CLIMATE**

Natural climatic zones along the road section in Karaganda oblast are represented by steppe, semi-desert and desert landscape zones of the temperate zone.

The territory of Bukhar-Zhyrau District is included in the steppe landscape zone. The steppe zone is characterized by dry sharply continental climate: the summer is hot and dry, winter has little snow, but severe frost with winds and snowstorms. Evaporation in summer period exceeds atmospheric precipitation more than 3-7 times. Sharply continental climate is determined by severe winter, high summer temperatures, high annual and daily amplitudes of air temperature and low number of precipitation. Despite the variety of natural zones that exist in the region, winter periods are quite long, cold and snowy. The average temperature in January is -14 to -16 degrees. The snow cover throughout the district varies, is produced in the early days of November and can reach 25-45 cm for the most part. Unstable weather character is observed during the entire period. Short thaws may be replaced by lengthy periods of frost. Severe snowstorms, fog and black ice are an integral part of the cold period. Spring is late, the average temperature of the air warms up to +20...+25 degrees and there are severe frosts, forming a strong frozen crust, during the night. Precipitation in the form of snow and wet snow are possible. Strong wind and overcast weather is replaced by relatively warm and sunny days. Active snow melting and heavy rainfall cause a sharp rise of water in the rivers region, which can often lead to flooding of settlements. Summer is usually warm, in some extended periods of hot and dry. Average thermometer readings in July are +23 to +25°C. Intermittent rains and thunderstorms are mostly local showers type. Autumn is short-term, wind and cloudy days dominate. During the year, up to 275 mm of precipitation is observed in the territory of the district.

Abay District territory is a part of semi-desert landscape zone. Accordingly, the climate is sharply continental, which was caused by significant remoteness of the area from the oceans. Winter days are slightly cloudy and frosty. The average temperature in January is -16...-18 degrees. Snow cover is formed in mid-November. In winter, there may be brief thaws, weather is extremely unstable. Spring is late. The weather in this period may present various surprises in the form of unexpected snowfall, strong winds or heavy rain. Summer adheres to calendar values, warm and even hot in some periods. July temperatures reach an average of +16...+20 degrees. The bulk of precipitation occurs in July and August. According to the weather forecast for this period, a large number of

short-term torrential intermittent rains and thunderstorms are observed. Autumn brings wind and mostly cloudy weather. During the year, up to 350 mm of precipitation is observed in the territory of the district. Much of the precipitation occurs in warm period.

The desert landscape area includes the territories of Shet and Aktogay districts. The climate throughout Shet and Aktogay districts is sharply continental. Large fluctuations in daily temperatures are observed during the entire year. Winters are short and moderately frosty and snowy. The average temperature in January is -9 ... -11 degrees. At night the temperature can drop to -25...-27 degrees. Snow cover is uncertain and cannot be formed in some years. Frequent thaws and strong winds accompany the entire cold period. The summer period is long, accompanied by a large number of sunny and clear days. The average temperature in July is +24...+26 degrees. At night, the air can cool down to +13...+15 degrees, and temperature rises up to +40 degrees or higher in the daytime. Extremely limited amount of rainfall leads to the formation of strong dust and sandstorms. During the year, up to 200 mm of precipitation is observed in the territory of the district.

### **3.1.3 GEOMORPHOLOGY AND GEOLOGY**

The area of the alignment is characterized by its complex geological structure. There are common rocks of all geological ages from Paleozoic to Quaternary sediments. Among the variety of sediments, dominant role belongs to sedimentary and eruptive complex formation. Intrusive and ancient metamorphic formations are much less developed.

The river valleys and lakes basin in the road reconstruction area are composed of thick layers of alluvial and alluvial-proluvial quaternary sediments. Capacity of sand and gravel-pebble deposits of Sarysu, modern river valley, Nura, Taldy, Tokrau, Mointy and others reaches 15-20 m and more. In addition, the ancient alluvium, buried under 50-70 meter layer of tertiary clays, is opened in the valleys of rivers boreholes. Ancient alluvium is represented by sandy-pebble deposits with a capacity of several tens of meters.

### **3.1.4 SOIL, SAND AND SOIL-FORMING ROCKS**

Balkhash and Burybaital road section of the Centre South Road Corridor has complex soil formation conditions. Soil characteristics and formation are affected by climatic, hydrological conditions, geological structure, vegetation and other factors.

The most common types of soil in this area are dark brown and light brown soils, which occupy about 40% of the territory. In the northern and northeastern part dark brown soil is common while the central part is mostly covered by light brown soil. In southern upland and adjacent plains brown and gray-brown soils are developed, and in the mountain valleys - mountain black earth and mountain-chestnut soils.

The subzone of desert steppes on light-brown soils covers the Abay district of Karaganda oblast. The main zonal types of soils in Shet district vary from the relatively meager light brown soil with a low content of organic matter to dark brown that are relatively fertile, rich by structure and which can keep moisture.

Overburden rocks and rocks of productive strata do not have elevated radioactivity, rare and precious metals in the ground have not been found.

Based on the soil texture, soil types in the oblast can be divided into three groups:

- sand, thin gravelly tightly-adjoined soil, light and sandy loam, characterized by increased infiltration. They are widely spread in sandy areas of southern and western regions;
- loamy soils of the southern and central areas of the oblast;
- heavy clay soils of the northern areas have the highest water-holding capacity. Sometimes they are found in the south of the area along the river valleys, in lake basins on takyrs and other depressions.

Vegetative layer of soil is found along the road, which will be removed for the use of land according to the project decision. Capacity of the vegetative layer was 0.17 m, fertile layer was 0.23 m and 0.20 m – on the slopes. The map of soils of Kazakhstan is shown in Figure 3.1.4.



Figure 3.1.4. Map of soils of Kazakhstan

### 3.1.5 HYDROLOGICAL CHARACTERISTICS

Kazakh Uplands is crossed by many unnavigable rivers. Major rivers are Ishym, Nura, Sarysu, Silety, Shiderty, Tokyrau. They are mainly fed by spring snowmelt, and groundwater partly. During the flood time, they come out of its banks and pour the flood plain. In summer months, the rivers become shallow, turning into river reaches and dead channels; the riverbeds often become dry. Continuous flow is observed only on Ishim. To provide fresh water in the region, the channel of Irtysh-Karaganda was built. The Kazakh Uplands has many salt lakes. Freshwater lakes are located mainly in the area of Kokshetau Uplands: Borovoye, Schuchye, Large Chebachye, Imantau and others.

Nura River has about twenty major tributaries of the 1 order, for which water regime can be divided into permanent and intermittent at low water.

Such rivers as Akbastau, Baygozha, Kokpekty, Tuzdy, Shiderty, Ulken-Kundyzdy are related to permanent watercourses.

Valley of Akbastau River is connected with mountainous areas and is their submontane trough. The width of the valley is 1-1.5 km on average. The same as Baygozha River, Akbastau River begins on the northern slope of the watershed and flows almost in a straight line in the meridional direction. Average long-term discharge of the two rivers is 0.18 and 0.57 cubic m/s, respectively, and runoff modules from one square kilometer of the surface of the basin are 0.40 and 0.57 l/s.

River water is fresh with mineralization of up to 1 g/l with chloride, sodium, or hydrocarbonate-chloride composition.

Sherubay-Nura, Zharly, Ashisu, Otkelsyz, Kokpekty, Tuzdy and Oshagandy rivers are becoming dry in the summer period. During floods, these rivers are discharging up to 75-100% volumes of annual flow. Tuzdy and Kokpekty rivers are seasonal, there is almost no drought flow; the average consumption of water is 0.3 cu. m/s in the seasonal flood. In the spring seasonal flood, Kokpekty River has up to 100% of the annual flow.

The rivers are additionally fed by underground sources. Salt-tertiary clay, which is found there, leads to an increase in water salinity. Small rivers, being the main supplier of major rivers, are protected to a lesser extent. Compared with large and medium rivers, insufficient importance is given to them in terms of practical use. However, all the total river flow that is formed in the territory of the republic belongs to these rivers (60.4 billion cu. m.)

Along its alignment, the road crosses small left-bank tributaries of Sherubay-Nura River that are flowing from the left to the right, upper sections of the small rivers in Karaganda and Karabidayik flowing in the opposite direction.

The hydrological regime of rivers and temporary water streams of the area is determined by the conditions of their nourishment. In accordance with the exceptional value of the melted snow, the main stage of its regime in the nourishment of the water streams of the considered territory is sharply expressed spring seasonal flood, followed by a deep low water level up to complete drying up of small watercourses, as well as relatively large rivers often.

### **Surface water**

Balkhash-Alakol and Irtysh river basins in the east and in the north-east are almost 75% of surface water sources in the country. Balkhash-Alakol basin occupies a vast area in the south-eastern Kazakhstan, part of China and a small part of Kyrgyzstan. Its area is 413 000 km<sup>2</sup>, including 353 000 km<sup>2</sup> in Kazakhstan (Almaty and a part of Zhambyl and Karaganda oblasts and oblasts of East Kazakhstan). Permanent rivers flowing into Balkhash Lake – Ili, Karatal, Aksu, Lepsy, Ayaguz – originate in the mountainous areas of Tien Shan, Tarbagatay and Dzhengis Tau. Ili River flows into the Western Balkhash, while other rivers flow into the East Balkhash.

The territory of the basin of the lake Balkhash is characterized by its great diversity and complexity of the geological structure. The hydrographic network of the district is represented by Bidaiyk river with many tributaries. The absolute level of the surface within the boundaries of the projected area is up to 673.72 - 768.70 m.

The oblast is drained by rivers: Sarysu, Nura, Turgay, Uly-Zhilanshik, Tokrau, Kalmakkyrgan (Beleuty) and others closed basin of lakes of Central Kazakhstan, the southern part of the region belongs to the basin of lake Balkhash (Northern Balkhash). On the designed section there are no rivers, adjacent to international watercourses.

The use of water from surface water and groundwater within the construction of roads is permitted only after obtaining a permit on special water use from the Committee for Water Resources under the Ministry of Agriculture of the RK. Technical water supply is planned at the expense of water from Balkhash lake. Drinking water and water for economic needs are recommended to be taken in the settlements through which the existing road passes.

According to the working design of the road section km 1855 – km 2152 water for industrial purposes will be used from the lake located not far from the road.

A water intake ground is to be built on Balkhash lake shore in order to take water for technical needs. The ground has a 15cm-thick pavement made of crushed stone or sand-gravel mix. A baseplate made of steel sheets or another water-resistant material is to be laid in the car parking area in order to prevent fuel and lubricants from running into river.

The water intake point is to be fenced with a steel rod frame covered with steel close mesh in order to protect the fish barrier against large objects. A water-metering device will be installed at the water intake point. Approach to the water intake point will be on a field road. Scheme of the water intake point and approach is given in attachment.

The ground is to be re-cultivated after completion of works. Pavement will be removed and pavement material will be taken to a base or a construction site for further use. Ground surface will be leveled, rolled and brought to its initial state.

Water-spraying vehicles used in subgrade construction are equipped with removable equipment to water and clean the road surface. This water-spraying equipment includes tank, screen filter, central valve, water pump, pipeline system with two swivel adapters. The hydraulic system consists of hydraulic pump, hydraulic tank with filter, hydraulic valve, hydraulic cylinder, central valve actuator and hydraulic line. Additional equipment includes suction hoses.

Water intake metering will be conducted by metering technicians, depending on tank capacity and number of trips to fill tanks.

ZIL-130B serves as a basic chassis for water-spraying machine with a tank capacity of 6000 liters. While spraying, its water consumption is 0.2-0.4 l/m<sup>2</sup>, working water pressure – 0.3-0.38 Mpa, water pump brand – 4K-6PM. The pump raises water up to the height of 5 m.

To prevent fish hatchlings from falling into vehicle tank, it is equipped with a fish protection device FPD-50.

The fish protection device consists of a fish barrier with current-maker, outflow line, tap and feed hose with adapter plug and fitting.

FPD is a device of the pump unit. Therefore, the technological process conducted during start of the pump unit with standard inlet box applies to FPD with one addition: it is required to turn on current maker. Running through the current maker's pipes, water will be shooting out in the form of jets along the sucking cone-shaped perforated surface of fish barrier, creating speedy screen flow. Screen flow speed is higher than normal compared to sucking screen speed. As a result, it prevents algae and waste from sticking to the barrier surface.

It also hazes and moves fish hatchlings away from the fish barrier.

Fish protecting effect is provided by the diameter of holes in perforated surface of fish barrier cone, which is 4 mm, and water flow speed through these holes, which is no more than 0.25 m/sec. It is enough to protect young fish with a body length of 30 mm and more.

Installation of reflecting cones and covering the area of secondary inlet to the fish barrier's sucking pipe ensure equal water inflow speed along the entire length of the perforated cone. At the same time, perforated and continuous pipe sections together with cones form three inflow areas. Water flow speed is equal in every area.

When taking water from the river, longitudinal axis of FPD must be in parallel to the water basin shore, and direction of outflow from current maker must be the same as the direction of water flow.

Fish protection device should be dipped in such a way that its upper part goes under water by no less than 100 mm.

It is also recommended to use water from Balkhash mining and smelting complex as a source of technical water supply. Water intake is approved by the Concentrating production complex of Kazkhmys Corporation LLP; water intake point is determined (km 1888).

Drinking water supply is planned from Saryshagan and Balkhash, using delivered water. Drinking water quality complies with sanitary and epidemiological requirements for water sources No 554 dated July 28, 2010.

Waste water formed by life activities of workers will be collected by the Contractor in tanks and transported to corresponding sewage treatment facilities in accordance with RK requirements.

### **Ground Water**

In respect to its origin, ground water within the studied road section is related to infiltration water, and, in respect to its mode of occurrence, it is divided into near-surface water and lake water. As a result of local water outcrop in hollows on PK 117-119; PK 208-210 and at the entire km 2146+800 m to the left, in 200 m from the road, pond-like flat-bottomed alkali flats filled with water occurred on the ground. Due to constant recharge, pond-like flats do not dry up throughout the year.

Well No 2125+650 is opened at km 2125 at a depth of 5.8 m. Ground water from the part of Balkhash waters comes close to subgrade embankment at a depth of 0.5-3.0 m from the ground surface. Ground waters on the most part of the studied road section occur at a depth of over 1,0 m. The highest levels of underground waters should be expected in the period of floods, from March to June, low – from November to February. Oscillatory amplitude is 1,0-1,5m. Groundwater is nourished due to precipitation.

### **Baseline ambient air quality**

Since air monitoring stations are only located in the cities where the industrial enterprises are the primary emitters, the ambient air quality data is only available for large cities along the proposed project route. Specifically, the data is only available for the city of Balkhash. According to the latest (March 2017) Fact Sheet on the State of the Environment in Kazakhstan prepared by Hydromet, in Balkhash, the daily average concentrations of lead and ozone in the air exceeded the maximum allowable daily values.

According to the methodology that was used for the calculation of the air emissions into the atmosphere, no baseline data is required to develop emissions projections and conduct emissions model-

ling<sup>1</sup>. However, it required that the construction contractor hires an independent licensed provider to conduct instrumental air monitoring during the construction works.

### 3.1.6 FLORA AND FAUNA

#### *The methodology of biodiversity study along the alignment*

In the result of field studies conducted by the representatives PMC "KazdorNII" JSC and "KazCEP" LLP, as well as the field studies, it was concluded that the section of road in Karaganda oblast does not pass through any officially protected areas or critical natural habitats. Issues of potential appearance of protected wild animals on the road section were studied and it was concluded that such cases are rare

#### *Vegetation – Flora*

As a result of vegetation and fauna survey in the road alignment area, as well as according to the official data, the main feature of the living conditions of desert vegetation, common to all desert areas has been revealed, which is a significant dry climate along with high heat supply. Main communities of deserts are presented by half-shrubs and bushes are characterized by low gross diversity, low projective and the absolute dominance of drought-resistant species of xerophytes and hyper xerophyte.

Section of the route through Aktogai District covers plant plain zoning types: complex wormwood *Artemisia semiarida*, *Stipa sapertana*, *S.kirgisorum* black dormouse *Salsola arbusculiformis*, *Artemisia semiarida*, *Stipa Sapertana*, *S. Kirghisorum* and *tasbiyurguns Nanophyton erinaceum*. This zoning is replaced by complex grass-black dormouse *Salsola arbuscula*, *Artemisia terrae-albae*, *Stipa Sapertana*, *S.richteriana* with *Ferula ferulaeoides* and *tasbiyurguns Nanophyton erinaceum*, which are located along the upper west coast of lake Balkhash. In some places there are turan sagebrush- and white earth sagebrush-black dormouse *Salsola arbusculiformis*, *Artemisia terrae-albae*, *A. turanica*, *Ferula ferulaeoides*, *Ephedra distachia*, *E. Intermedia*, *Nanophyton erinaceum*, *Anabasis fruncata*, *Rhammatophyllum frutex*. None of these species are vulnerable, endangered or critically endangered according to IUCN Red List of Threatened Species.

#### *Fauna*

According to the IUCN Habitats Classification Scheme, taking into account the linearity of the project, the area may be classified as mix of various habitats. The existing road that will have to be modified is surrounded by (2.1) Dry savannah, (14.2) Pasture land and (14.5) Urban areas. The area of the road section alignment is located under the influence of multi-component human impact. Ways of seasonal migrations and recreation of birds and mammals during migration in the project area is not marked.

Thus the habitat importance is marginal, i.e. the species occurs in the habitat only irregularly or infrequently.

In general, the territory of the project is inhabited by the following species: wolf, wild boar, fox, korskak, gopher sandstone (zurman), groundhog, polecat, rabbit, goose, ducks.

Inhabitation of the following representatives of animal world is possible in the zone of impact:

---

<sup>1</sup> Compendium of Methods for Calculation of Pollutants Emission to the Atmosphere by Different Types of Production. Order of the Ministry of Environmental Protection No 324-p dated October 27, 2006

- class of reptiles: sand lizard, agama, grass snake, adder, colorful lizard, copperhead;
- class mammals from rodents: field mouse, vole, mouse, gopher, jerboa, hedgehog-eared;
- class of amphibians: toad, moor frog, etc.;
- class insect phalanx, mosquito, fly, lacewing, a dragonfly;
- class of birds: Spanish sparrow, bird, crow, raven gray, starling, wagtail, roller, European bee-eater.

Site location area is under the influence of multi-component anthropogenic impact.

There are no paths of seasonal migrations and recreation sites, no birds and mammals during migrations observed in the territory of the site location.

None of these species are vulnerable, endangered or critically endangered according to IUCN Red List of Threatened Species.

### **3.1.7 LAND RESOURCES**

Section of M36 road passes through cropland between Balkhash and Saryshagan villages, but during the pre-inspection of the road section the representatives of "KazCEP" LLP the irrigation systems have not been found.

The total area of land owned by the state, which will be acquired for permanent use in Karaganda oblast has been determined. The full list of affected people is described in the Project on land acquisition and in Resettlement Action Plan (RAP).

Additional land will be required for borrow pits during quarrying of the construction materials, as well as for temporary entrance to the construction site for the warehouse building, workshops and housing for workers. In addition to them, additional land acquisition is required for the storage of constructional materials and for development of borrow pits and borrow pits for road - construction materials.

Contractors will obtain access to all land required for temporary use through, among others, negotiation with the owner or user, as prescribed by provisions of the above-mentioned RAP and domestic legislation.

In accordance with the requirements of Land Code of the RK it is necessary to ensure that all land used temporary for construction are returned to their original condition through a reclamation program.

### **3.1.8 PHYSICAL CULTURAL RESOURCES**

Archaeological examination conducted in accordance with the applicable laws of RoK along the road section located on the territory of Karaganda region. Archaeological examination was conducted by qualified archeologist. Examination was carried in accordance with the methodology of the archaeological examinations by the preliminary work with archival and bibliographic data, analyzing images from the space.

In the course of the examination all objects of historical and cultural value have been recorded (hereinafter the "Monuments") within the area of expertise (200 m to the right and 200 m to the left from the axis of the road).

According to the results of the survey, historical and cultural heritage (HCH) facilities have not been found in the section km 1855-2005.

**Table 3.1.8 Information on results of archeological expertise**

No.	Section/Lot	Length from and to, km	Length of each section, km	Received conclusion of archeological expertise (No. and date)	Conclusion result
1	«Balkhash – Gulshat»	1855-1905	50	TOO «Artefact» RDC», No.AR-01/24 dated 02.11.2015r.	As a result of work on the Territory of Expertise, archeological monuments have not been revealed.
2	«Gulshat – Tasaral»	1905-1955	50	«Kazarcgeology» LLP, No.39 dated 27.11.2015r.	According to the results on the allocated site, there are no archaeological monuments of historical and cultural significance found on the site.
3	«Tasaral – Saryshagan»	1955-2005	50	«Kazarcgeology» LLP, No.39 dated 27.11.2015r.	
<b>Total:</b>			<b>150</b>		

In accordance with the Law on the protection and use of the Historical and Cultural Heritage objects of the Republic of Kazakhstan, Government Resolution No. 1218 dated October 28, 2011 «Rules for the identification of protected areas, development control zones and protected natural landscapes of HCH objects and the mode of their use» it is recommended:

- at carrying out the design and road construction, repair works to observe security zones 50 m from the boundary of HCH objects;
- in case of a justified impossibility of observing the protection zones of HCH objects it is necessary to carry out comprehensive research works (hereinafter - RW). The final objective of RW is the removal of the investigated objects of historical and cultural heritage from the list of preliminary records on the basis of the Scientific Report, agreed upon by the authorized local executive body;
- at carrying out the construction works on the road territory, in accordance with the Law of the Republic of Kazakhstan dated 02.07.1992 «About protection and use of historical and cultural heritage objects», it is necessary to exercise vigilance and caution in case of finding out the remnants of ancient structures, artifacts, bones and other characteristics of material culture, it is necessary to stop all construction works and inform about findings to local executive bodies.

### 3.1.9 SOCIAL AND ECONOMIC CHARACTERISTICS OF THE SECTION

**Karaganda Oblast** is located in the central part of Kazakhstan and the Eurasian continent. It is almost equidistant from the Arctic, Indian, Atlantic and Pacific Oceans. The climate is extremely continental and droughty. The region occupies the highest part of the Kazakh Uplands – Saryarka. The region borders with Akmola Oblast in the north, Pavlodar Oblast in the north-east, East Kazakhstan Oblast in the east, Almaty Oblast in the south-west, Zhambyl Oblast, South Kazakhstan Oblast and Kyzylorda Oblast in the south, Aktobe Oblast in the west and Kostanay Oblast in the north-west.

Currently, Karaganda Oblast is the biggest in terms of the territory and industrial potential. It is rich in minerals and raw materials. The territory of the region makes 428 thousand sq km (15.7% of the

territory of Kazakhstan). The tenth part of the country's population lives in the region. According to statistical data the population of Karaganda Oblast as of 1 April 2015 made 1 mln. 379 thous. 747 people.

The road passes through mainly rural area with low population density. Since the major part of route passes through open space, the population level living close to the road is very low. The average population density in the region is 3.1 people per one sq km.

### **Natural Resources**

Karaganda Oblast is a unique, rich with mineral resources region of Kazakhstan. 100% of the reserves of manganese, 36% of copper, 80% of wolframite, 64% of molybdenum, 54% of lead, over 40% of coal including 100% of reserves of surveyed coal resources are concentrated in the region. The soil of the region is also rich in rare and rare-earth metals: bismuth, silver, antimony, titanium, nickel, cobalt, aluminum oxide, arsenic, blunt, etc. The region has essential deposits of ironstone and polymetallic ore.

The region also has essential raw hydrocarbon deposits. The Karaganda coal basin Konyrat is one of the most gas-bearing among the CIS basins.

The deposits of methane are assessed to be potentially significant. Three oil and gas deposits were opened in the south-west of the region – Kumkol, South Kumkol and Maibulak. The explored reserves of oil makes 180 mln tons; gas – 13 bln cubic meters, gas condensate – 35 thousand tons. Kumkol deposit is developed. Maibulak field was prepared for development. South Kumkol is under preparation. Deposits of rhodusite-asbestos Kumola and Ushbulak are the only one in the CIS. They are located in the western part of the region. The biggest deposits of wollastonite Bosaga and Alaigr are located in the central and southern parts.

### **Regional Economy**

Power and fuel energy, iron industry, engineering, chemical industry are among the basic sectors of the economy.

## **3.2 ROAD SECTION IN ZHAMBYL OBLAST**

### **3.2.1 GENERAL DESCRIPTION**

Zhambyl Oblast is an administrative and territorial unit located in the South of Kazakhstan. Its regional center is Taraz. The population of the region is 1,000,000; the city population is 335,100. The region borders with Kyrgyzstan, and is located very near to Uzbekistan (all to the south). Zhambyl Oblast also borders three other regions: Karagandy Oblast (to the north), South Kazakhstan Oblast (to the west) and Almaty Oblast (to the east). The total area is 144,200 square kilometers (55,700 sq m). The region borders Lake Balkhash to its northeast.

147 km out of 660km of Center – South Road Corridor section: Karaganda – Balkhash – Burylbaital entirely passes through Moyinkum district of Zhambyl Oblast. Moyinkum village is an administrative center of it.

The road passes through Kashkan Teniz village (1 km from the road), Mynaral village (7 km from the road), Ulken village (belongs to Almaty oblast and located in 9 km from the road), Shyganak village (1 km from the road), Burylbaital village (0,5 km from the road) of Moyinkum district.

The area of the district is 50.4 thousand km<sup>2</sup> and this is the largest district of territory in the region.

### **3.2.2 CLIMATIC CHARACTERISTICS**

Zhambyl region is located in the South of Kazakhstan. The road passes through Moyinkum district of Zhambyl region. Throughout the territory, there is a long and hot summer with large amount of sand-storms. Average temperature in July reaches +31...+32 ° C. The temperature in noontime in shadow can reach to +40...+44 ° C. Although winter times are not long but it is cold. The average temperature in January is -2...-4 ° C, in night time the temperature may drop to – 20 ° C. The snow cover is unstable. The main part of annual precipitation is in spring time, the remaining part of precipitations is distributed to late autumn and winter. There are almost no precipitations in summer time. Overall up to 100 mm precipitations fall per year.

### **3.2.3 GEOLOGICAL CHARACTERISTICS, RELIEF**

The territory of Moyinkum district stretches from the vast desert Betpak-dala to beautiful Tien Shan and from Chui valley to Karatau Mountains. Karatau mountain range is in the north-western part of the Tien Shan, in the south of Kazakhstan. It extends in the area of Talas Alatau and gradually decreases moving into Sarychuyk plain. The length of the mountain is 420 km. The mountain range is divided into the eastern part or into the Small Karatau and southwest Karatau. The highest point - the peak Bessaz, height is 2176 m.

### **3.2.4 HYDROLOGICAL CHARACTERISTICS**

Although rainfall is comparatively low the Zhambyl region is fairly rich in water resources due to the proximity of the mountains, where precipitation is higher and snow-melt and glaciers provides a perennial runoff. The region territory is drained by a number of large rivers and lakes which flow into the internally closed (Endorheic) Balkhash Alakul Basin. The most significant waterway is the Ili River. Ili (high-water enveloping river), the largest river in Zhetysu with length of 1439 km (on the territory of Kazakhstan - 815 km). It is formed in the north-west part of the PRC from the confluence of Tekes and Kunges rivers, from the south-east runs into Balkhash lake, from the north-west into Kapshagai reservoir. The main tributaries are: Kash, Korgas, Sharyn, Shilik, Talgar, Kaskelen, Kurty. The portion of glacial feed is more than 40%. The third river in Kazakhstan according to rate of stream flow (after Ertis and Zhaiyk). The valley of Ili river is one of the most picturesque places in Almaty district with a desert and semi-desert landscape. Ile tugai, sallow, Asiatic poplar, Ile berberry, Halimodendron grow along the river. There are numerous pheasants, partridges, tolai hares in close tangles of trees and bushes. There are roe deers, wild boars, goitered gazelles. In ancient times, Ili served as a lively road from Western China, now it is popular among lovers of extreme tourism, especially by rafting on floats to Balkhash Lake.

#### ***Surface Water***

There are two rivers Ushbalyk and Shyganak along the road section shown below with dry riverbed. In this district there is little rain, high evaporation of moisture from the river, resulting in drying it. The drying up of rivers Ushbalyk and Shyganak occurs during the summer-autumn low water - the low state of the water level in the river (the flow of water from the river basin is sharply reduced, and rivers go mainly on underground). Low water occurs in the third decade of May - mid-June, ending in September - October, most low-water is in August and September. Clearly traced dependence terms of establishing a minimum level in the rivers of moisture areas: less rain falls, the earlier set of low water. These rivers, which have a length of less than 10 km, goes in depth only in the spring, with the onset of summer low water (this is especially characteristic for the rivers of the steppe zone). For major waterways of Lake Balkhash, which are located near the river of the cessation of summer runoff is unusual, but in drought years they become shallow, especially in the areas below the river dam. Termination of flow in such cases occurs due to the intensive water filtration through the rocks on the watersheds and river channels. Sometimes the drying continues throughout the winter until the spring of next year.



*Figure 3.2.4 Dry bed of the rivers Ushbalykand and Shyganak*

Moreover, the ecosystem of these rivers began to change under the influence of human activity about 1000 years ago. Despite technological interference, high population and widespread agriculture in the 10-13 centuries AD, the water level of rivers and their general condition, mainly dependent on natural conditions. However, over the last 50 years, the stability of the rivers was deeply disturbed by inefficient use of water.

About 250 km of the Karaganda-Balkhash and Burylbaital road of Center-South Corridor runs along the shoreline of Lake Balkhash. In this regard, the details of the current state of Lake Balkhash are provided. Balkhash Lake is one of the largest lakes in Asia and 13th in the list of the largest inland lakes in the world. It is located in the south-east of Kazakhstan, in Central Asia, and refers to the zero-discharge (closed) basin, shared by Kazakhstan and China, and a small part in Kyrgyzstan. Basin flows into the lake through the seven rivers. The largest is the Ili River, which brings most of the coastal influx; others, such as the Karatal provide both surface and underground drainage. The river is fed by rainfall (mostly by fresh meltwater) from the mountains of China Xinjiang region.

Lake Balkhash currently covers 16,400 km<sup>2</sup> (6,300 sq. m), but, like the Aral Sea it is shrinking because of the water diversion of the rivers that feed it. Lake is divided into two different parts by strait. The western part is fresh water, while the eastern half is saline. The eastern part in average is deeper to 1.7 times than the western part.

### ***Ground Water***

The main water basin is Balkhash Lake. The waters of Balkhash Lake is slightly salty and can be used for process water supply.

A permanent reservoir of surface water is Balkhash Lake. The waters of Balkhash Lake have weak chloride salinity. There are no other permanent sources of water in alignment region.

In the lowlands, groundwater occurrence is revealed at a depth of 2-3 m. Groundwater has an average chloride-sulfate salinity.

The highest levels of ground waters should be expected in the period of floods, from March to June, low - from November to February. The oscillatory amplitude is 1.0-1.5 m.

### 3.2.5 SOIL AND SOIL-FORMING ROCKS

The soil cover of the region is diverse. Among the zonal soil types (dark brown, light-brown, brown and gray-brown), are replaced sequentially from north to south, are ubiquitous in trigonal soil (salt licks, salt marshes, meadow-chestnut, meadow, meadow brown, meadow, meadow-bog, takyr). Their formation is associated with the local conditions of soil formation.

The most common types of soil in this region are dark brown and light brown, which covers about 40% of the territory.

Relief of Turgay plateau and Turan lowland is lined, vast undulating, steeply sloping, undulating spaces alternate with extended (wicked in the south and lacustrine in the north) slides, sometimes cut by river valleys. The relative excesses generally do not exceed 50-60 m. On the flat watershed suffusion-sagging phenomenon are widespread. On the banks of rivers and in lake-like lows, the processes of erosion and in the northern part the flushing are observed. In the southern part Turgai plateau is separated from Turgai hollow by chink - steep eroded slopes in some places reaching 100-140 m in height.

According to the natural and agricultural zoning of the land fund of Kazakhstan the territory of this section includes the following natural zones and their corresponding natural agricultural provinces and districts:

- dry steppe zone, including Zauralsky, North- Turgay and Mid-Turgay district of Central Kazakhstan province with chestnut soils;
- semi-desert zone, which includes the South Turgai district of Central Kazakhstan province with light chestnut soil;
- desert area, including Aral Sea region district of Aral-Balkhash province with brown soils.

### 3.2.6 FLORA AND FAUNA

#### *Protected areas*

A small section of the existing road, approximately 27 km in Moiynkum District of Zhambul oblast, runs along the border of Zhusandaly State Nature Protection Area. This area includes various categories of protected areas including the IUCN Cat Ia Strict Nature Reserve, which is, however, located far from the project territory. Most of the area of Zhusandaly is a protected area with a sustainable use of natural resources (IUCN Cat VI) where low-level non-industrial use of natural resources is permitted. Though the Balkhash Buribaital sections and construction sites will be located outside the protection area, the large part of the existing Almaty- Karaganda road runs through Zhusandaly. Birdlife International has recognized that around 217,000 ha of Zhusandaly is actually an Important Bird and Biodiversity Area (IBA) meeting criteria A1 (globally threatened species) and A3 (Biome-restricted species).



Map. Approximate location of the IBA in relation to the project site. (Data derived from <http://datazone.birdlife.org/site/factsheet/20588>)

### Flora

The proposed route is located in the desert steppe zone of irrigated and unwatered agriculture, as well as sheep and cattle breeding. Vegetation on the gray soils consists mainly of wormwood. Much of the vegetation is represented as a mayfly species: meadow grass, brome grass, small *Carex*, poppy.

The road section in the Zhambyl region largely represented by types of wormwood vegetation type in the form of wormwood *Artemisia sublessingiana*, *A. terrae-albae*, shrubs *Krascheninnikowia ceratoides*, *Ephedra*, *Salsola arbusculiformis*. The soils along the M 36 highway of Moyinkum district dominated by sagebrush saltwort and wormwood-grass vegetation: wormwood, feather grass, reeds, waltwort, branchy and other plants.

On the shores of the lake grows Asiatic poplar and willow from graminales - common reed grass (*Phragmites australis*), reed mace (*Typha angustata*) and several types of reeds – coastal (*Schoenoplectus littoralis*), lake (*S. lacustris*) and endemic specie of reed Kazakhstan (*S. kasachstanicus*).

The list of species that can be found in different parts of Zhusandaly Nature Protection Zone is presented below. It should be noted that the classification of the species is not based on the IUCN Red List of vulnerable, endangered or critically endangered species because the IUCN status of many of them (e.g. *Atraphaxis teretifolia*) is undetermined due to deficient data. The classification is based on the Red Book of the Republic of Kazakhstan which presents the rare species of plants and animals in Kazakhstan<sup>2</sup>.

<sup>2</sup> RoK Government Decree No. 734 (June 2, 2012) “Rules for maintaining the Red Book of the Republic of Kazakhstan.

Types of plants species, which are under danger of extinction:

- Regel tulip – *Tulipa regelii* Krasn (Liliaceae). The status – a rare, endangered, endemic species;
- *Atraphaxis teretifolia* – *Atraphaxis teretifolia* (M.Pop.) Kom. (Polygonaceae). The status – a rare, endemic, epibiotic species;
- Betpak-daly campion – *Silene betpakdalensis* Bajt. (Caryophyllaceae). The status – a rare, endemic species;
- *Niedzwedzkia semiretschenskia* B.Fedtsch. (Bignoniaceae). The status - very rare, narrowly endemic, endangered, relic species of a monotype sort.

Rare species of plants:

- Albert's tulip – *Tulipa albertii* Regel (Liliaceae). The status – a rare, endemic species;
- *Stipa karataviensis* Roshev (Poaceae). The status – a rare species with the reduced area;
- Greig tulip – *Tulipa greigii* Regel (Liliaceae). The status – a rare, endemic species with the reduced area;
- Kolpakovskii tulip – *Tulipa kolpakowskiana* Regel (Liliaceae). The status – almost endemic species, with strongly reduced numerosity;
- *Iridodictyum Kolpakovskianum* (Regel) Rodion. (Iridaceae). The status – species with decreasing area and numerosity;
- *Silene muslimii* Pavl. (Caryophyllaceae). The status – a rare, endemic species;
- *Stubendorffia gracilis* (Pavl). Botsch. et Vved. (Brassicaceae). The status – a relic, endemic species, meets in limited places;
- *Astragalus pseudocytisoides* M.Pop.(Fabaceae). The status – a rare, narrowly endemic species;
- *Ferula taucumica* Bajt. (Apiaceae). The status - a rare, narrowly endemic species;
- *Acantholimon titovii* Lincz. (Limoniaceae). Status – rare, endemic species, last time with sharply reduced area;
- *Pedicularis czuiliensis* Semiotr. (Scrophulariaceae). Status - rare, narrowly endemic species;
- *Cancriniella krascheninnikovii* (N.Rubtz.) Tzvel. (Asteraceae). Status – Narrowly endemic plant of monotypical genus;
- *Jurinea robusta* Schrenk (Asteraceae). Status – rare, relict, endemic species;
- *Scorzonera chantavica* Pavl. (Asteraceae). Status – rare, narrowly endemic species with decreasing population.

Types widely used, but infrequent on the territory of SPNS:

- *Celtis caucasica* Willd. (Celtaceae). Status – dispersed species, but infrequent in the north-east of its area.

## ***Fauna***

The following mammals are for the area of alignment: gazelle, wolf, jackal, fox, corsak, hare. The avifauna includes 200 species, including 83 species of nesting and more than 100 migratory.

The figure below shows the alignment plan (red line between two yellow points on the right), which is located within the territory of preserved area – and still far from direct preserved area (I,IIa and II b) and places of animals appearance, as specified on the figure below.

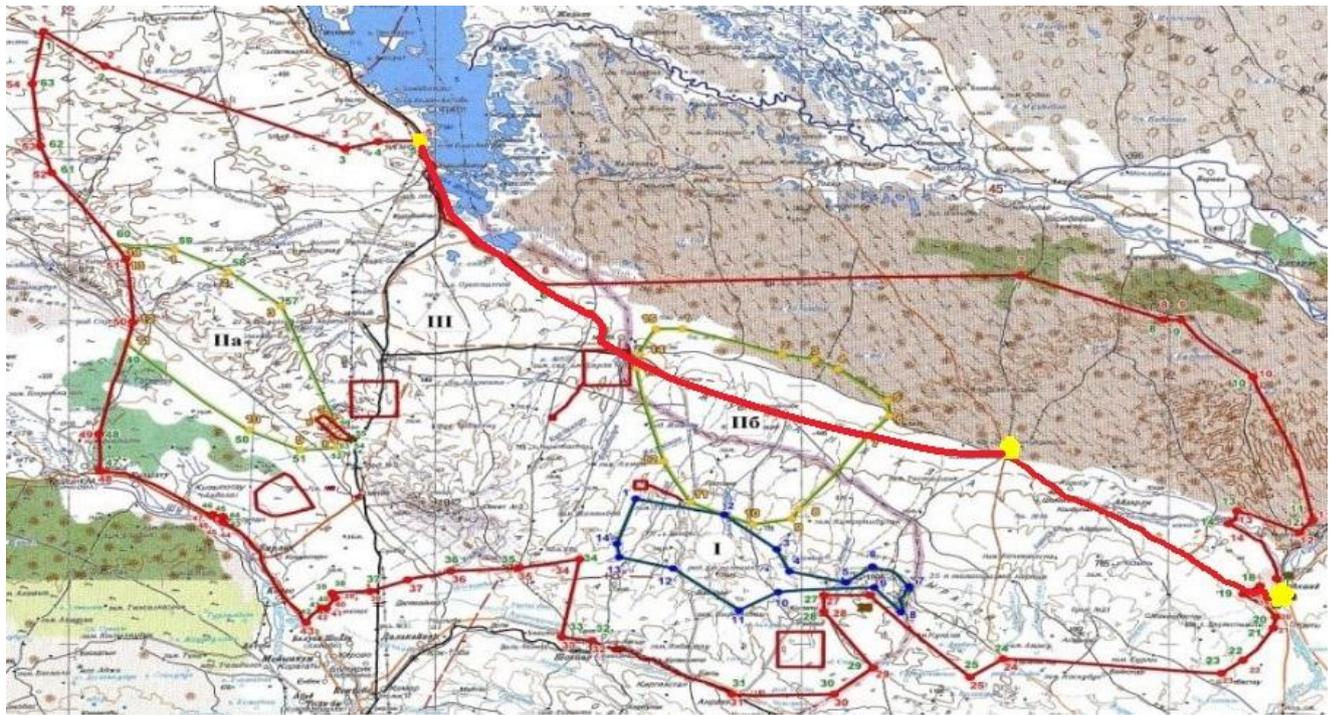


Figure 3.2.1: Map-scheme of Zhusandaly preserved area.

The following mammals appear on this boundary Zhusandaly Zone: goitred gazelle *Gazella subgutturosa* (vulnerable)<sup>3</sup>, Siberian roe deer *Capreolus pygargus* (least concern), mountain sheep *Ovis ammon* (near threatened), wolf, jackal, fox, corsac fox, hare. At the same time, as shown in the figure below (3.2.2 and 3.2.3) places of animals' appearance are located further to the North and the West, and the regular or seasonal animals migration is not observed in the area of the project alignment plan. Bridges, culverts and cattle passes, and also agricultural transitions will serve as a potential route for casual animals' migration. This and other mitigation measures focused on migratory species will be agreed with the international experts on migratory species.



Figure 3.2.2: Map-scheme of appearance of wolf, jackal, fox and corsac fox

<sup>3</sup> Hereinafter, *animalia* taxonomy species information and status were derived from the the IUCN Red List of Threatened Species. Version 2017-1. <[www.iucnredlist.org](http://www.iucnredlist.org)>. Downloaded on 13 June 2017



Figure 3.2.3: Map-scheme of appearance of goitered gazelle, mountain sheep, Siberian Roe Deer

There are about 200 bird species in Zhusandaly (Berezovikov, 1999), including 83 types of the nesting and more than 100 migrating. The nesting types represent a typical complex, for deserts of Northern Eurasia, in the form of such types as *Chlamydotis undulata* (Mac-Queen's bustard)- vulnerable, *Aquila heliaca* (imperial eagle)- vulnerable, *Falco naumanni* (Naumann's kestrel)- least concern, *Burchinus oedicnemus* (Norfolk plover)- least concern, *Charadrius leschenaultia* (Geoffrey's plover)- least concern, *Charadrius asiaticus* (Caspian dotterel)- least concern, *Syrhaptes paradoxus* (Pallas sand grouse)- least concern, *Pterocles orientalis* (black-bellied sandgrouse)- least concern, *Calandrella rufescens* (Grey Lark)- least concern, *Calandrella brachydactyla* (red-capped lark)- least concern, *Hippolais rama* (booted warbler) -least concern, *Sylvia nana* (desert warbler), *Oenanthe deserti* (desert chat)- least concern, *Cercotrichas galactotes* (rufous warbler)- least concern, *Lanius pallidirostris* (desert shrike) (gray shrike)- least concern, *Corvus ruficollis* (desert corbie crow)- least concern, *Rhodospiza obsoleta* (desert finch) -least concern and *Emberiza bruniceps* (red-headed bunting)- least concern. Area of birds' appearance are shown in the figure 3.2.4. and 3.2.5.



Figure 3.2.4: Map-scheme of communication of Mac-Queen's bustard, bustard, small bustard and gray crane



Figure 3.2.5: Map-scheme of ranging of pheasant, partridge, black-bellied sandgrouse, ringdove and Pallas sandgrouse

Thus, most of the species that are observed in Zhusandaly State Nature Protection Area are in the status of “least concern” according to the IUCN Red List of Threatened Species. Several species, namely goitered gazelle, McQueen bustard and the imperial eagle, are vulnerable. There are no fauna species that are considered endangered or critically endangered.

### 3.2.7 LAND RESOURCES IMPACTS

Zhambyl Oblast passes through some irrigated land near the villages. But during the road inspection there were not observed irrigation systems.

Some land will be taken under the permanent use for the road construction, access roads and junctions, including arable land with a small amount of commercial and industrial buildings. Land acquisition will be done after approval of RAP on the implementation of resettlement activities. At all sections there are sites that should be acquired for construction needs. Land acquisition for the construction and reconstruction of the road will be made at the stage of survey work with participation of territorial land inspections of the Committee for Construction, housing and communal services and land administration departments of the Republic of Kazakhstan and the department of the local ecology of the Committee for Environmental regulation, control and state inspection in the oil and gas complex.

Full list of affected people is described in Project on land acquisition and in Resettlement Action plan (RAP). Additional impacts are expected to allow land allocation for parking road-building equipment, bypasses, borrow pits, construction camps, and road-building materials and warehouse sites. The RAP prepared for the road section identifies the following impacts: 1433 ha and 924 ha of land are required respectively for permanent and temporary acquisition. A total number of land plots/ PAPs are 23, which include land plots for both temporary and permanent acquisition. The lands to be acquired largely belong to the State, except 6 plots, which are State lands used by the PAPs on a long time rental basis. There are no structures built on these lands, as they are used for grazing or pasture lands for cattle and livestock. The main adverse impact is assessed as the loss of grazing lands, all affected persons therefore will be provided with alternative lands in the same locality. Lands required for construction of camps or borrow pits would be acquired from the State and/ or obtained through rental agreement on a temporary basis by the contractor. In case of private

land, it was agreed that the contractor pays cash compensation for rental and materials at market rates for acquired land plots as defined in the entitlement matrix. All land plots acquired for temporary use or on a rental basis will be restored to the original status at the end of the rental.

### 3.2.8 PHYSICAL CULTURAL RESOURCES

Archaeological examinations along the road section alignment located in the territory of Zhambyl oblast were conducted by qualified archeologist.

According to the results of the survey, historical and cultural heritage facilities have not been found in the section km 2005-2152.

Table 3.2.8 Information on the results of archeological expertise

No.	Section/Lot	Length from and to, km	Length of each section, km	Received conclusion of archeological expertise (No and date)	Conclusion result
4	«Saryshagan - Mynaral»	2005-2069	64	«Institute of archeology named after A.H. Margulan» RSBE, No.54/20-479 dated 25.12.2015	As a result of carried out examination, HCH object was revealed - Kashkan-Teniz burial mound, the location of the HCH on the right side from the axis of the designed road of 6 km. This object will not be affected by the project. The presence of this important site will have to be communicated to the Contractors.
5	«Mynaral – Ulken»	2069-2105	36	«Institute of archeology named after A.H. Margulan» RSBE, No.54/20-468 dated 21.12.2015г.	As a result of carried out expertise the HCH objects have not been revealed.
6	«Ulken – Burylbaital»	2105-2152	47	«Artefact» RDC» LLP, No. AR-01/24 dated 02.11.2015	As a result of works on the territory of Expertise the monuments of archeology have not been revealed.
	<b>Total:</b>		<b>147</b>		

In accordance with the Law on the protection and use of the Historical and Cultural Heritage objects of the Republic of Kazakhstan, Government Resolution No. 1218 dated October 28, 2011 «Rules for the identification of protected areas, development control zones and protected natural landscapes of HCH objects and the mode of their use» it is recommended:

- at carrying out the design and road construction, repair works to observe security zones 50 m from the boundary of HCH objects;

- in case of a justified impossibility of observing the protection zones of HCH objects it is necessary to carry out comprehensive research works (hereinafter - RW). The final objective of RW is the removal of the investigated objects of historical and cultural heritage from the list of preliminary records on the basis of the Scientific Report, agreed upon by the authorized local executive body;

- at carrying out the construction works on the road territory, in accordance with the Law of the Republic of Kazakhstan dated 02.07.1992 «About protection and use of historical and cultural heritage objects», it is necessary to exercise vigilance and caution in case of finding out the remnants of ancient structures, artifacts, bones and other characteristics of material culture, it is necessary to stop all construction works and inform about findings to local executive bodies.

### 3.2.9 SOCIAL AND ECONOMIC CHARACTERISTICS OF MOYINKUM DISTRICT IN ZHAMBYL OBLAST

#### Moyinkum District

The area of the district - 50.4 thousand km<sup>2</sup> and this is the largest area of territory in the region. Moyinkum district (in Kazakh language Мойнқұм Ауданы) - an administrative unit in Zhambyl region. The administrative center is Moyinkum village.

The rural population of the district - 26 077 people, the Akbakay village – 1 163 people, the Aksuek village – 1 564 people, Mirnyi village – 1 824, Mynaral village – 687 people, Khantau village - 925, and Shyganak village – 2 312.

In the south-eastern border of the Moyinkum district is Zhambyl rayon of Almaty oblast. The length of the border is 140 kilometers. The beginning of the designed road has coordinates 45°59'38.8"N 73°34'22"E (end of the designed road in Aktogay district of Karaganda oblast and the beginning of the alignment in Moyinkum district of Zhambyl oblast).

Along the road there are railroad bed at the different distance, the nearest distance is 210 meters from the designed alignment. At coordinates 45°48'50.5"N 73°26'19.6"E and 45 ° 04'35.7 "N 73 ° 58'47.8" E the railroad bed crosses the designed alignment.



Figure 3.2.9.1. Place of crossing of the designed alignment and railroad bed.

Along the alignment at the distance of 150 meters from the pavement there is a cemetery (Coordinates: 45°49'42"N 73°26'52"E).

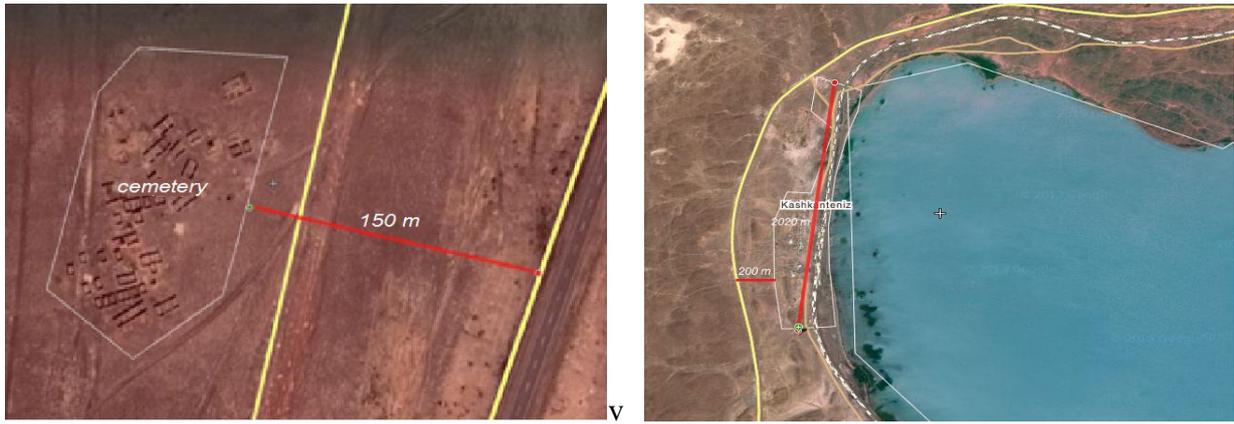


Figure 3.2.9.2 Location of the cemetery along the designed alignment

Reference data with angular coordinates  $45^{\circ}48'46.8''N$   $73^{\circ}24'21.7''E$  at the distance 25 meters from the road pavement there is a road service. Also along the all distance of the alignment from the borders of the districts to the end coordinates of designed alignment there are about 50 points of service of small sale of fish products, bee products and livestock.

In the place with coordinates  $45^{\circ}47'59''N$   $73^{\circ}23'51''E$  there is Kashkanteniz station in Moyinkum district of Zhambyl oblast of Kazakhstan. Station is included to Mynaral rural district. It is located approximately 174 km to the north from the district center of Moyinkum village. According to the official census of 2009, in the rural district lived 190 people (99 men and 91 women)

Reference data with the coordinates  $45^{\circ}30'58''N$   $73^{\circ}31'43''E$  at the distance 2 km from the road pavement, there is a borrow pit of the quarrying of the inert construction materials. The data about the owners will be specified further. Given resource with the presence of the necessary environmental protection and legal documentation, can be the potential supplier of the construction materials during the reconstruction of the designed alignment.



Figure 3.2.9.3 Mini-hotel "Pyramid"

Mynaral cement plant ("Zhambyl Cement Production Company" LLP) is located along the alignment. Mynaral cement plant - a joint venture company «Vicat Group», is the oldest leader of the production of cement in the European space. Director - Sargaskayev Aivar Sayatovich. The factory produces and sells Portland cement M400 D20 and M500D0. Mynaral plant uses advanced "dry" method of production of cement, which implies a considerable energy savings. In addition, around the world "dry" method in comparison with the "wet" method recognized as environmentally safer.

The coordinates:  $45^{\circ} 23'17''N$   $73^{\circ} 39'23'' E$ .

Further along the alignment on the angular coordinates: 45°17'53"N 73°47'13"E, there is located bay "Ushbalyk". This place has a great popularity among the fishermen.

At the coordinates 45°17'10.4"N 73°46'27.7"E there is a border between Mayinkum district and Zhambyl oblast and Zhambyl district of Almaty Oblast.

Ulken village (Coordinates: 45°12'18"N 73°58'53"E) of the Zhambyl district of Almaty oblast, at the south-western part of the Balkhash lake, located to the close proximity to the Thermal Electric Power station Balkhash (Coordinates: 45°12'26"N 73°56'28"E ). The village population according to the data of the latest census of 2009 is about 4000. Also at the distance of 450 meters from the highway there is cooling pond (Coordinates: 45°13'38"N 73°54'59"E, possession of the TEPS Balkhash).

Construction of the Balkhash combined heat and power station has been included in the list of 28 investment strategic projects. Input capacity of the Balkhash combined heat and power station allowed to eliminate the power deficit in southern Kazakhstan, oriented mainly on electricity mainly on gas and reduced fuel oil.

The approved cost of the project amounted to 530.9 billion tenge. Up to four thousand people have been involved in the construction of the station. Currently, station provides about 800 work places to Kazakhstan energy workers.

Balkhash combined heat and power station is built under the latest technology, with minimal emissions into the environment. Adopted technical solutions prevent from falling of effluent and waste into Lake Balkhash.

The project was implemented at the expense of private investments and borrowings. Plus 30% of the equity of stakeholders of "BTES" JSC.

South Korean corporations SAMSUNG and KEPCO, which won an open international tender for selection of strategic investment partner, took part in the construction of combined heat and power station.

There are also many points of petty trade in fishery products along the highway. There are tourist recreation camps along the Lake Balkhash.

There is roadside service with part time farm along the highway at the coordinate data of 45 ° 12'11.2 "N 73 ° 53'26.8" E.

At the point with coordinates 45 ° 07'03.2 "N 73 ° 57'53.3" E passes the boundary of Zhambyl district of Almaty region with Moyinkum district of Zhambyl region. In the immediate vicinity of the border there are several roadside services and farms, as well as the post of traffic police (Coordinates: 45 ° 7'15 "N 73 ° 57'52" E) and the Shyganak village (Coordinates: 45 ° 6'25 "N 73 ° 58 '24 "E) with a population of about 3,000 people. The socio-economic situation of the village is very poor due to lack of basic living conditions (lack of drinking water, lack of essential personnel: doctors, teachers, etc.).

## Burylbaital village



The village in Moyinkum district of Zhambyl oblast is included in the rural administration of Shyganak. Geographical coordinates 44 ° 56'22.87 "74 ° 1'3.79". It is located along the M36 highway.



Baital is located at 400 meters from the village railway station.

The village population is 315 people (155 men and 160 women).

The village in Zhambyl region of Moyinkum district is included in the rural administration of Shyganak.



The geographical coordinates of the village are 45 ° 6'22.52 " 73 ° 58'26.29" It is located along the M36 highway, one kilometer from the Lake Balkhash. There is a railway station on the line Mointy - Chu. The village population is 2402 people (1179 men and 1223 women). The bulk of the inhabitants are Kazakhs and Russians. However, there are other nationalities like Chechens, Kurds, Ukrainians / Cossacks, Belarusians, Uighurs and others.

The village is divided into districts. There are two schools, two kindergartens in the village. The main activities of the locals are as follows: maintenance of the railway, power stations, as well as fishing and hunting, selling smoked and cured fish at railway station and along the highway. There is the Lake Balkhash in a few kilometers from the town, not asphalted road leads to it. There are also a few dozens of houses and summer cottages on the beach. Written off train carriages equipped with a makeshift are often used as summer cottages. Ulken is the nearest town, which has a road link. There is a large water tower in the form of a mountain, from which a network of water pipes is laid. At the moment, the village is in a bad condition. Almost all paved roads are in poor condition. There is a critical situation with water supply due to that the vegetation as trees become drought and rare. The drought is increasing due to the reduction of climate change and Balkhash peculiarities.

**Cement Plant**



The Cement plant is located in a half kilometer from the village Mynaral (Fish factory from the M36 highway. Geographical coordinates of Mynaral (kaz Mynaral) is a village 45 ° 23'11.95 " 73 ° 39'19.12" in Moyinkum administrative center of Mynaral Kazakhstan rural district.

Investors built 2 large aircraft sheds: the first hangar capacity is 25 tons for storage of limestone, the second hangar with the capacity of 20 tons for coal storage. In the future cement plant of Zhambyl region plans to increase its capacity to 1 mln. The village population is 659 people (326 men and 333 women). Geographical coordinates 45 ° 25'26.70 " 73 ° 40'37.67". The village is located 4 km from the M36highway. There is a fish factory in the complex, with a capacity of 1.5 tons. Tones of fish per year are breed under the State program of forced industrial-innovative development of Kazakhstan. The new company employs 200 people; the total cost of the industrial project will be about 600 million tenge.

### **Labor Influx aspects**

The construction activities require both skilled and unskilled labor. The experience from reconstruction road completed globally through Bank funds demonstrates that contractors may accompany a sizable number of outside labor force. The road sections completed under the previous Bank support show that the labor camps established by the contractors are managed well and no reported incidence of adverse social impacts or disputes with local communities. One important observations in this regard is that most of the outside labor force brought for previous road works belong to the same cultural/religious groups as the local communities and, therefore social relations between outside labor force and local community was cordial and mutually beneficial. A specific GRM was established at local community and camp level to address issues related to labor camp management. In summary, as per the experience in previous road sections, the risks related to labor influx were minimal and managed carefully. This positive experience will be upheld throughout project implementation.

The actual size of labor force and the number required for project activities is difficult to estimate at this stage. Nevertheless, influx of labor will be kept minimal as the project will aim to employ local labor force as much as possible for construction works. Thus, specific provisions to be included in contract documents will be (i)limiting the use of foreign unskilled and semi-skilled workers or unskilled and semi-skilled workers from elsewhere in Kazakhstan unless there are no local unskilled and semi-skilled workers available; (ii) payment of legal wages to workers; (iii) no use of trafficked or child labor for construction and maintenance activities; (iv) inclusion of women in the local construction force, in accordance with the local gender balance, to the maximum extent possible; (v) no differential wages being paid between men and women for work of equal value; and (vi) use of locally sourced materials used in the rehabilitation to the maximum extent possible;

Furthermore, to minimize adverse impacts, efforts will be taken to establish labor camps in locations outside of major settlements to ensure no undue social disturbance to local communities.

#### **4. ENVIRONMENTAL MANAGEMENT, MONITORING PLAN AND INSTITUTIONAL RESPONSIBILITY**

Environmental Management Plan has been developed under the triggered World Bank's Operational Policies, and in accordance with Section 4, Chapter 14, Article 128 of the Environmental Code of the Republic of Kazakhstan.

The main factors that are adversely affecting the environment are: construction of camps, construction works for artificial structures, operation of specialized machinery, and development of drove borrow pits during the construction of the road, as well as auxiliary production (mixing plant, asphalt and concrete plant, crushing and sorting plant, etc.).

The main purpose of the EMP implementation is to reduce environmental pollution, stabilize environment quality indices and improve the environment quality. Guarantee of environmental security of environmental conditions for the sustainable development of the region with application of the best international practices on the side of the Contractor.

##### **4.1 ENVIRONMENTAL MONITORING PLAN**

Environmental monitoring is a very important aspect of the environment management during the project implementation and operation to ensure safeguard for the environment. During construction, landslide monitoring, side slope monitoring and embankment monitoring will be conducted for the purpose of timely prevention of potential erosion. Borrow pits restoration, quarry activities, material storages, and locations of asphalt plants, community relations, and safety provisions are described within the Environmental Management Plan (EMP).

In response to the environmental impacts identified during the study, an environmental monitoring plan has been developed and is presented in Table 4.1 and Table 4.2. The contract documents will contain a list of all required mitigation measures and a timeframe for the compliance monitoring of these activities. The monitoring will include supervision to check the Contractor's execution of Contract provisions during construction period.

The construction supervision consultant (CSC) in cooperation with MID during project implementation will be required to:

- The Contractor will develop appropriate EMP. The Construction Supervision Consultant (CSC) will use this monitoring plan as a basis for supervision of the Contractor's compliance with this EMP.
- Regular control for environment monitoring conducting, and submission of quarterly reports: the main parameters to be monitored are outlined in Table 4.1 and 4.2. The CSC will provide an Environmental Specialist as part of the CSC team.
- Regular control of the subproject roads, and submission of quarterly reports based on the monitoring data and laboratory analysis report. The Contractor and the Supervision engineer will be responsible for data collection for environmental monitoring.

A lump sum budget is allocated to cover monitoring cost during construction phase of the project. Contractor will hire a consultant for environmental monitoring and ensure that the road is monitored regularly during construction works.

The following measures will be taken to provide an environmental compliance monitoring program during project implementation:

1. The tender and contract documents will clearly determinate the contractor's obligations to undertake the environmental mitigation measures as set out in chapter 7 of this EIA and which shall be stipulated as enclosure to specifications;
2. The recommended environmental mitigation cost should be included as an item in the Bills of Quantities. It will be a guarantee of specific environmental mitigation budget available, which will be conducted as required. During the procurement, Contractors will be encouraged to include these costs in their rates and present the mitigation costs as an item in the Bill of Quantities;
3. During construction, the Construction Supervision Consultant (CSC) in accordance with the Project Management Consultant (PMC) will control over construction, compliance with the requirements of safety, health and environment.

## **5. INSTITUTIONAL REQUIREMENTS**

The following section describes measures for environmental management, which will be taken within the general project implementation. Roles and obligations of different organizations in application of these measures have been identified and measures for institutional consolidation have been defined, which are required to have these organizations fulfilling their assigned roles and obligations.

Environmental monitoring program will be revised, as well as expenses related to its implementation will be incorporated to the construction Contracts and construction supervision project.

### **5.1 ORGANIZATIONS INVOLVED IN THE PROJECT**

Institutions involved in environmental management of the project are the following agencies:

- Government of the Republic of Kazakhstan
- Ministry for Investment and Development (MID)
- Committee for Roads
- International Bank for Reconstruction and Development (IBRD)
- Committee for Environment Protection of the Ministry of Energy of the RK
- KazAvtoZhol NC JSC – national operator in national roads management
- Kazakhavtodor RSE – company for roads operation and maintenance
- Project Management Consultant (PMC)
- Construction Supervision Consultant (CSC)
- Contractor
- Regional and local authorities
- Affected communities

### **5.2 INSTITUTIONAL RESPONSIBILITIES**

MID is responsible for preparation, implementation and financing of the environmental management and monitoring of objectives, the way they are related to the project. MID will be fulfilling its obligations through the PMC, which will be responsible for overall project implementation and will undertake daily measures for projects management, as well as monitoring.

Experts shall be appointed to the PMC for performance of all the assignments related to the environmental assessment. Environmental specialists of the PMC will have support from the CSC (Supervision Consultant). The CSC team, in its turn, will be required to provide an environmental monitoring experts and social monitoring expert.

In implementation of assignments for environmental management and monitoring, specific technical assistance will be provided by the PMC:

- by environmental experts, who are a part of the Supervision Consultant team for all the contractors involved in the project. Experts will be assisting in all the environmental planning and implementation aspects, internal monitoring and assessment (MA), and training of the CSC employees, as well as employees of contractors and relevant public institutions in relation to environmental assessment issues and WB's Environmental Policy;
- independent agency for monitoring (IAM) can be employed to (I) carry out time to time monitoring and assessment, (II) inspect a third party's performance of activities for IEE and EMP, and (III) to ensure that all the identified adverse impacts have been mitigated at present.

Residents of settlements and administration of villages and organizations will be assisting in arrangement of meetings and providing information about the affected communities if identified and about environment impacts. Process account will be an integral part of the Report for Internal Monitoring prepared by CSC and PMC.

Responsibility for fulfillment of monitoring requirements for this EMP is shown in Table 7.1 and Table 7.2 in accordance with the Environment Management Plan, monitoring and institutional responsibilities.

Implementation of measures for impacts mitigation at the construction stage will be a contractor's responsibility in accordance with contract specifications and requirements of the Loan. Environmental experts of the CSC will be coordinating monitoring of mitigation measures implementation at the construction stage. The local environmental expert will be coordinating together with international environmental expert to make difficult decisions, which arise in this field, as well as providing constantly updated information for submission of reports to PMC and WB.

After completion of the project, MID will be responsible for roads operation and maintenance. The PMC, in cooperation with the regional/oblast akimats, will be conducting regular and random monitoring according to the schedule of the monitoring plan.

It is recommended to conduct time to time environmental monitoring of fauna after the completion of the road construction. It is likely that taking over of works after completion shall include full examination of the Contractor's compliance with the specified requirements for environmental protection. This should include inspection of proper cleaning and reclamation of all the temporary work sites (borrow pits, construction camps, etc.), as well as proper landscaping, and draining of all the soil reserves and landfills.

In the long term, it is important that the authorized road maintenance authorities monitor the effectiveness of erosion protection measures. Some forms of reporting should be implemented to have information about defects in design or construction methods fed back to the center and road maintenance depots.

It is also recommended that the CSC conducts time to time assessment of the livestock and migratory herds and animals mortality rate, especially on the new alignments if there is a need for construction as a result of road traffic impact. Adjusting measures should be undertaken if the frequency of such cases increases significantly. Different stages of the EIA implementation on certain sections (lots) of the road:

- (a) Road design planning with special account:
  - sections with large excavations and embankments, and borrow pits of construction materials,
  - ground reserves for embankments and waste dumping areas,
  - warehouses for toxic waste and debris,
  - locations for temporary concrete plants and other materials processing plants,
  - construction camps of contractors,
  - sources of water for construction purposes,
  - temporary access roads and other temporary structures,
- (b) Obtaining written consent from local administrative authorities related to landfill spoils, waste burial, contaminated soils and toxic substances.
- (c) Obtaining written permit (from local authorities, representatives of the environmental protection authorities and sanitary inspector) for permanent and temporary acquisition of land for the construction of roads, borrow pits, landfills and contractors' construction camps, concrete plant and other plants for processing of materials.

- (d) Harmonization of any changes with local institutions responsible for irrigation networks if they are affected by the project.
- (e) Harmonization of planning requirements for bridges and other structures in rivers or other water bodies with agencies responsible for fishery and local representatives of environmental protection authorities.
- (f) Monitoring (by measuring) of air emissions and discharges to land during construction.
- (g) Monitoring of vibration impacts associated with construction, the Contractor is responsible for any preventable damage caused by itself. Contractors which do not comply with legal requirements shall be liable for these violations, and shall pay compensations for any damage caused.

## **GRIEVANCE REDRESS MECHANISMS INCLUDING GRIEVANCE DURING CONSTRUCTION**

Guideline on Grievance Redress Mechanism (GRM Guideline) is designed and approved in 2014 by Committee for Roads MoID RK for all road sector projects. GRM Guideline is intended to be used as a guidance document for stakeholders involved in design, preparation and implementation of road projects, and complements grievance redress requirements incorporated in the loan agreements, as well as environmental and social safeguard documents (in case of projects funded by IFIs).

The overall objective of the GRM Guideline is to establish an effective communication channel among the stakeholders for providing a timely and efficient two-way feedback mechanism to address any complaints made about the project, including those from members of the communities, local businesses and other stakeholders, as well as raising public awareness on the projects and on the availability of a GRM mechanism. The Grievance redress procedure suggests resolution of grievances in the spirit of mediation between the parties, and should comply with the spirit of IFI standards and practices.

The GRM will be available for those living or working in the areas impacted by the project activities. Any person impacted by or concerned about the project activities will have the right to participate in the GRM, will have easy access to it, and will be encouraged to use it. The proposed GRM does not replace the public mechanisms of complaint and conflict resolution envisaged by the legal system of the RK, but attempts to minimize use of it to the extent possible.

### **GRIEVANCE REGISTRATION**

Complainants or stakeholders may visit Akimats, call or send a letter or e-mail or fax to grievance focal point, at CSC, GRC Coordinator and CfRMoID RK to register their grievances related to road sector projects. Receipt of grievances received through a letter or e-mail or fax shall also be acknowledged through a letter / e-mail / fax within 3 working days upon receipt by GRC coordinator at regional level. Receipt of grievances lodged in person or via phone will be acknowledged immediately.

Complainants or stakeholders may visit, call or send a letter or e-mail or fax to community Akimat, grievance focal point at CCs and CSCs, GRC Coordinator at CoRMoID RK to register their grievances related to road sector projects. Receipt of grievances received through a letter or e-mail or fax shall also be acknowledged through a letter / e-mail / fax within 3 working days upon receipt by GRC coordinator at regional level. Receipt of grievances lodged in person or via phone will be acknowledged immediately.

Each project level party participating in the GRC at regional level shall maintain a record-book to register the complaints, and regularly share the grievance details with GRC coordinator at regional level, in order to keep the track of grievances and the status of their resolution. The GRC coordinator at the regional level shall coordinate with each member of the GRC on a weekly basis, collect

relevant documents, maintain a consolidated registry of complaints received, follow-up on the status of resolution of each complaint received, maintain an up-to-date grievance database and provide relevant reporting.

Whichever method is used for receiving the grievance (e.g. e-mail, mail, fax, call, etc.), its registration will be made by the GRC coordinator at the regional level, who will acknowledge receipt and follow up with the grievance investigation and consideration by the GRC at regional level. All the grievances will be recorded in a standard format, which will include but not limited to the following details:

- Contact information of the affected party;
- Date, time, and place where the complaint was received;
- Name of the person who received the grievance;
- Details of the grievance.

The project will pursue a participatory approach in all stages of planning and implementation. This is expected to ensure that the affected people have nothing or little to complain about. However, some people may still remain dissatisfied for some reason or the other. Many grievances arise due to inadequate understanding project policies and procedures, and can be promptly resolved by properly explaining the situation to the complainant.

In case the complainant refuses to provide contact details or no contact information is available in the grievance received by e-mail / mail / fax, the GRC at the regional level will consider the anonymous complaint. In such cases, the printed response will be posted at the information board of the KazAutoZhol's respective regional branch, as well as at the information board of the relevant Akimat, so as the complaining party can approach and get familiarized with the feedback.

The GRC coordinator at regional level will collect the data on grievances and centralize the grievance registry to assure that every affected person, group or community has an individual registry number and that follow-up and corrective actions are implemented as per resolution provided, or if the issue was not resolved at regional level, it is passed for consideration at the central level. The grievance database will be maintained and updated on a bi-monthly basis by the GRC coordinator at regional level for each project. The database will be designed to make it simple and easy to input data, provide information on grievance and status of its resolution, timeline for resolution and level at which the issue was considered and resolved, track individual grievances, etc. The grievance database will specify details of grievance resolution and include information on satisfaction of complaining party by the resolution provided (excluding the cases of grievance lodged anonymously). Where it will not be possible to resolve grievances to the satisfaction of both parties, appropriate information will be reflected in the database. The GRC coordinator at regional level for each project will share the grievance database with the safeguard specialist of KazAutoZhol central office / GRC coordinator at central level, who will maintain and update the centralized grievance database for all road sector projects.

## **GRIEVANCE PROCESSING**

Depending on the nature of grievance, this step may include verification, investigation, negotiation, mediation or arbitration, coordination with appropriate agencies and decision-making. Verification includes gathering of documents, proofs and facts, as well as clarifying background information in order to have a clear picture of the circumstances surrounding the grievance case. Verification will be undertaken by members of the GRC at the regional level, and overall coordination of activities will be ensured by the GRC coordinator on regional level. Results of verification or fact-finding activities will be presented at the meeting of the GRC at regional level, where the issue will be considered and resolution will be sought.

The GRC at regional level will discuss the grievance case within ten working days and recommend its settlement to parties. Meetings of the GRC at the regional level will be held on a bi-monthly basis; however, special ad hoc meetings can be arranged in between of regular meetings as needed. The GRC coordinator at regional level will ensure that actions and decisions are properly documented in order to demonstrate that the GRC at regional level is providing an appropriate attention to the grievance and is actively seeking ways to obtain resolution that could satisfy the parties.

If grievance cannot be resolved by the GRC at the regional level and is passed for consideration by the GRC at the central level, appropriate documents collected during investigation and fact-finding shall be shared with the GRC coordinator at the central level. The GRC coordinator at the central level will circulate such documents among the members of GRC at central level, to ensure that they are aware of all relevant details prior to GRC meeting.

Consideration of grievance case by GRC at central level may require further verification of the issue, including gathering of additional documents, obtaining input from various state stakeholders and project parties in order to have a clear picture of the circumstances surrounding the grievance case. Additional verification will be undertaken by members of GRC at the central level (as needed), and overall coordination of activities will be ensured by the GRC coordinator at central level. Results of verification will be presented at the meeting of GRC at the central level, where the issue will be considered and resolution will be sought.

The GRC at the central level will discuss the grievance case within twenty working days and recommend its settlement to parties. Regular meetings of GRC at central level will be held on a monthly basis; however, special ad hoc meetings can be arranged in between of regular meetings as needed.

If following its consideration by the GRC at central level, the grievance cannot be resolved to the satisfaction of the parties, the recommendation will be made to seek resolution through the courts. Irrespective of the outcome of grievance consideration, documentation regarding the case by the GRCs at regional and central levels will be collected and maintained by GRC coordinator at central level (with input from GRC coordinator at regional level). The GRC coordinator at the central level will keep a separate track of cases, which were not resolved through GRM and were referred to the RK legal system.

## **DISCLOSURE OF GRIEVANCE REDRESS PROCEDURE**

The grievance redress procedure information for the project will be disseminated through information leaflets and brochures, and presented during the project related meetings and public consultations. During these gatherings, it should be emphasized that the informal GRM is aimed at quick and amicable resolution of complaints and does not substitute the legal process established under national legislation.

At the beginning of each project (commencement of construction at each section of the road) community consultation shall be carried out by CCs and CSCs under the coordination and supervision of the GRC coordinator at regional level to ensure people's awareness of the availability of the GRM, steps of grievance resolution as well as contacts and locations of focal points to be approached in case of grievance. CCs, CSC, PMCs, CfR, MoID RK regional branches and Akimats, as well as NGOs and professional mediators are considered as the key actors of the GRM and play a crucial role in disseminating the information on GRM and facilitating quick and amicable resolution of complaints. The GRC coordinator at the regional level shall coordinate information dissemination activities on GRM, and ensure that the posters providing details on GRM and contacts of griev-

ance focal points at CCs and CSCs, GRC coordinator at regional level are posted in publicly accessible and visible places at every construction site and in every affected community. In addition, the information on GRM (leaflets, brochures), including contact details grievance focal points at CCs and CSCs, GRC coordinator at regional level, should be available at the offices of CCS, CSCs, PMCs, Akimats, CoR.

In the areas populated by minority groups meetings shall be held and information leaflets shall be provided in the linguistically appropriate manner, if the language used by the minority group is different from official language of RK.

## 6. PUBLIC CONSULTATIONS AND DISCLOSURE

ESIA reports prepared for CSRP were forwarded for consideration of the World Bank. At the same time primary documents were used for ESIA preparation (working draft, including approval and conclusion of territory inspection of forest husbandry and game husbandry of archaeological expertise, geological and subsurface resources use, ecology and SES and etc.), census (revealing) of all land plots owners, which are under withdrawal, discussions, negotiations and social and economic researches were carried out in 2015-2016.

Table 5

No.	Document name	Date of publication (updating) on site europe-china.kz
1	Framework document. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT, SOUTH-WEST ROAD PROJECT: «KARAGANDA – BALKHASH – BURLBAITAL – KURTY – KAPSHAGAI» road section	September 8, 2015 – June 7, 2016
2	ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT, CENTER-SOUTH ROAD PROJECT: «KARAGANDA – BALKHASH – BURLBAITAL» road section	May 6, 2016

In May – June 2015 personnel of JSC “KazDorNII” in association with “Sapa SZ” LLP and “KazCEP” LLP jointly with personnel of COR MID RK and JSC NC “KazAutoZhol” in Karaganda and Zhambyl regions held public hearings on Assessment of Environmental and Social Impact based on investigations and analysis for the sections of the Centre South Road Corridor “Karaganda – Balkhash – Burylbaital Road Section to may be financed by the World Bank. Within the few weeks of preceding consultations several hundred information leaflets were distributed in the course of the field studies.

The following groups of people were invited (or participated) to the Public Hearings:

- All local population, whose interests are likely to be affected during road reconstruction; List of participations are specified in Annex 2. Minutes of hearings
- NGOs working in the environmental and social areas;
- Representatives of the official authorities in the area of environmental design and social issues.

Consultations were carried out in the following settlements/ villages of Karaganda and Zhambyl oblasts:

- Saryshagan village – 06.06.2015
  - Balkhash – 17.06.2015
  - Gulshat village – 17.06.2015
- Zhambyl Oblast
- Kashkanteniz station – 18.06.2015
  - Shyganak village – 17.06.2015

The details of Public Consultations are presented in the attached Minutes of Meeting. During the event the local residents raised a number of issues concerning the Project implementation period/duration, compensation amounts, pedestrian crossing (walkway), locations, green plantings and other issues. The audience was satisfied with the clarifications of the specialists of “KazdorNII” JSC in association with SAPA SZ LLP and “KazCEP” LLP provided in response to the questions raised and the World Bank Environmental and Social policies as a whole. There were some useful comments or recommendations from the part of the participants in regards to the design and con-

struction stages of the Project. In particular, to begin construction of the road in the shortest time. Annex 2 of Minutes of hearings.

The consultant noted that this preliminary stage of interest in the Project and participation (consultations on TOR ESIA and the main concept) on behalf of supporters of the Project was passive. Thus, consultations were mainly carried out from sources and under auspices of KazDorNII JSC in association with LLP "SAPA SZ" and LLP "KazCEP". For comparison, general public and potential people who came under the influence took a keen interest in the project. Apparently this campaign was one of the first instances of public disclosure of project details. Summarizing, all the hearings held in Zhambyl and Karaganda regions came to the conclusion that the local population had not been previously informed about the road reconstruction project. The main issues raised at public hearings were issues related to the provision of jobs for the local population during the reconstruction, the amount and types of compensation for land that will potentially be acquired. At this stage, there seems to be little attention from the public regarding issues related to the environmental and social impact of road renewal.

The event has been organized by:

- Local Executive Bodies - Akimats of Karaganda and Zhambyl oblasts, cities, districts and (village) rural districts.

The second public hearings were held in the following villages / settlements of Karaganda and Zhambyl oblasts:

Karaganda Oblast

- Saryshagan village – 08.07.2015
- Gulshat village – 08.07.2015
- Balkhash – 09.07.2015

Zhambyl oblast

- Shyganak village - 08.07.2015
- Kashkanteniz station – 08.07.2015

The Consultant together with the Employer - COR participated in public hearings dedicated to discussion of Environmental Impact Assessment and the Resettlement Plan for sections of the international transit corridor "Center-South", which may be financed by the World Bank. The main elements of the Resettlement Plan were also discussed. During the hearings, information brochures on Social and Environmental Policy of the World Bank and a brief description of all procedures for redemption and filing of complaints were distributed.

A notice on the planned public hearings was published in the press:

«North Balkhash Region» newspaper № 70 (1391) July 01, 2015

«Balkhash Oneri» newspaper № 68-69(12319) June 26, 2015

«Tokyrauyn tynasy» №28 (7502) June 26, 2015

«Moimkym tany» №64 (6057) July 03, 2015

The third public hearings were carried out with participation of the design organizations at a completion stage of project works, where also attendees have been explained once again the social and environmental policy of the World Bank, ESIA, which were during the period from May 25 to May 26, 2016 in the Karaganda and Zhambyl oblasts.

Karaganda Oblast

- Balkhash – 25.05.2016
- Saryshagan village – 25.05.2016

- Priozersk – 25.05.2016  
Zhambyl oblast
- Mynaral village – 26.05.2016
- Shyganak village - 26.05.2016

The technical parameters of the road, the schedules of the proposed work, the expected benefits, the expected impacts, including the proposed mitigation measures, the number of underground crossings, design solutions for abutments, design of detours, junctions and subways, for needs of land owners and rural Farms, definition of location of production base and the landfill for removal of construction debris, consideration of possibility of using water for technical needs, from nearest ponds, information on land plots assigned to peasant farms falling into the road construction zone were presented during consultations.

The Project Management Consultant plays an important role in the public information process by preparing and distributing of brochures that describe the process and explain rights and responsibilities, compensation prices, payment schedule and options for dealing with complaints.

Moreover, all identified affected people will be provided with the information brochure, considering relevant rules, rights, prices, compensations, payments and grievance redress mechanisms. In addition, these brochures and other information about the project, will be available in all regional and district akimats, where every interested person can attend and obtain information.

The public consultations indicated that, in accordance with the legislation, necessary approvals had been obtained with all interested parties: land allocation for the road, crossing and rapprochement of communications with the road with their owners, an agreement was obtained for water abstraction from local sources for technical needs.

This revised ESMP will be published on the web-site of the project “Western Europe-Western China” and at relevant district akimats. The ESMP and RAP in English language will be presented on the external web-site of WB.

Process of Consultations at the stage of project preparation was mainly concentrated on the interview of key informers, focus group discussion, and public hearings. All public hearings were minuted and interests of local population were consulted according to standard of RK. The program of Consultations includes the following people:

- a) Head of households, likely to be affected
- b) Members of households
- c) Community
- d) Relevant Akimat
- e) Main concerned entities such as women, road users group, medical workers, peasant farms and etc.;
- f) Public information brochure distributors

Given Public Information leaflet (PIL) will include the following useful information, regarding Resettlement Plan:

- a) Summary description of the project;
- b) Types of anticipated impact;
- c) Main policy of compensation and payment;
- d) Summary information on restoration measures of the livelihoods;
- e) When and where affected people will receive their rights

- f) Consultations and affected public and entities participation;
- g) Execution schedule
- h) Grievance redress mechanism
- i) Roles and responsibilities of local executive bodies, deputy District Akimat, RK, local representatives of the CR of the MID RK, grievance redress coordinators;
- j) Contact information (including PMC grievance redress coordinators) names, contact numbers and addresses;
- k) In 2015 the social researches were conducted on all «Centre-South» transport corridor (researches based on questionnaire, which were approved by specialists of the World Bank). The number of respondents: 224 (individual interview), 47 depth interview and 57 people were interviewed on the focus-groups. The questionnaire was carried out among population of six districts of three oblasts, getting under the project control: Almaty, Zhambyl and Karaganda. Depth interview were carried out with representatives of state and private structures. Focus-groups have been conducted in five villages among representatives of akimats, education, health care, private business and peasant farms, and Environmental Management plan;
- l) Project brief description;
- m) Main technical indicators of the existing and designed road;
- n) Scheme of designed road;
- o) Types of expected object influence on atmosphere air;
- p) Noise impact
- q) Influence on surface and ground waters;
- r) Influence on soil cover, land resources and mineral resources;
- s) Influence on flora and fauna;
- t) Influence on social sphere;
- u) Production waste;
- v) Influence on cultural and historical and architectural monuments.

These brochures of public information have been distributed to all attendees, as well as they were available in case of necessity in local executive bodies.

Detailed information regarding water intake, borrow pits and finds of cultural and historical monuments have been presented in the form of the conclusions and coordination with appropriate supervision authorities, and if necessary it was provided to all stakeholders.

The last public hearings were held from 17.04.2017 to 21.04.2017. At these hearings project institutes, representatives of CfR MID RK, «KazavtoZhol» NC JSC and consultants have described already completed road projects with the receipt of positive conclusions of the State Expertise and all issues related to environmental protection, resettlement, seizure and cultural and archaeological heritage to all participants. All attendees had wishes that the road reconstruction project started as soon as possible, so they expect only positive effects from it. More detailed information is indicated in the minutes of public hearings.

## 7. ENVIRONMENTAL MANAGEMENT PLAN: MONITORING AND INSTITUTIONAL RESPONSIBILITY: BALKHASH – BURYLBAITAL ROAD SECTION

**Table 7.1. PROJECT IMPACT during construction stage, MITIGATION MEASURES, MONITORING AND RESPONSIBILITY**

CATEGORY	POTENTIAL IMPACT	SIGNIFICANCE	LOCAL IMPACTS	MITIGATION	RESPONSIBILITY	MONITORING	RESPONSIBILITY	LONG TERM IMPACT
1. Air quality	Air pollution: emissions from construction machinery and equipment, emissions from cement-concrete, asphalt-concrete plants, crushers, etc. Dust: from construction activity borrow pits and crushers transportation of materials	Potentially significant, especially during dry season	Generally, in the main area of construction, the existing roads or bypass roads; Potential impact on adjacent villages Local impacts on sites in Karaganda and Zhambyl oblasts is not predicted	All vehicles and the equipment used in construction have to be modern, be appropriately maintained and used according to recommendations of manufacturers. All access and bypass roads have to be watered. All plants/dust-generating equipment should be in good repair and be located at distance from all sensitive zones.	The contractor shall bear the responsibility for implementation of mitigation measures. Supervision Engineer monitors the compliance with mitigation plan.	Regular (monthly) monitoring by licensed laboratories at designated sampling points and on-site compliance checks by Construction Supervision Consultant (CSC), Engineer and local environmental protection authorities. The sampling points will be defined by the Project monitoring programs, which will be developed by individual contractors and are required by the law. Parameters to be monitored follow the EHS Guidelines including: nitrogen oxides, inorganic dust, sulfur oxide, carbon, PM10, PM2.5 and carbon monoxide. Meteorological parameters during sampling include air temperature, emission rate, atmospheric pressure and air humidity.	Contractors Construction Supervision Consultant (CSC)/Engineer	Long term impact is limited
2. Noise and vibration	Noise from construction machinery and equipment Noise from cement-concrete and asphalt concrete plants, crushers, etc. Transport noise on the access roads	Potentially significant	The area of construction, access and bypass roads. Potential impact on nearby residential areas. Potential impact on villages and settlements Local impacts on Karaganda and Zhambyl oblasts are not predicted.	All vehicles and the equipment being in use in construction have to be modern, regularly maintained and used according to recommendations of the manufacturers. All plants/noise making equipment have to be in good repair and locate at distance from settlements. Any types of works during	The contractor shall bear responsibility for implementation of mitigation measures. Supervision Engineer monitors the compliance with mitigation plan.	Regular (monthly) monitoring, implemented by certified laboratory in specified places of selection of tests and Construction Supervision Consultant (CSC), Engineer and local authorities (EP and SES bodies) on-site.	Contractors (through licensed laboratories) Construction Supervision Consultant (CSC)/Engineer	No long term impact

				night time near villages and settlements in Karaganda and Zhambyl oblasts should be prohibited. Speed limit of 60 km/h for all construction equipment shall be enforced.				
3. Water, drainage system and floods	<p>Pollution by a runoff from the construction sites in the areas of bridges construction is possible</p> <p>Pollution of underground waters at pits/quarries (accidental spills) Pollution of surface and underground water sewage from camps</p>	<p>Influence is from moderate to insignificant. Places of water intakes from wells (drinking water and technical water) will be agreed with Committee on Water Resources.</p> <p>Pollution of underground waters is unlikely as deep soil excavation isn't planned.</p> <p>Pollution from construction camps can be from moderate to significant</p>	<p>Potential impacts on the adjacent rivers (construction of artificial bridges) Potentially – entire alignment Areas of location of construction camps</p>	<p>Committee for Roads, Committee on water resources and Akimats of districts in consultation with contractors. The contractor shall provide water intake only from designated sources after the receiving of special permission for water use</p> <p>Good management at construction sites.</p> <p>Areas of potential pollution of rivers will be designed to prevent accidental spills and runoff and protected by sediment basins.</p> <p>Sewage at construction camps will be collected in septic reservoir and transported/discharged at wastewater treatment plants.</p>	<p>Committee for Roads, Committee of water resources and Akimats of districts in consultation with contractors.</p> <p>The contractor shall bear responsibility for implementation of mitigation measures.</p> <p>Construction Supervision Consultant (CSC), Engineer monitors the compliance with mitigation plan.</p>	<p>Regular (monthly) monitoring by licensed laboratories at designated sampling points and on-site compliance checks by Construction Supervision Consultant (CSC), Engineer and Regional office of the Committee on Water Resources implement control on site.</p> <p>Controlled parameters include: pH, density, resistance, solid residues, chlorides, nitrogen nitrogen, nitrate nitrogen, fluoride, insoluble matter, etc (e.g., all applicable feasible water parameters referenced in the EHS Guidelines)</p>	<p>Contractors (through licensed laboratories) Construction Supervision Consultant (CSC), Engineer Committee on water resources</p>	<p>Long-term impacts are possible in case of non-execution of mitigation measures</p>
4. Erosion and pollution of soils and subsoil layers	<p>Soil erosion (wind and water) due to removal of vegetation and topsoil is possible. Pollution of the soil and subsoil layers as a result of construction and accidental spills.</p>	<p>Potential impacts are low to medium (excavation works and operation of borrow pits).</p>	<p>Local impacts are expected only in the areas of borrow pits and earthworks on embankment along the alignment.</p>	<p>All recommended methods on reduction and elimination of an erosion were included in the program of construction Construction methods on reduction or elimination of pollution of soils and subsoil layers. All temporarily used lands have to be restored/ reinstated to the initial condition according to the legislation</p>	<p>The contractor shall bear responsibility for implementation of mitigation measures. Construction Supervision Consultant (CSC), Engineer monitor the compliance with design impact reduction plan.</p>	<p>Contractors together with Construction Supervision Consultant during periodic visual inspection (twice a week)</p>	<p>Contractors Construction Supervision Consultant (CSC), Engineer the Committee for Roads</p>	<p>Erosion is possible if there is no proper management and prevention during construction.</p>
5. Flora and fauna and the sensitive and protected territories	<p>Impacts on vegetation along the alignment. Disturbance of fauna in the area of influence of the construction works</p>	<p>Potential impacts are Low to Medium Temporary disturbance of birds and animals in the immediate proximity to the construction sites, concrete plants, crushers or borrow pits is</p>	<p>Moderate loss of planting. Illegal hunting is possible</p>	<p>Culverts, cattle underpasses and bridges will serve as crossing points for wild animals. Illegal hunting around the project area will be prohibited.</p>	<p>The contractor shall bear the responsibility for implementation of the mitigation measures. Construction Supervision Consultant (CSC), Engineer shall monitor the compliance with design impact reduction</p>	<p>Regular monitoring of proper vegetation and rational topsoil management shall be carried out by the Contractor. Construction Supervision Consultant (CSC), Engineer shall</p>	<p>Contractors Construction Supervision Consultant (CSC)/Engineer Local Committee of forest management and wildlife</p>	<p>No significant long-term impact on flora and fauna is expected</p>

		possible.			plan.	monitor the compliance with design impact reduction plan.		
6. Social / Economic / Farmers	Land loss/land acquisition Possibility of employment during construction Inconvenience for farmers (cattle crossing the road) Loss of trade along the road	Potential impacts are low to moderate Employment opportunities emerge for local population Potential impacts on farmers (animal husbandry)	There are cases of land (open space land) acquisition along the alignment	Land acquisition will be carried out according to the legislation of Kazakhstan and Resettlement Action Plan (RAP) Encouragement of hiring of local labor Consideration with local population on additional cattle crossings as required (October 2014) Compensation for loss of income should be paid or other appropriate mechanisms will be put in place according to the legislation of Kazakhstan and RAP	Contractors Akimats	CIР, Akimats/local authorities and contractors	Regular monitoring of possible impacts on farmers shall be carried out by Construction Supervision Engineer Committee for Roads will monitor the compensation payment to the affected persons.	Long-term consequences are possible if cattle crossings are not built
7. Historical and archeological monuments	Based on research results in zone of road passing on section km 1855-2152 the Historical and cultural heritage were not revealed.	Potential impacts on burial grounds along the road	Potential indirect impacts on archaeological sites if such are identified	Contractors shall observe the appropriate procedures in case of chance findings. According to the state procedures, works will be immediately stopped, for studying, record and excavation.	The contractor will be responsible for fencing of the archaeological monuments, burial grounds and for relocation of memorial monuments In case of finds of additional discovery, the Contractor should immediately inform the Department of Cultural Heritage and Art of the Ministry of Culture and Sport on any found artifacts or remains, and stop all construction works and notify the authorities on cultural heritage. Protection of other monuments is responsibility of institutions on protection of cultural and archaeological heritage (i.e. Ministry of Culture and Sport)	Construction Supervision Consultant (CSC)/Engineer, local authorities and authorized representatives of the Department of Cultural Heritage and Art of the Ministry of Culture and Sport will check compliance with this plan and procedures in case of finds discovery.	Construction Supervision Consultant (CSC)/Engineer and authorized representatives of the Department of Cultural Heritage and Art of the Ministry of Culture and Sport	Provided that all laws will be observed and the specified archaeological sites will be fenced and memorial place marks relocated, long-term influence is not expected.
8. Traffic safety	The traffic volume on the main road can affect the traffic safety	Potential impact is from low to medium	Road sections, located close to settlements and places of access/bypass roads joining the main road	Speed limit enforcement Correct road marking and signage shall be erected Informing of local population. Responsible actions of the	Committee of road traffic police of the MIA of the RK Contractors	Regular monitoring and reporting of any accidents and complaints	Construction Supervision Consultant (CSC)/Engineer Committee of road	No long-term impacts

				<p>contractor. Organization of additional crosswalks, if necessary.</p> <p>Compliance with occupational safety rules during construction to minimize potential impact on local communities: Construction machinery shall adhere to the agreed access roads and comply with speed restrictions Installation of information plates in relation to threats to public safety and information about contact entities in case of emergency situations Prevention of impacts of dangerous materials and waste that are located at the site on the population Accounting of livestock which temporarily cross the site territory and road and interfere with traffic These measures shall be a part of the Construction Plans for Environmental Management, which shall include traffic management plans</p>			traffic police of the MIA of the RK	
9. Waste management	Generation of the construction debris and household wastes which are subject to landfill disposal.	Potential impact is low to medium	Potential impacts near construction camps	<p>Construction debris will be used (if technically possible) for roadbed construction. Household waste must be regularly exported from the section to the designated landfills Hazardous waste should be properly managed and discarded by licensed companies at specific landfills assigned by regions/municipalities</p>	Contractor in cooperation with local authorities	Construction Supervision Consultant (CSC)/Engineer should carry out regular monthly monitoring of sites and activities on waste management	Construction Supervision Consultant (CSC) and local authorities	Provided that all waste will be exported to the designated landfills, long-term impacts are not expected
10. Borrow pits and access roads	<p>Borrow pits: Local violations in environment, especially dust and noise from equipment and vehicles. Inconveniences for agricultural activity Access roads: Inconveniences for agricultural activity</p>	<p>Potential impacts are possible. Existing pits have been already defined, however additional borrow pits will be required: Locations of access roads have to be coordinated with local authorities within 2 weeks after the beginning of works.</p>	Considerable local impacts near pits and access roads are possible.	<p>Location of borrow pits and access roads have to be coordinated prior to the works commencement Only borrow pits approved by local authorities can be used, together with the plan of works on closing and reclamation</p>	Contractors Regional offices of the Committee for construction, housing and utilities infrastructure and land resources management of the RK	<p>Regular monthly and special monitoring of any influences, cases and complaints</p> <p>Where applicable, the borrow pits used to source construction materials should undergo a closure process including backfilling and revegetation activities following construction</p>	Construction Supervision Consultant and local authorities	Provided that impacts are mitigated properly, long-term influences are not expected.
11. Health and Safety	Air, noise pollution, operating environment risks	Medium	As a rule, the existing and bypass roads at the main construction site; Potential impacts on the employees of the con-	<p>Compliance with health and safety requirements in accordance with the laws of the RoK and the WBG. Develop an integrated program</p>	Contractor	Regular (daily) monitoring of personal safety among workers	Contractors Construction Supervision Consultant (CSC)/Engineer	No long-term impacts

			tractor and nearby vil- lages	<p>of occupational health and safety measures, which will be in line with the national laws, monitoring and management systems, covering any works under the Project. The system shall include the following:</p> <p>Analysis and control of specific risks</p> <p>Requirements for personal protection equipment and compulsion mechanisms</p> <p>Assignment and introduction of areas for smoking</p> <p>Training of the entire personnel in safety using their language</p> <p>Review of contactors' plans for occupational health and safety, orientated on the standards same as the plans of the design company</p> <p>Control over development/implementation of occupational safety and safety measures of the contractor, including compulsory reporting to CSC.</p> <p>Account, including common operating hours, lost operating hours due to accidents, description of time loss cases, admission to hospitals, fatal cases</p> <p>Instructions for exchange of information for risks, prevention of accidents, etc.</p> <p>Requirements for labor protection shall be followed by all parties, involved in the Project construction and operation.</p>				
12. Contractor's construction camps	Increase in health problems among the community and workers, particularly STD such as HIV/AIDS and STD	Medium	As a rule, existing and bypass roads on the main construction section; Potential impacts on the nearby villages	<p>Issuance of the Code of Conduct to workers, training and creation of information educational campaigns in relation to dissemination and transmission of STD and HIV/AIDS for construction workers and local communities living near the construction camps.</p> <p>Ensuring free distribution and provision of contraceptives to</p>	Contractors	Regular (daily) monitoring of personal safety among workers	Contractors Construction Supervision Consultant (CSC)/ Engineer and local authorities Experts for HIV/AIDS programs	No long-term impacts

				<p>construction workers by the Contractor to avoid dissemination of STD and HIV/AIDS</p> <p>Place informative posters and brochures about HIV/AIDS using local languages in crowded places, at coach stations, schools and roadsides to minimize dissemination of HIV/AIDS.</p> <p>Sanitary and necessary requirements for training of construction workers in accordance with the laws of Kazakhstan, control and assessment of HIV/AIDS program: proper storage and handling of dangerous substances and condition of wearing protective clothing for workers.</p> <p>Construction contract shall include the provision about the Contractor's obligation to provide a first aid station in the construction camp, and that qualified paramedical personnel shall be permanently full-time employed. Simple first aid materials for different minor injuries shall be available at any time for all construction sites; etc.</p>				
13. Closure process for borrow pits	Impact on soil, land, and natural resources	Medium impact	At the borrow pits locations and surroundings	Where applicable, the borrow pits used to source construction materials should undergo a closure process including back-filling and revegetation activities following construction	Contractor or Owner of the borrower pit	Monitoring of the closure process in line with the revegetation/reclamation plan	Supervisor Engineer and Committee for Roads shall ensure proper closure process for borrow pits have taken place following construction	

**Table 7.2 IMPACTS DURING OPERATION; MITIGATION MEASURES, MONITORING AND RESPONSIBILITY**

CATEGORY	POTENTIAL IMPACT	SIGNIFICANCE	LOCAL IMPACTS	MITIGATION	RESPONSIBILITY	MONITORING	RESPONSIBILITY
1. Air quality	Emissions from vehicles on the road Emissions from roads repair and maintenance	Insignificant provided that vehicles are in good operating conditions	Potential impact on adjacent sections in Karaganda and Zhambyl oblasts;	All vehicles must meet emissions standards All the equipment used for road repair	Committee for Roads, Committee for Environmental Regulation and Control of Karaganda,	Monitoring of air quality in line with EHS Guideline (N2, NOx, CO2, CO, C, hydrocarbon) near	Contractors within the DLP

	activities		Other local consequences are not expected	and maintenance meets emissions standards Regular monitoring near residential areas to determine the necessity for additional mitigation measures	Almaty and Zhambyl oblasts	residential areas and other areas if necessary. Frequency of monitoring will be determined based on monitoring data on traffic intensity.	
2. Noise	Emissions from vehicles on the road Emissions from roads repair and maintenance activities	Insignificant provided that vehicles are in good operating conditions	Potential impact on adjacent sections of Karaganda and Zhambyl oblasts; Other local consequences are not expected	All vehicles must meet noise level standards Old and faulty vehicles must not be found on the road Compliance with minimum and maximum speed limits All the equipment used for road repair and maintenance meets noise level standards	Committee for Roads, Department of Environment of the Committee for Environmental Regulation and Control and Sanitary-and-Epidemiologic Institutions of Karaganda and Zhambyl oblasts	Monitoring of noise levels near residential areas and other areas if necessary. Frequency of monitoring will be determined based on monitoring data on traffic intensity.	Contractors within the DLP
3. Water drainage system and floods	Stability of water sources for operation Floods, pollution of surface and ground water due to activities on the road and in services/rest areas	Potentially localized impact Pollution is insignificant if the road is effectively managed	There are no specific local impacts	Maintaining drainage system in a proper condition Good road management and maintenance will ensure normal watercourses	Committee for Water Resources “Kazakhavtodor” Republican State Enterprise Local executive authorities	Monitoring of ground water and drainage water quality in line with EHS Guidelines within the right of way of the alignment Frequency of monitoring will be determined based on monitoring data on traffic intensity.	Committee for Water Resources
4. Flora and fauna and protected territories	Long-term impacts on animals, especially migration and movement routes. Disturbance of flora and fauna resulted by the use of salts and chemical substances for deicing There might be an increase in illegal hunting due to wider accessibility	Low impact	No specific localized impacts	Cattle droves will serve as passages for wild animals have been incorporated in the design) Study the necessity of additional passages through pipes under the bridges for big mammals Control and prohibit illegal hunting	Oblast regional inspection of the Department for Forestry and Fauna	Committee for Roads, Committee for Forestry and Fauna, as well as oblast administration	Oblast regional inspection of the Department for Forestry and Fauna “Kazakhavtodor” Republican State Enterprise jointly with the district administration follows the necessity in additional crossing points within the alignment for mammals and others
5. Social / Economic / Farmers	Increase in economic activities due to the improved road. Opportunities for constant work within the roads maintenance Opportunities for busi-	Significant economic and social benefits Some unfavorable consequences in relation to the farmers’ activities due to the necessity of underpasses use for	There no specific localized impacts, except for agricultural and grazing lands Villages along the existing road alignment	Hold informative activities for local communities on benefits that can be obtained from the improved alignment Consider additional	Local executive authorities and “Kazakhavtodor” Republican State Enterprise will consider additional underpasses (bridges) in collaboration with local communities,	Monitoring of unfavorable impacts on local communities and farmers Affected persons will be kept in touch for checking compensation pay-	Administration of districts and Karaganda and Zhambyl oblasts.

	ness and employment in roadside service areas Some disturbance to the activities of farmers who were affected by land acquisition for the road construction	movement of cattle and agricultural machinery		livestock droves and passages for agricultural machinery if necessary and required (See Mitigation Measures)	if necessary Akimat/ local executive authorities	ment and other compensation forms provision	
6. Traffic safety/ Aesthetics	Increase in accidents Danger for pedestrians, there is not sufficient amount of pedestrian crossings	Low/ medium impact level	Regular passages crossing the road alignment	Special measures in the project will decrease the accidents risk: dividing strip, good visibility, limited access and exits, guard posts, etc. There will be several settlements near the road and a small number of pedestrians near the road or roads intersection	Have been incorporated in the design	Monitoring and registration of all road accidents	“Kazakhvtodor” Republican State Enterprise
7. Waste management	Waste generated from the road maintenance and rest/service areas: collection and disposal issues	Low impact	In rest and service areas	Committee for Roads should provide regular cleaning and collection of all liquid and solid wastes, as well as disposal in accordance with approved regulations and procedures. The company for road operation will be responsible for waste collection from rest/service areas	“Kazakhvtodor” Republican State Enterprise and Committee for Environmental Regulation and Control	Regular monthly monitoring of sites and wastes collection and disposal	“Kazakhvtodor” Republican State Enterprise

## MINUTES OF PUBLIC HEARING

### Balkhash town

**Date:** April 21, 2017, 10:00 am

**Venue:** Building of assembly hall of administrative office of Akim of Balkhash town of Karaganda oblast

**Public hearings have been organized by:** Akimat of Balkhash town of Karaganda oblast, CfR MID RK, «KazAvtoZhol NC» JSC

**Information about public hearings has been provided to the public through:** Announcement

**Participants:** residents of Balkhash town, representatives of local executive authorities, representatives of «KazAvtoZhol NC» JSC, PMC «KazdorNII/Sapa-SZ», «Kazdorproject» LLP (list of participants is attached)

### Agenda:

- Familiarization of the public with «Center-South» project of «Astana-Karaganda-Balkash-Almaty» road and, in particular, Balkhash-Burybaital road section, which is now a part of the EWRP financed by the World Bank
- Familiarization of locals with detail design of road reconstruction project that is being developed, as well as Draft Environmental and Social Impacts Assessment and Environmental Management Plan»

### Preliminary tasks:

1. Election of the Public Hearings Chairman;
2. Election of the Public Hearings Secretary;
3. Summarization of the public decision on the subject of the hearings;
4. Time limit on speeches is 3 minutes.

Based on the majority of votes:

N. Mazhitov, Deputy Akim of Balkhash town of Karaganda oblast was elected as Chairman of Public hearings.

A. Samiyev, Director of SE “Balkhash municipal department of housing and utilities, passenger transport and highways”, was elected as secretary of public hearings.

### Speeches made by:

1. N. Mazhitov, representative of local executive authorities, Deputy Akim of Balkhash town of Karaganda oblast, having greeted all participants, presented the representatives of «KazAvtoZhol NC» JSC, «Kazdorproject» LLP to the residents of Balkhash town.
2. The objective of the public hearings is discussion of Balkhash-Burybaital road section, familiarization of local residents with Environmental and Social Impacts Assessment and Environment Management Plan.

1. Representative of «KazAvtoZhol NC» JSC Muratbekov A.

After greeting everyone, he thanked them for participation in the public hearings. Importance of the public hearings was stressed out and it was told that the road construction is the main component of «Nurly Zhol» new economic policy of the country. Further, he provided a brief summary of Terms of Reference for the development of «Astana – Karaganda – Balkhash – Almaty» road reconstruction design, draft of Environmental and Social Impact Assessment. The reconstruction and new construction will transform the existing road. He noted the importance of public hearings and said that the main element for economic activities impact on the environment is indicators of environmental situation and social sphere.

In order to comply with the environmental legislation of the Republic of Kazakhstan and decrease adverse impact on the environment and health state of the population that can be caused by the planned activities, environmental and social management plan, as well as mitigation measures for impacts managements are provided.

2. Chief Engineer of «Kazdorproject ERI» LLP Khan V.

He made a presentation showing the main technical details of the project for improvement of «Center-South» road «Astana-Karaganda-Balkhash-Almaty» section, which is under the design completion stage at the moment.

1. Director of “Baidaulet” farm

Question: Wahat is the distance between cattle passes?

Answer: According to standards of RoK the distance between cattle passes is 20-25 km

2. Resident of Balkhash town, Bekmaganbetov K.

Question: What are the dimensions of agricultural machinery passage?

Answer: According to standards the dimensions of passage of agricultural machinery is 4,7 m height, 6,5 m width.

### **Public Hearings Conclusions**

Based on the results of considerations and discussion of the detail design, available ESIA and the Draft EMP and based on “no objection” and upon consensus in regard to the fact that the planned activities will not significantly affect environment and health state of the population adversely, the following has been summarized:

The developed design of «Center-South» road reconstruction project of Balkhash -Buribaital road section and the draft of the respectful ESMP document was clarified and approved with the public and population of Balkhash town of Karaganda Oblast.

**Public Hearings Chairman:**  
**Deputy Akim of Balkhash town**  
**of Karaganda oblast Mazhitov N.**

**signature**

**Public Hearings Secretary**  
**Director of SE “Balkhash municipal**  
**department of housing and utilities**  
**passenger transport and highways Samiyev A.**

**signature**

## MINUTES OF PUBLIC HEARING

### Mynaral village of Moiynkum region

**Date:** April 19, 2017, 3:00 pm

**Venue:** Administrative office of akim of Mynaral rural district of Moiynkum district of Zhambyl oblast

**Public hearings have been organized by:** Akimat of Mynaral rural district of Moiynkum district of Zhambyl oblast, CfR MID RK, «KazAvtoZhol NC» JSC

**Information about public hearings has been provided to the public through:** Announcement

**Participants:** Residents of Moiynkum district, representatives of local executive authorities, representatives of CfR MID RK «KazAvtoZhol NC» JSC, PMC «KazdorNII/Sapa-SZ», «Zhana Zhol» LLP, «Semdorproject» LLP and «SK Engineering» (list of participants is attached)

#### **Agenda:**

- Familiarization of the public with «Center-South» project of «Astana-Karaganda-Balkash-Almaty» road and, in particular, Balkhash-Burybaital road section, which is now a part of the EWRP financed by the World Bank
- Familiarization of locals with detail design of road reconstruction project that is being developed, as well as Draft Environmental and Social Impacts Assessment and Environmental Management Plan»

#### **Preliminary tasks:**

5. Election of the Public Hearings Chairman;
6. Election of the Public Hearings Secretary;
7. Summarization of the public decision on the subject of the hearings;
8. Time limit on speeches is 3 minutes.

Based on the majority of votes:

Z.Kamiyev, akim of Mynaral rural district of Moiynkum district of Zhambyl oblast was elected as Chairman of Public hearings.

A.Temirgali, senior specialist of administrative office of akim of Mynaral rural district of Moiynkum district of Zhambyl oblast, was elected as secretary of public hearings.

#### **Speeches made by:**

1. Z.Kamiyev, akim of Mynaral rural district of Moiynkum district of Zhambyl oblast having greeted all participants, presented the representatives of CfR MID RK, «KazAvtoZhol NC» JSC, PMC «KazdorNII/Sapa-SZ», «Zhana Zhol» LLP, «Semdorproject» LLP and «SK Engineering» LLP.
2. The objective of the public hearings is discussion of «Center-South» project of «Balkhash-Burybaital» road, familiarization of local residents with developed technical de-

cisions on road reconstruction project on Environmental and Social Impacts Assessment, Resettlement Action Plan.

1. Deputy Director of Zhambyl oblast branch of «KazAvtoZhol NC» JSC Tuganova A.

After greeting everyone, she thanked them for participation in the public hearings. She noted the importance of the public hearings and told that the road construction is the main component of «Nurly Zhol» new economic policy of the country. Further, he provided a brief summary of Terms of Reference for the development of «Balkhash – Burylbaital» road reconstruction design, draft of Environmental and Social Impact Assessment. The reconstruction and new construction will transform the existing road.

2. Representative of «Semdorproject» LLP.

He made a presentation showing the main technical details of the project for improvement of «Center-South» road project of «Balkhash-Burylbaital» road section, which has been completed at the moment and passed the state expertise.

3. Representative of «SK Engineering» LLP.

He made a presentation showing the main technical details of the project for improvement of «Center-South» road of «Balkhash-Burylbaital» road section, which is under the completion of the design stage at the moment.

4. Representative of PMC «KazdorNII/Sapa-SZ», Serdaliyev K.

After greeting and thanking everyone for their participation in the public hearings, he noted the importance of public hearings and said that the main element for economic activities impact on the environment is indicators of environmental situation and social sphere.

In order to comply with the environmental legislation of the Republic of Kazakhstan and decrease adverse impact on the environment and health state of the population that can be caused by the planned activities, environmental and social management plan, as well as mitigation measures for impacts managements are provided.

1. Resident of Mynaral village

Question: Dimensions of cattle passes?

Answer: The project stipulates dimensions: height is 2,5 m and width is 4 meters

2. Resident of Mynaral village.

Question: Will the existing access tracks be kept?

Answer: The project stipulates to keep all existing access tracks.

3. Resident of Mynaral village

Question: What pavement will be stipulated on the future road?

Answer: The project stipulates asphalt concrete road pavement.

Suggestion: During design rest areas in the zone of location of functional roadside service shall be stipulated.

Answer: Your proposal is accepted and will be considered in accordance with valid standards.

**Public Hearings Conclusions**

Based on the results of considerations and discussion of the detail design, as well as Draft ESMP, and based on “no objection” and upon consensus in regard to the fact that the planned activities will not significantly affect environment and health state of the population adversely, the following has been summarized:

The developed «Center-South» road reconstruction project of «Balkhash-Burylbaital» road was clarified and approved with the public and population of Moiynkum district of Zhambyl Oblast.

**Public Hearings Chairman:**

**Akim of Mynaral rural district of Moiynkum district  
of Zhambyl oblast Kamiyeva Z.**

**signature**

**Public Hearings Secretary**

**Chief Specialist of Administrative office of Akim of Mynaral rural district  
of Moiynkum district of Zhambyl oblast Temirgali A.**

**signature**

## MINUTES OF PUBLIC HEARING

### Priozersk town

**Date:** April 20, 2017, 10:00 am

**Venue:** Building of assembly hall of administrative office of akim of Priozersk town of Karaganda oblast

**Public hearings have been organized by:** Akimat of Priozersk town of Karaganda oblast, CfR MID RK, «KazAvtoZhol NC» JSC

**Information about public hearings has been provided to the public through:** Announcement

**Participants:** residents of Priozersk town, representatives of local executive authorities, representatives of CfR MID RK «KazAvtoZhol NC» JSC, PMC «KazdorNII/Sapa-SZ», «Kustanaidorproject PRI» LLP (list of participants is attached)

### Agenda:

- Familiarization of the public with «Center-South» project of «Astana-Karaganda-Balkash-Almaty» road and, in particular, Balkhash-Burybaital road section, which is now a part of the EWRP financed by the World Bank
- Familiarization of locals with detail design of road reconstruction project that is being developed, as well as Draft Environmental and Social Impacts Assessment and Environmental Management Plan»

### Preliminary tasks:

9. Election of the Public Hearings Chairman;
10. Election of the Public Hearings Secretary;
11. Summarization of the public decision on the subject of the hearings;
12. Time limit on speeches is 3 minutes.

Based on the majority of votes:

S. Buktantayev, Manager of SE “Department of property and land relations, architecture and urban development” was elected as Chairman of Public hearings.

G. Ungarova, records manager of SE “Department of property and land relations, architecture and urban development” was elected as secretary of public hearings.

### Speeches made by:

3. D. Sadenov, representative of local executive authorities, Deputy akim of Priozersk t. of Karaganda oblast, having greeted all participants, presented the representatives of CfR MID RK, «KazAvtoZhol NC» JSC, «Kustanaidorproject PRI» LLP to the residents of Priozersk town.
4. The objective of the public hearings is discussion of «Center-South» project of «Balkhash-Burybaital» road, familiarization of local residents with Environmental and Social Impacts Assessment, Environment Management Plan and Resettlement Action Plan.

1. Representative of «KazAvtoZhol NC» JSC Gafton I.

After greeting everyone, he thanked them for participation in the public hearings. He noted the importance of the public hearings and told that the road construction is the main component of «Nurly Zhol» new economic policy of the country. Further, he provided a brief summary of Terms of Reference for the development of «Balkhash – Burylbaital» road reconstruction design, draft of Environmental and Social Impact Assessment and Resettlement Action Plan. The reconstruction and new construction will transform the existing road. He noted the importance of public hearings and said that the main element for economic activities impact on the environment is indicators of environmental situation and social sphere.

In order to comply with the environmental legislation of the Republic of Kazakhstan and decrease adverse impact on the environment and health state of the population that can be caused by the planned activities, environmental and social management plan, as well as mitigation measures for impacts managements are provided.

2. Main Engineer of «Kustanaidorproekt PRI» LLP Grebenyuk E.

He made a presentation showing the main technical details of the project for improvement of «Center-South» road «Balkhash-Burylbaital» section, which is under the design completion stage at the moment and passed state expertise.

3. Representative of PMC «KazdorNII/Sapa-SZ», Zeinullina A.

After greeting and thanking everyone for their participation in the public hearings, she noted the importance of public hearings and said that the main element for economic activities impact on the environment is indicators of environmental situation and social sphere.

In order to comply with the environmental legislation of the Republic of Kazakhstan and decrease adverse impact on the environment and health state of the population that can be caused by the planned activities, environmental and social management plan, Resettlement Action plan, as well as mitigation measures for impacts managements are provided.

Resident of Priozersk t.

Question: Will the future road pass on presently existing road?

Answer: Yes, the project stipulates the road construction, which will pass on the existing road.

Question: Will there be toilets along the designed road?

Answer: According to technical standard of RK the project stipulates bus stop with toilet and waste bin

Resident of Priozersk t.

Question: Will access tracks be on the existing ACP?

Answer: The project stipulates access tracks for all existing service objects.

Resident of Priozersk t.

Question: Is it necessary to construct the warm toilet?

Answer: According to standards of RK it is necessary to complete all existing service objects, including warm toilets.

Resident of Priozersk t.

Question: What is the time of commencement and completion of construction of this road?

Answer: It is planned to commence the construction at the end of 2017.

### **Public Hearings Conclusions**

Based on the results of considerations and discussion of the detail design, as well as Draft ESIA, and based on “no objection” and upon consensus in regard to the fact that the planned activities will not significantly affect environment and health state of the population adversely, the following has been summarized:

The developed design of «Center-South» road reconstruction project of «Balkhash-Burylbaital» road and draft ESMP was clarified and approved with the public and population of Priozersk town of Karaganda Oblast.

### **Public Hearings Chairman:**

**Manager of «Department of property and land relations, architecture and urban development» Bukantayev S.**

**signature**

### **Public Hearings Secretary**

**Records manager of «Department of property and land relations, architecture and urban development» Ungarova G.**

**signature**

## **MINUTES OF PUBLIC HEARING**

### **Saryshagan village**

**Date:** April 20, 2017, 15:00 pm

**Venue:** Culture center building of Saryshagan village of Aktogai district of Karaganda oblast

**Public hearings have been organized by:** Akimat of Saryshagan village of Aktogai district of Karaganda oblast, «KazAvtoZhol NC» JSC

**Information about public hearings has been provided to the public through:** Announcement

**Participants:** residents of Saryshagan village, representatives of local executive authorities, representatives of CfR MID RK, «KazAvtoZhol NC» JSC, PMC «KazdorNII/Sapa-SZ», «Kustanaidorproekt PRI» LLP (list of participants is attached)

### **Agenda:**

- Familiarization of the public with «Center-South» project of «Astana-Karaganda-Balkash-Almaty» road and, in particular, Balkhash-Burybaital road section, which is now a part of the EWRP financed by the World Bank
- Familiarization of locals with detail design of road reconstruction project that is being developed, as well as Draft Environmental and Social Impacts Assessment and Environmental Management Plan»

### **Preliminary tasks:**

13. Election of the Public Hearings Chairman;
14. Election of the Public Hearings Secretary;
15. Summarization of the public decision on the subject of the hearings;
16. Time limit on speeches is 3 minutes.

Based on the majority of votes:

M.Abikeyev, akim of Saryshagan village of Aktogai district of Karaganda oblast was elected as Chairman of Public hearings.

R.Tazhieva, senior specialist of administrative office of akim of Saryshagan village of Aktogai district of Karaganda oblast was elected as secretary of public hearings.

### **Speeches made by:**

3. M. Abikeyev, representative of local executive authorities, akim of Saryshagan village of Aktogai district of Karaganda oblast, having greeted all participants, presented the representatives of CfR MID RK, «KazAvtoZhol NC» JSC, «Kustanaidorproject PRI» LLP to the residents of Aktogai district of Karaganda oblast.

The objective of the public hearings is discussion of «Center-South» project of «Balkhash-Burybaital» road, familiarization of local residents with Environmental and Social Impacts Assessment, Environment Management Plan and Resettlement Action Plan.

2. Representative of «KazAvtoZhol NC» JSC Gafton I.

After greeting everyone, he thanked them for participation in the public hearings. He noticed the importance of the public hearing and told that the road construction is the main component of «Nurly Zhol» new economic policy of the country. Further, he provided a brief summary of Terms of Reference for the development of «Balkhash – Burylbaital» road reconstruction design, draft of Environmental and Social Impact Assessment and Resettlement Action Plan. The reconstruction and new construction will transform the existing road. He noted the importance of public hearings and said that the main element for economic activities impact on the environment is indicators of environmental situation and social sphere.

In order to comply with the environmental legislation of the Republic of Kazakhstan and decrease adverse impact on the environment and health state of the population that can be caused by the planned activities, environmental and social management plan, as well as mitigation measures for impacts managements are provided.

3. Main Engineer of «Kustanaidorprojet PRI» LLP Grebenyuk E.

He made a presentation showing the main technical details of the project for improvement of «Center-South» road «Balkhash-Burylbaital» road section, which is under the design completion stage at the moment and passed the state expertise.

4. Representative of PMC «KazdorNII/Sapa-SZ», Serdaiyev K.

After greeting and thanking everyone for their participation in the public hearings, he noted the importance of public hearings and said that the main element for economic activities impact on the environment is indicators of environmental situation and social sphere.

In order to comply with the environmental legislation of the Republic of Kazakhstan and decrease adverse impact on the environment and health state of the population that can be caused by the planned activities, environmental and social management plan, as well as mitigation measures for impacts managements are provided.

4. Resident of Saryshagan village

Question: Will the local population be employed during road construction?

Answer: The project stipulates the employment of the local population during road construction.

5. Akim of Saryshagan village of Aktogai district of Karaganda oblast.

Question: Is the ACP location the same according to our last suggestion?

Answer: Yes, ACP location is on the same level.

### **Public Hearings Conclusions**

Based on the results of considerations and discussion of the developed technical decision on the project reconstruction and documents on ESIA, Resettlement Action Plan and based on “no objection” and upon consensus in regard to the fact that the planned activities will not significantly affect environment and health state of the population adversely, the following has been summarized:

The developed design of «Center-South» road reconstruction project of «Balkhash-Burylbaital» road and draft ESMP was clarified and approved with the public and population of Saryshagan district of Karaganda Oblast.

**Public Hearings Chairman:**

**Akim of Saryshagan village of Aktogai district  
of Karaganda oblast Abikeyev M.**

**signature**

**Public Hearings Secretary**

**Specialist of Administrative office of Akim of Saryshagan village  
of Aktogai district of Karaganda oblast Tazheeva R.**

**signature**

## **MINUTES OF PUBLIC HEARING**

### **Public Hearings conducting**

#### **Shyganak village of Moiynkum district**

**Date:** April 19, 2017, 10:00 am

**Venue:** Administrative office of akim of Shygnak rural district of Moiynkum district of Zhambyl oblast

**Public hearings have been organized by:** Akimat of Shyganak rural district of Moiynkum district of Zhambyl oblast, CfR MID RK, «KazAvtoZhol NC» JSC

**Information about public hearings has been provided to the public through:** Announcement

**Participants:** residents of Moiynkum district, representatives of local executive authorities, representatives of CfR MID RK, «KazAvtoZhol NC» JSC, PMC «KazdorNII/Sapa-SZ», «Kazdorproject PRI» LLP (list of participants is attached)

#### **Agenda:**

- Familiarization of the public with «Center-South» project of «Astana-Karaganda-Balkash-Almaty» road and, in particular, Balkhash-Burybaital road section, which is now a prt of the EWRP financed by the World Bank
- Familiarization of locals with detail design of road reconstruction project that is being developed, as well as Draft Environmental and Social Impacts Assessment and Environmental Management Plan»

#### **Preliminary tasks:**

17. Election of the Public Hearings Chairman;
18. Election of the Public Hearings Secretary;
19. Summarization of the public decision on the subject of the hearings;
20. Time limit on speeches is 3 minutes.

Based on the majority of votes:

V.Zhunusova, akim of Shyganak rural district of Moiynkum district of Zhambyl oblast was elected as Chairman of Public hearings.

N.Meshkova, senior specialist of administrative office of akim of Shyganak rural district of Moiynkum district of Zhambyl oblast, was elected as secretary of public hearings.

#### **Speeches made by:**

1. V. Zhunusova, akim of Shyganak rural district of Moiynkum district of Zhambyl oblast, having greeted all participants, presented to locals the representatives of CfR MID RK, «KazAvtoZhol NC» JSC, PMC «KazdorNII/Sapa-SZ», «Kazdorproject DRI» LLP.
2. The objective of the public hearings is discussion of road reconstruction project and documents on Environmental and Social Impacts Assessment, Resettlement Action Plan and conclusion of Archeological and cultural heritage.

1. Deputy Director of Zhambyl oblast branch of «KazAvtoZhol NC» JSC Tuganova A.

After greeting everyone, she thanked them for participation in the public hearings. Further she explained the summary of Terms of Reference for the development of road reconstruction design and documents on Environmental and Social Impact Assessment, Resettlement Action Plan and conclusion of archeological and cultural heritage.

2. Representatives of «Kazdorproject PRI» LLP.

They made a presentation showing the main technical details of the project for improvement of «Center-South» road project of «Balkhash-Burylbaital» road section, which has been completed at the moment and passed the state expertise.

3. Representative of PMC «KazdorNII/Sapa-SZ», Zeinullina A.

After greeting and thanking everyone for their participation in the public hearings, she noted the importance of public hearings and said that the main element for economic activities impact on the environment is indicators of environmental situation and social sphere.

In order to comply with the environmental legislation of the Republic of Kazakhstan and decrease adverse impact on the environment and health state of the population that can be caused by the planned activities, environmental and social management plan, as well as mitigation measures for impacts managements are provided.

1. Resident of Shyganak village

Question: Could you please indicate which land plots are affected by permanent land acquisition?

Answer: According to land code of RK and Law of RK «About state property», the Decree of the relevant akimat with established list will be issued. Further akimat will hold relevant events according to current legislation. Moreover, in accordance with current legislation of RK local executive bodies are engaged with land acquisition.

2. Resident of Shyganak village.

Question: Will the lighting be on rest areas? If yes, can we cable up to power transmission line?

Answer: The project stipulated rest area with lighting, toilet and waste bin. You can cable up by getting relevant technical conditions according to standards.

3. Resident of Shyganak village

Question: Can we buy back land plot on rest area?

Answer: No. Rest areas will be on state balance and they are not subject to private property.

4. Resident of Shyganak village

Suggestion: It is necessary to include bus stop into Ulken v. of Zhambyl district of Almaty oblast.

Answer: Your proposal has been accepted and will be considered in accordance with standards.

5. Resident of Shyganak village

Question: Will cattle passes be on future road?

Answer: Project stipulated cattle passes in Shyganak village and they agreed by local executive bodies.

6. Resident of Shyganak village

Question: How have guard rails been designed?

Answer: Project stipulates guard rails in two directions in the centre of road.

7. Representative of «Inspection of transport corridor of Zhambyl oblast» RSE

Suggestion: To stipulate the platform for weighing and measurement of overall parameters of vehicles in Shyganak v.

Answer: Your suggestion will be considered in accordance with valid standards.

8 Resident of Shyganak village

Question: What pavement will be on the future road?

Answer: The project stipulates asphalt concrete pavement.

### **Public Hearings Conclusions**

Based on the results of considerations and discussion of the detail design, as well as Draft ESMP, and based on “no objection” and upon consensus in regard to the fact that the planned activities will not significantly affect environment and health state of the population adversely, the following has been summarized:

The developed «Center-South» road reconstruction project of «Astana-Karaganda-Balkhash-Almaty» road was clarified and approved with the public and population of Moiynkum district of Zhambyl Oblast.

### **Public Hearings Chairman:**

**Akim of Shyganak rural district of Moiynkum district  
of Zhambyl oblast Zhunusova V.**

**signature**

### **Public Hearings Secretary**

**Senior Specialist of Administrative office of Akim  
of Shyganak rural district  
of Moiynkum district of Zhambyl oblast Meshkova N.**

**signature**