

Bi-Annual Environmental Monitoring Report

Project Number: 45389-004
January 2018

AZE: Second Road Network Development Investment Program, Tranche 2

Prepared by AzerAvtoyol Open-Joint Stock Company for the Republic of Azerbaijan and the Asian Development Bank.

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CURRENCY EQUIVALENTS

(As of 31 January 2018)

Currency Unit – Azerbaijan New Manat (AZN)

AZN 1.00 = USD 0.592

USD 1.00 = AZN 1.689

ABBREVIATIONS

ADB	–	Asian Development Bank
AAY	–	AzerAvtoyol Open Joint Stock Company
EIA	–	Environmental Impact Assessment
EMP	–	Environmental Management Plan
EMS	–	Environmental Management System
GRM	–	Grievance Redress Mechanism
SEMP	–	Site Environmental Management Plan

WEIGHTS AND MEASURES

cm	–	centimeter
km	–	kilometer
l	–	liter
m	–	meter
mg	–	milligram

Bi-annual Environmental Monitoring Report

January 2018

Republic of Azerbaijan:

Road Network Development Program, Project: Tranche 2
Construction Supervision of the Alat-Astara Highway
Jalilabad Intersection to Shorsulu Intersection

(Financed by the Asian Development Bank)

31st December 2017

Report 4: 1st July 2017 to

Project Number: 45389-004

Loan: 3144-AZE

Prepared by **AzerAvtoyol OJSC** for the Asian Development Bank (ADB)

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Abbreviations

ADB	Asian Development Bank	The Funding Agency
AQP	Air Quality Plan	
AOJSC	AzerAvtoyol Open Joint Stock Company	The Executing Agency
CC	Construction Contractor (Kolin)	The Construction Contractor
CCP	Plan for Construction Camps	
EIA	Environmental Impact Assessment	
EIS	Environmental Impact Statement	
EMP	Environmental management plan	
EO	Environmental Officer	
ERP	Emergency Response Plan	
GRM	Grievance Redress Mechanism	
HDDV	Heavy Duty Diesel Vehicles	
HSP	Health and Safety Plan	
Kolin	Kolin Construction Tourism Industry & Trade Co. Inc.	The Construction Contractor (CC)
MENR	Ministry of Ecology and Natural Resources	
PIU	Policy Implementation Unit	Implementation Unit of the Executing Agency
SC	Supervision Consultant (TERA)	The Supervision Consultant
SSEMP	Site Specific Environmental Management Plan	Contractor Generated Document
TERA	TERA International Group. Inc	The Supervision Consultant (SC)
WMP	Waste Management Plan	
END		

I. PART I -INTRODUCTION

A. Project Information, Construction activities and progress during last 6 months

1. General information

1. The Project, comprises a section of the Alat-Astara Motorway (M3), commences at the Bilasuvar Interchange (Km80+600) and runs in a generally south westerly direction ending at the Jalilabad Interchange (Km 110+700). It forms part of the road connection from Baku to the Iranian border (at Astara). The road alignment passes through the Mahmudchala and Akchala wetlands. The location of the alignment within Azerbaijan is shown in Figure 1 and a schematic arrangement of the project is presented in Figure 2.

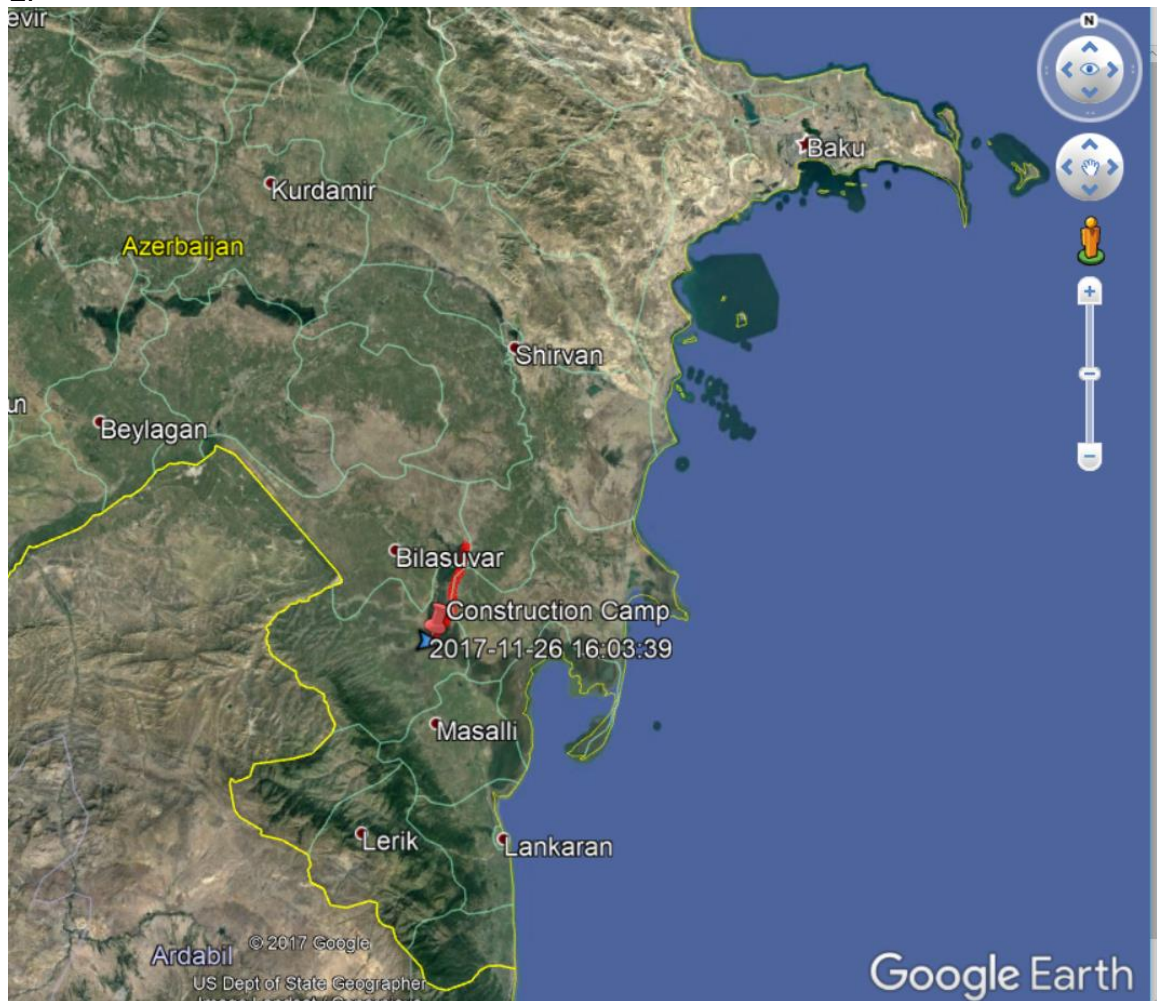


Figure 1: Location of the alignment within Azerbaijan

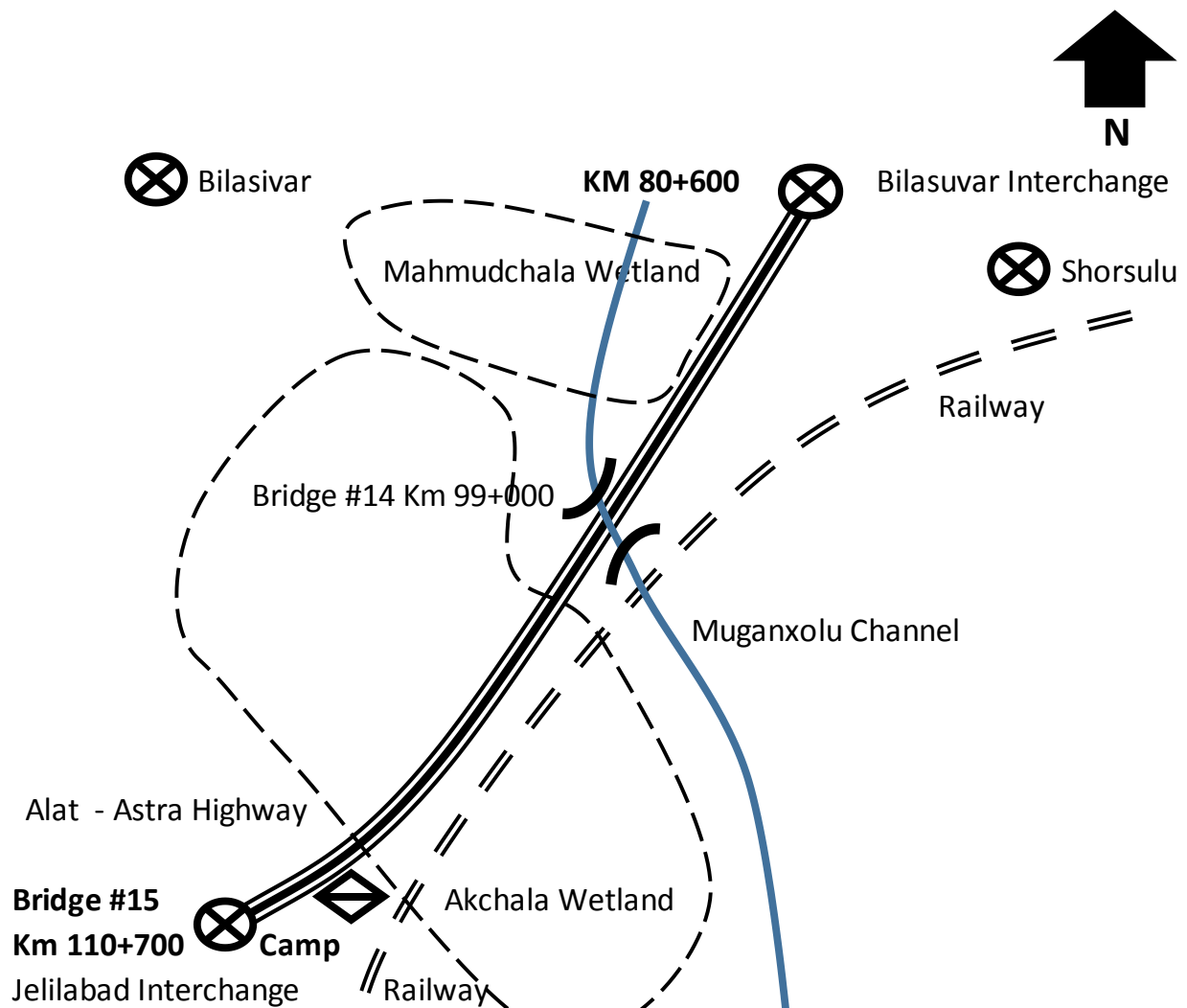


Figure 2: Schematic arrangement of the alignment

2. The Executing Agency for the project is the AzerAvtoyol Open Joint Stock Company (AOJSC).
3. An Environmental Impact Assessment (EIA) was carried out for the project in 2007 and included an Environmental Management Plan (EMP) that set out the environmental requirements for the project. The EIA report was approved by AOJSC and Asian Development Bank (ADB) in 2012¹, and has served as a basis for the development of the specification and contract documents, and for the preparation of the Contractor's Site Specific Environmental Management Plan (SSEMP).
4. The SSEMP includes a set of 4 main plans (Camp, Workshop, Plant Operation and Road Construction) and 8 sub plans (Water, Air Pollution, Noise, Waste, Soil, Site Drainage, Borrow Pit, Flora & Fauna and Cultural and Archaeological Find and Grievance Redress Mechanism).

¹ ADB project 45389-001 in Azerbaijan. Second Road Network Development Investment Program: Masalli (Sarcuvar) Interchange to Shorsulu (Bilasuvar) Interchange. <http://www.adb.org/projects/documents/second-road-network-development-investment-program-masalli-to-shorsulu-interchange-eia>

5. The Supervision Consultant (SC) appointed by AOJC is TERA International Group. Inc. (TERA). The Contract is Design and Build (DB)² and the Construction Contractor (CC) is Kolin Construction Tourism Industry and Trade Co. Inc. (Kolin).

6. In preparing this document the following reports have been referenced:

- Project Environmental Impact Assessment (2012);
- Site Specific Environmental Management Plan (KOLIN 2016)
- SSEMP for Akchala & Mahmudchala Wetlands (KOLIN 2016)
- SSEMP Quarterly Report 7 [July to Sept 2017] (KOLIN Oct 2017)
- SSEMP Quarterly Report 8 {Oct to Dec 2017} (KOLIN Dec 2017)
- Air Quality Noise and Vibration Monitoring August 2017 (KOLIN 2017)
- Air Quality Noise and Vibration Monitoring November 2017 (KOLIN 2017)
- 6th AIDS Training for Construction Workers August 2017 (KOLIN 2017)
- 7th AIDS Training for Construction Workers November 2017 (KOLIN 2017)
- 4th Public Consultation for People located near the Project Road – Aug 2017 (KOLIN 2017)
- Training to protect turtles moving across the Alignment 27/ 9/ 17 (KOLIN 2017)
- Turtle Training 10th September 2017 (TERA 2017)
- Environmental Management Reports - July to December 2017 #16 to #21 (KOLIN 2017)
- Monthly Progress Reports – July to December 2017 #7 to #12 (KOLIN 2017)
- Site Audits by TERA
- Complaints Log (Held by KOLIN)
- Grievance Redress Mechanism Log (Held by TERA)
- Turtle Log (KOLIN 2017)
- Minutes of Monthly Progress Meetings July to December 2017

2. Progress in the last 6 months

7. During the reporting period, the CC (KOLIN) has substantially completed all of the embankment works and there has been no rock extraction from the Asurlu quarry (rock). Material in the main stockpiles at camp has been processed and the crushing plant is no longer active. Inert fill has been taken from Alar, Bilesuvar, and Sabirabad for use as fill in the embankments, but these sites are no longer required and are being rehabilitated.

8. In August 2017 the CC started to use bitumen products in the construction as: prime coat; bitumen base; and binder. Rather than develop an asphalt plant on site the CC has elected to source bitumen products and asphalt from an existing (approved and licensed) Kolin facility immediately to the south of this project. The construction of embankments and the incorporation of bitumen products into the permanent works are set out in Figure 3.

²Design and Build is a method to deliver a project in which the design and construction services are contracted by a single entity (the Design and Build Contractor in this case is the CC (Kolin)).

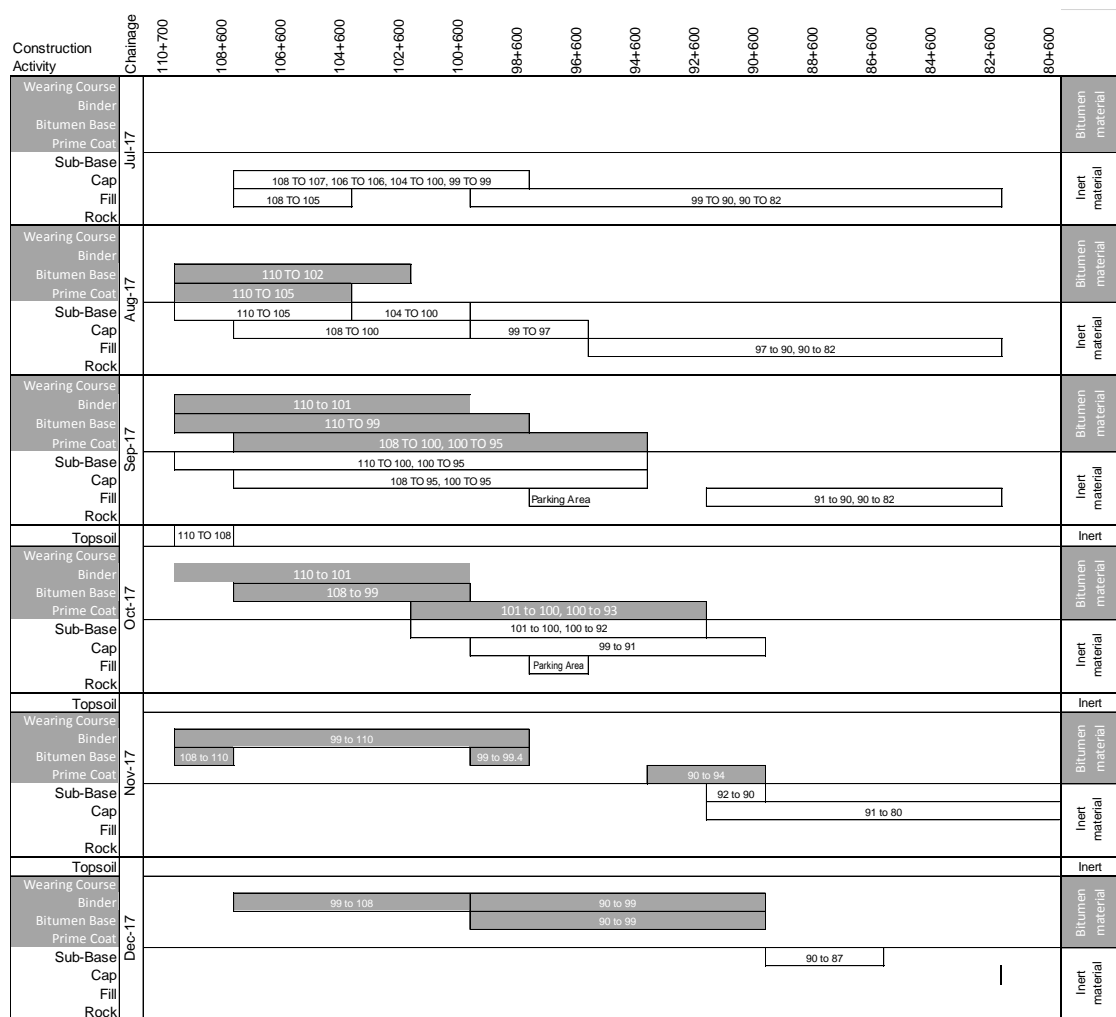


Figure 3: Embankment construction – Incorporating Inert and bitumen products into the works

9. The incorporation of precast edge drainage products into the works commenced during the reporting period. Manufacturing of pre-cast concrete culvert sections and drainage structures is carried out in a dedicated manufacturing area, inside the camp boundary.
10. Construction of in-situ concrete structures continues on the alignment and is sourced from the concrete batching plant inside the camp boundary. Culverts and crossings around Km 83 are approaching completion. The bridge structure at Km 99 is complete and concrete works on the bridge crossing the alignment at Km110 are complete. Embankment works are almost complete (only the northern section remains and embankment trimming). Other drainage structures and vehicle crossing points constructed in-situ are complete.




B. Objectives of Biannual Environmental Reporting

11. The purpose of the Bi-annual Environmental Monitoring Reports is to provide a summary of the key issues relating to environmental management over the past six months. The summary includes an update on overall project progress, the status of Site Environmental Management Plan (SSEMP) implementation, environmental monitoring results, and other issues such as non-compliance and corrective actions, and monitoring of the Grievance Redress Mechanism (GRM).

C. Site Activities

12. The 30.1 Km. site has been handed over to the CC and Formation of Embankment in both wetland area by rock material and dry areas is now complete. In addition manufacturing of Pipes, Construction of Pipe & Box Culverts, Road Underpasses, Pre-stressed Girders, Test Piles, Working Piles, Piers, Transoms, laying of capping layer etc. are reaching completion. General construction items and materials have been procured. Aggregate production for subbase and asphalt is complete with sufficient stockpiles for the remaining works, supplemented by supplies from the commercial Behramtepe quarry and processing facility rather than processing material in the camp manufacturing area.
13. In July to November 2017, warm and dry weather conditions have allowed good progress and it is anticipated that the Contractor can meet the planned completion date. Though the weather became cooler and wetter in December, construction was able to continue.
14. Kolin has acquired a lease on land at km 110 +700 and established a construction camp (including office and residential accommodation and canteens) and a manufacturing area (concrete batching, precast concrete units manufacture and laboratory testing). There are material stockpiles in the manufacturing area but crushing and grading activities have ceased.
15. During the reporting period the CC has transported material from, Alar quarry, Bilesuvar quarry, Sabirabad Quarry, Bahramtapa Quarry and Vilash quarry. However, by the end of the reporting period material was only sourced from Behramtepe. These quarry operations are commercial concerns and the CC has no part in the extraction or processing activities.

16. Kolin opened and operated quarries at Yardimli and Asurlu (rock), Alar and Sabirabad (Sand). These sites have now ceased operation and the following figure shows the historic and current status of the sites. Other sites at Lankaran (river stone) were used by multiple operators and the site at Behramtepe is a commercial quarry operation where the contractor is sourcing processed product.

Yardimli		21 April 2016
		21 Nov 2016
		21 November 2017
Asurlu		



21 Nov 2016



21 Nov 2017

Sabirabad (operated with Alar to the North)



21 Nov 2016

Alar (operated with Sabirabad to the South)	
	21 November 2017

17.

Table 2: Progress by percentage of contract sum

From Monthly Progress Meeting 16 November 2017		Notes
Contract Time Elapsed (up to November 2017)	61.6%	
Planned Progress (Revised work programme)	71.48%	
Actual progress (Revised cash flow)	70.35%	1.13% delay

D. Project organization and environmental management team

18. The organization structure is shown in the following figure.

Figure 5: Organization Structure for the Project

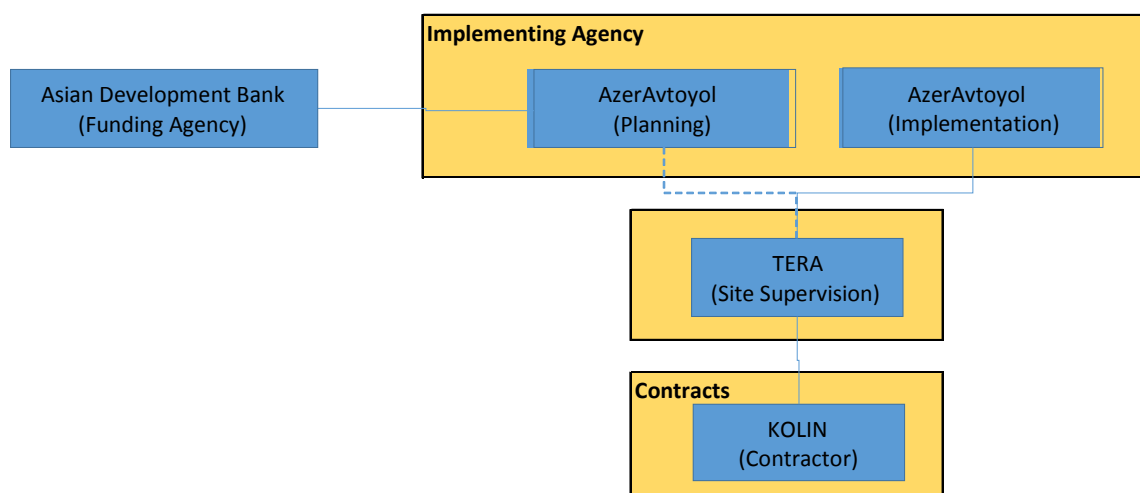


Table 3: Environmental Management Team active on project

Organization	Name	Title	Responsibilities	On project
AzerAvtoyol OJSC PIU	Arastun Guliyev Yusuf Atakishiyev	Social and Environmental Specialist	Responsible ensuring for the delivery of the project in line with Republic of Azerbaijan and ADB's social and environmental requirements	Meeting with TERA in Baku (28 Nov 2017). On site with ADB (5 Dec 2017)
TERA (SC)	Andrew Taylor	International Environmental Specialist	Confirming acceptable levels of environmental performance on site in line with the EIA and environmental legislation of the Republic of Azerbaijan	(1) 31 Mar 2016 to 28 Apr 2016 (2) 17 Nov 2016 to 27 Nov 2016. (3) 6 Nov 17 to 6 Dec 2017
	Alizamin Mustafayev	National Environmental Specialist	Day to day observation and recording of environmental performance on site of the Contractor.	From 11 Feb 2016 to date
	Prof. Luca Luiselli	Turtle Expert	Assessment of turtle population on site and production of Turtle Action Plan	25 Apr 2016 to 7 May 2016
KOLIN (CC)	Hafiz Abilhasanov	Environmental Manager	Confirm that the works are being carried out within the requirements of legislation of the	Day to day observation
	Elchin Kerimov	Health and Safety Officer		

		Environmental Protection Team	Republic of Azerbaijan, the EIA and its associated EMP and the Contractor SSEMP	
		Turtle Catch Group	Implement the turtle management plan, ensure fencing, notices are in place and workers are aware of turtle issues	
Asian Development Bank Resident Mission in Baku	Shahin Isayev	National Environmental Safeguards Specialist	Confirming that the works are being implemented in line with ADB policy and the specific requirements of the Environmental Impact Assessment prepared for the project	On site with PIU 5 Dec 2017)
	Elshen Rustamov	National Social Safeguards Specialist		

E. Relationships with contractors, owner, lender, etc.

19. The relationships between Funding Agency (ADB), Implementing Agency (AzerAvtoyol), Supervision Consultant (TERA) and Contractor (Kolin) are considered to be normal working relationships.

20. At the working level, communication with regards to environmental issues remains good and interaction with the public is good.

Table 4: Contractors environmental management subcontractors on the project

Activity area	Organization	Description of work
Laboratory	KOLIN	The CC (KOLIN) operate a materials testing facility in the construction camp. The facility is audited by TERA under the requirements of the Quality Plan. There is no environmental testing carried out onsite by KOLIN
Environmental Monitoring	EKO-LAB LLC of Azerbaijan	Carry out noise, air and water quality sampling. Water quality testing is carried out by the Azerbaijan National Laboratory
Solid Waste Management	KMK of Jalilabad	Collect solid waste from camp twice each week and transport it to the Jalilabad

		municipal facility for disposal.
Liquid Waste Management		Collect Liquid waste from camp septic tanks twice each week and transport it to the Jalilabad municipal facility for disposal.

II. PART II - ENVIRONMENTAL MONITORING

A. Physical monitoring of water, noise, vibration and air quality

1. Water Quality

21. In terms of water quality the construction of a bridge over the Muganxolu channel, a primary watercourse between the Mahmudchala and Akchala wetland areas, is identified as a potential water quality impact area and monitoring points were identified upstream and downstream from Bridge (Km 99+000). There is no specific requirement in the EIA for regular physical monitoring but pre construction and post construction monitoring will be carried out in addition the the weekly visual inspections by CC and SC. Figure 6 indicates the location of the water quality monitoring points. The pre-construction monitoring exercise was carried out in 2016 and post construction monitoring will be conducted in 2018. During works, the location was visually inspected on a daily basis to confirm that there were no incidents of silty runoff and identifiable pollution by petroleum products in the watercourse.



Figure 6: Water quality monitoring at the Muganxolu channel bridge crossing (Km 99+000)

Source: Approved CEMP

2. Noise, vibration and water quality

22. The camp is considered to be a potential source of noise and dust impact due to the presence of a large manufacturing area (rock stockpiling and processing and operation of a concrete batching plant). The manufacturing area includes rock crushing and grading, concrete batching, vehicle maintenance and a concentration of vehicle movements. The camp is located immediately to the west of Uzuntepe village and monitoring points are located at the closest sensitive receivers to the camp boundary. Figure 7 is a schematic of the camp showing its noise and dust generating activities in relation to Uzuntepe village.

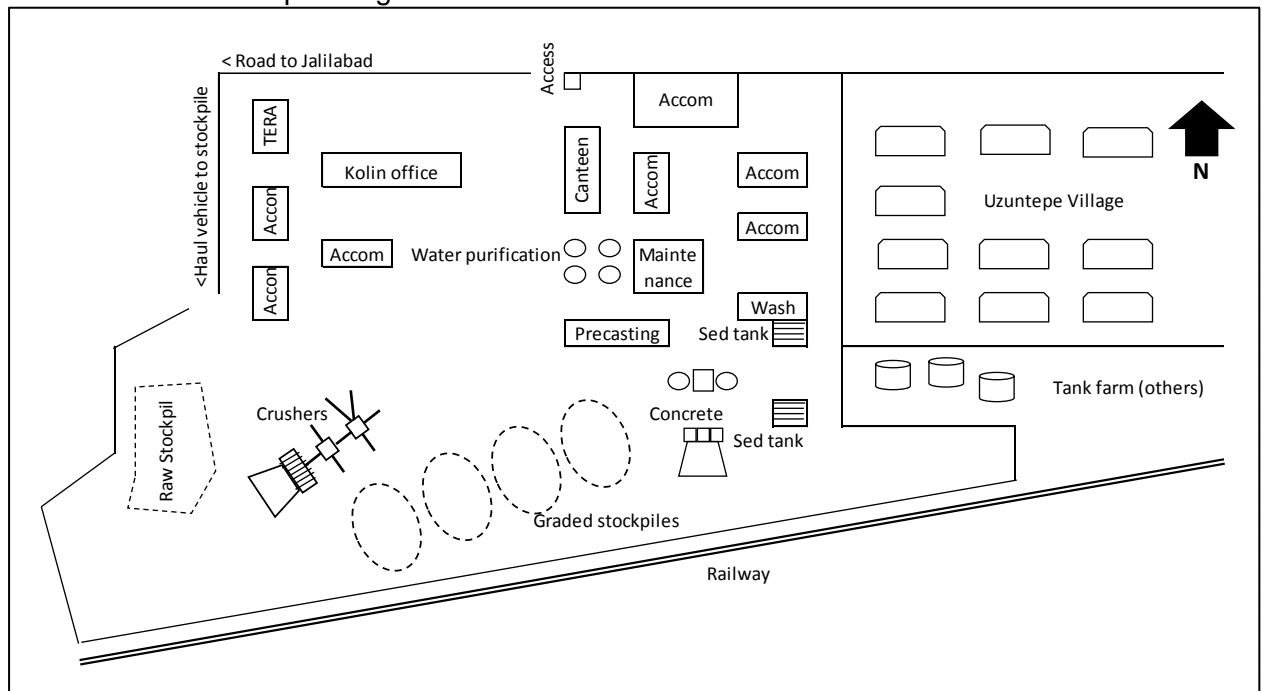


Figure 7: Schematic of Camp at Km 110+600 and proximity to Uzuntepe village

23. The Contractor operated a major sand extraction for fill material at Sabirabad and Alar about 1 Km north of the camp / Uzuntepe village. Operation of this borrow area has potential to generate adverse noise and dust impact and a sampling point was included to monitor levels of impact.
24. Therefore, air, noise and vibration monitoring points have been identified at three locations in Uzuntepe Village (immediately east of the camp see Figure 8) and the sand borrow pit (located north of Uzuntepe Village see Figure 9). All works have been completed at the sand borrow areas but a round of monitoring was carried out in November 2017.

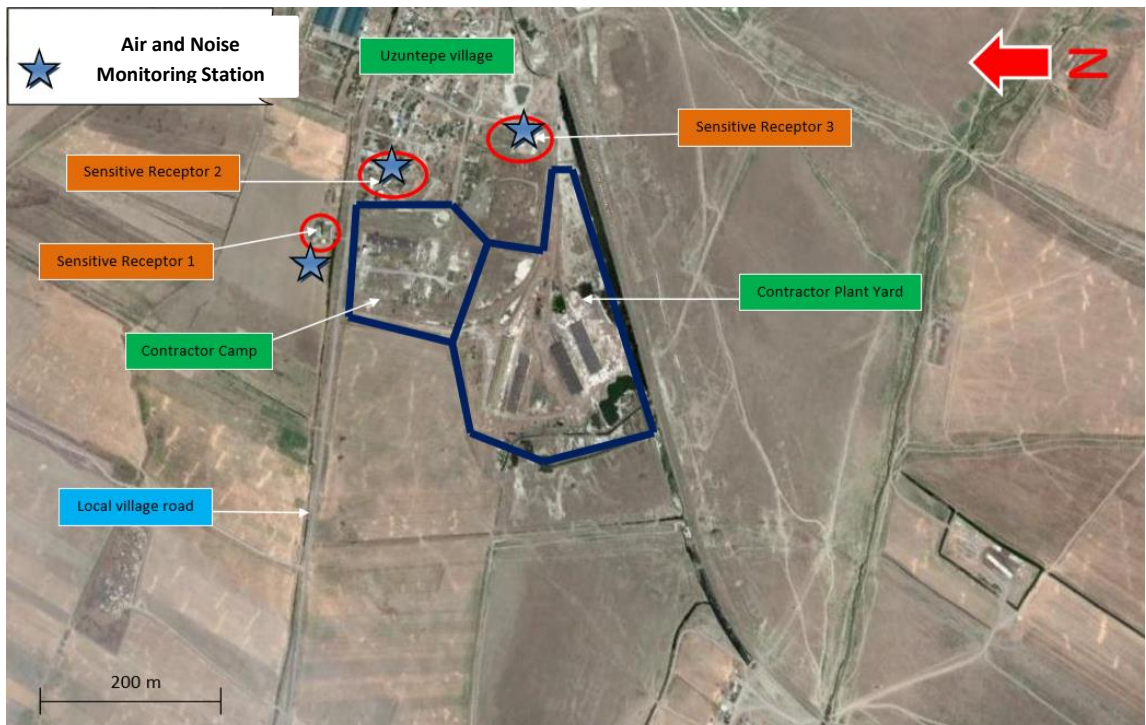


Figure 8: Location of three air, noise and vibration monitoring points close to Camp

Source: Approved CEMP

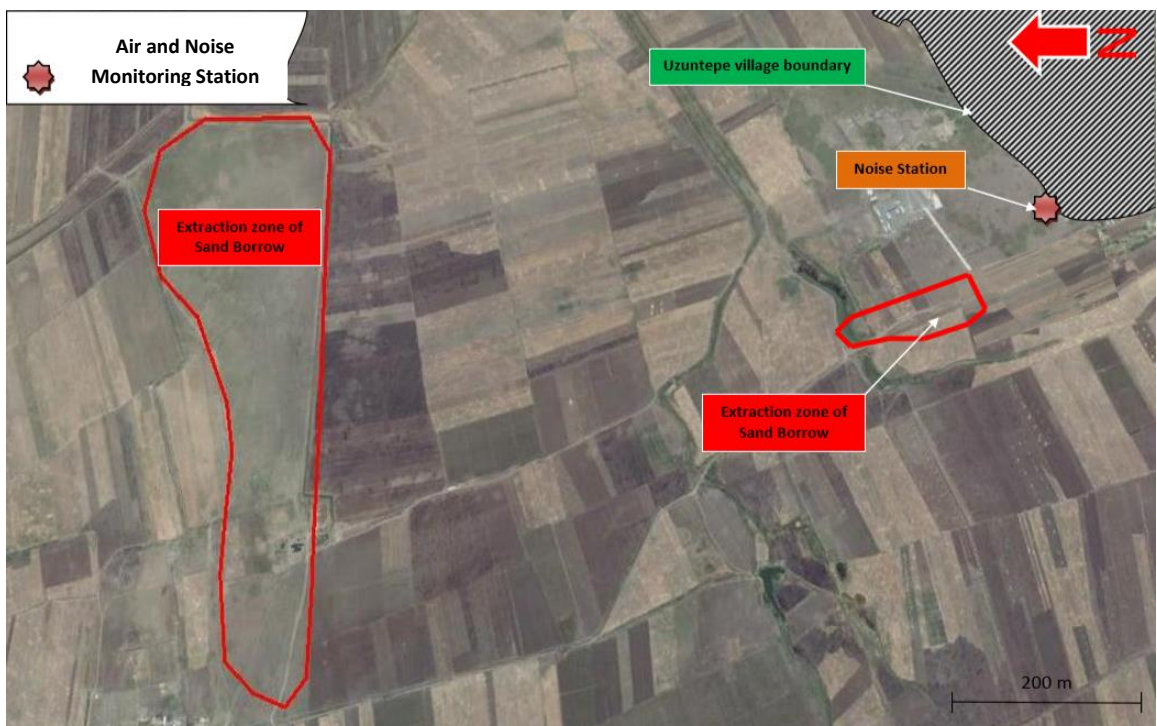


Figure 9: Location of air, noise and vibration monitoring points south of sand borrow (Sabirabad)

Source: Approved CEMP

3. Physical air, noise and vibration monitoring programme

25. Pre-construction monitoring was carried out on 7th February 2016. The monitoring comprised six air quality, noise and vibration monitoring locations and one water quality site at Muganxolu channel (upstream and downstream from Bridge No1 Km 99+000).

2016 year monitoring of air, noise and vibration

The first round of construction phase monitoring was carried out on May 21, 2016.

The second round of construction monitoring was carried out on August 06, 2016.

The third round of construction monitoring was carried out on November 13, 2016

2017 year monitoring of air, noise and vibration

The fourth round construction monitoring was carried out on February 18, 2017.

The fifth round construction monitoring was carried out on May 21, 2017

The sixth round of construction monitoring was carried out on 5 Aug 2017

The seventh round of construction monitoring was carried out on 5 November 2017.

B. Monitoring Results

26. The following tables set out the results of the pre-construction and ongoing construction phase environmental monitoring programme.

Table 5: Pre-construction Water Quality Monitoring Results (at Muganxolu channel)³

Parameter	Units	Upstream	Downstream	Allowable
pH		6.8	7.0	6.0 – 9.0
Conductivity	X10 ³ cm/cm	0.180	0.182	-
Limpidity	cm	16.7	16.8	>30
Turbidity	mg/l	18.4	18.6	>30
Dissolved Oxygen O ₂	mg/l	4.1	4.2	4.6 – 6.0
BOD	mg/l	2.3	2.4	3
Roughness		5.1	5.2	7.0
Calcium Ca ²⁺	mg/l	128.1	129.0	180
Magnesium Mg ²⁺	mg/l	43.2	43.4	200
Chloride Cl ⁻	mg/l	144.8	145.0	350
Sulphate SO ₄ ²⁻	mg/l	221.3	221.4	500
Bicarbonate HCO ₃ ⁻	mg/l	198.2	198.4	-

³ Post construction monitoring of the channel will be carried out in 2018. There has been weekly visual inspection of the channel as part of ongoing monitoring and audit

Na ⁺ & K ⁺	mg/l	168.4	167.8	-
Sum of Ions	mg/l	904.0	905.1	1000
Ammonium NH ₄ ⁺	mg/l	0.434⁴	0.435	0.39
Nitrite NO ₂ ⁺	mg/l	0.012	0.012	0.02
Nitrate NO ₃ ⁺	mg/l	6.4	6.6	9.0
Oil & grease	mg/l	0.002	0.002	0.05
E-coli	Per liter	837	840	1000
Total SS	mg/l	0.238	0.240	0.25
SSAM	mg/l	0.03	0.04	0.1
Phenol	mg/l	0.0001	0.0001	0.001

Note: A post construction monitoring exercise will be carried out in 2018. Daily visual inspection has been carried out in the reporting period.

Table 6: Air Quality Monitoring Results

	Air Quality Close to the Camp (Uzuntepe village)											
	N of camp			E of Camp			SE of camp			S of sand borrow		
Units (mg/m³)	Dust	NO ₂	CO	Dust	NO ₂	CO	Dust	NO ₂	CO	Dust	NO ₂	CO
Allowable	0.5	0.085	5	0.5	0.085	5	0.5	0.085	5	0.5	0.085	5
09:00 7 Feb 16 Pre-construction	0.1	0.32 ⁵	1	0.1	0.034	1	0.1	0.035	1	0.2	0.038	2
11:30 21May2016	0.3	0.045	2	0.3	0.042	3	0.2	0.040	2	0.3	0.048	3

⁴ The reason for the elevated ammonium reading is not known. The source could be agricultural (fertilizer spill of livestock waste), it is unlikely to be urban or industrial in this rural area. There was no evidence of toxicity in the watercourse (fish distress / die off).

⁵ The 0.32mg/m³ result could be a transcription error, as the other results on the same day were 0.034, 0.035, 0.038, 0.039 and 0.036mg/m³.

11:30 6 Aug 16	0.3	0.040	3	0.3	0.048	3	0.2	0.042	3	0.3	0.044	3
11:30 13 Nov 2016	0.2	0.032	1	0.2	0.043	2	0.2	0.036	2	0.3	0.03	1
11:30 18 Feb 17	0.1	0.037	1	0.1	0.039	1	0.1	0.036	1	0.1	0.042	2
11:30 21 May 17	0.3	0.048	2	0.2	0.050	2	0.2	0.045	2	0.3	0.042	2
11:30 5 Aug 17	0.3	0.045	3	0.3	0.057	3	0.3	0.046	2	0.3	0.044	2
11:30 5 Nov 17	0.2	0.041	2	0.2	0.053	2	0.2	0.040	2	0.2	0.045	2

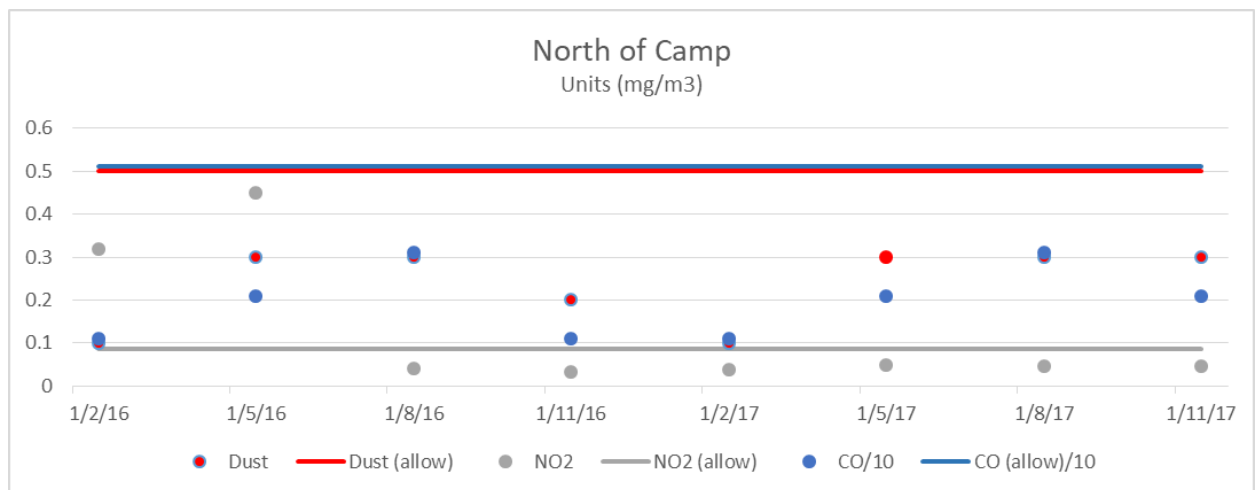


Figure 10: Air Quality Monitoring North of Camp – graphical representation

Note: For presentation purposes the Carbon Monoxide (CO) results have been reduced by a factor of 10

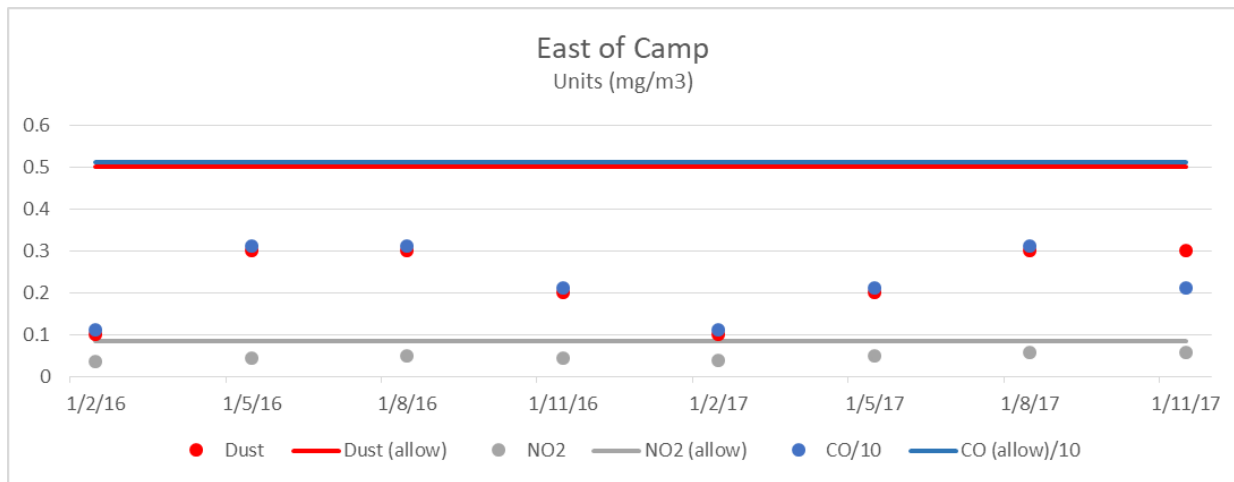


Figure 11: Air Quality Monitoring East of Camp – graphical representation

Note: For presentation purposes the Carbon Monoxide (CO) results have been reduced by a factor of 10

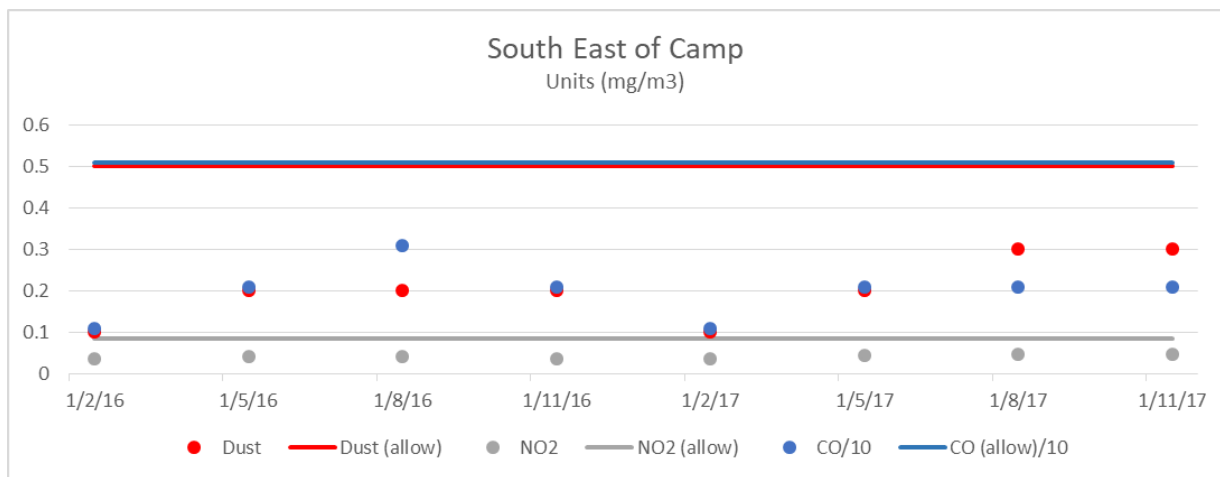


Figure 12: Air Quality Monitoring South East of Camp – graphical representation

Note: For presentation purposes the Carbon Monoxide (CO) results have been reduced by a factor of 10

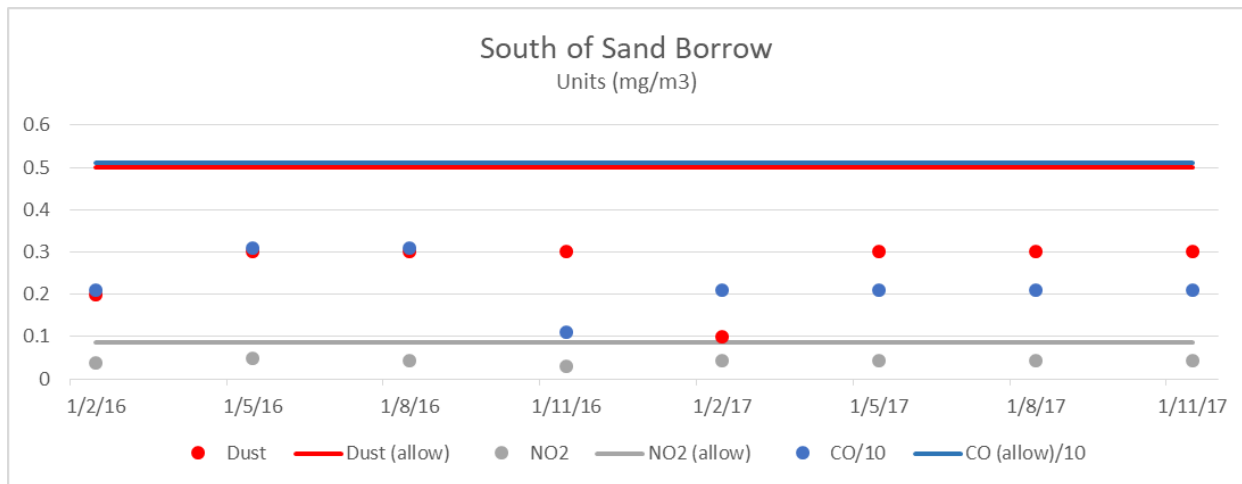


Figure 13: Air Quality Monitoring South of Sabirabad borrow area – graphical representation

Note: For presentation purposes the Carbon Monoxide (CO) results have been reduced by a factor of 10

27. The air quality monitoring carried out in the reporting period indicates that construction dust and vehicle emissions (Nitrogen di-oxides [NO₂] and Carbon mon-oxide [CO]) emissions are within the allowable criteria.

Table 7: Noise Monitoring Results

Noise Close to the Camp (Uzuntepe village)				
Units (dB)	N of camp	E of Camp	SE of camp	S of sand borrow
Allowable	70	70	70	70
09:00 7 Feb 16	59.4	50.0	56.7	59.4
11:30 21 May 2016	57.2	51.9	49.0	45.6
11:30 6 Aug 2016	50.7	47.8	51.7	49.1
11:30 13 Nov 2016	46.4	42.4	49.7	40.7
11:30 18 Feb 17	52.3	47.4	46.8	48.5
11:30 21 May 17	49.3	48.6	45.7	48.2
11:30 5 Aug 17	49.2	43.9	48.9	47.5
11:30 5 Nov 17	48.4	42.6	47.1	47.9

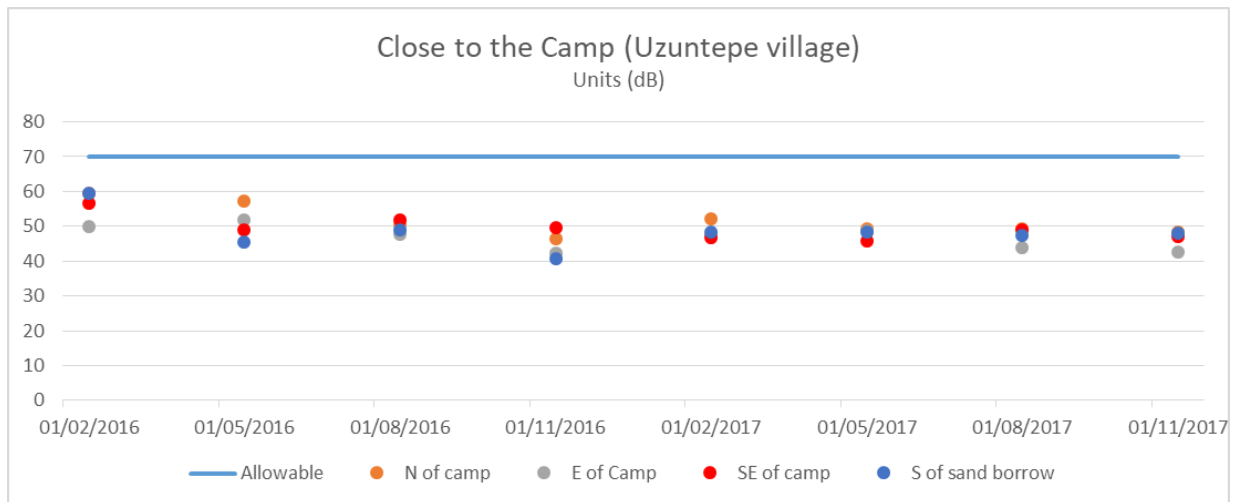


Figure 14: Noise Monitoring – graphical presentation

28. Noise monitoring carried out in the reporting period indicates that construction noise is being maintained within allowable criteria.

Table 8: Vibration Monitoring Results

Vibration Close to the Camp (Uzuntepe village)				
Units (dB)	N of camp	E of Camp	SE of camp	S of sand borrow
Allowable	77	77	77	77
09:00 7 Feb 16	65	56	63	65
11:30 21 May 2016	64	58	47	52
11:30 6 Aug 17	57	54	59	46
11:30 13 Nov 2016	52	49	56	47
11:30 18 Feb 17	58	52	51	54
11:30 21 May 17	57	56	53	56
11:30 5 Aug 17	59	57	55	56
11:30 5 Nov 17	54	50	52	55

Allowable levels from: DUST 17187 (State General Standards & Requirements), (presidential decree No 796, 8th of July, 2008)

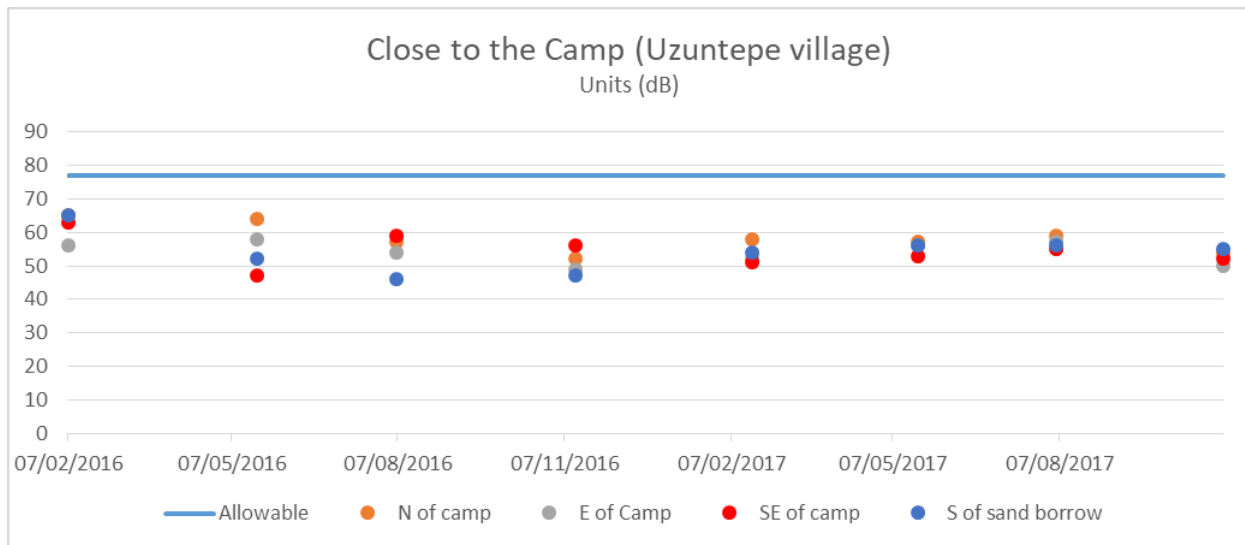


Figure 15: Vibration Monitoring – graphical representation

29. Vibration monitoring carried out in the reporting period indicates that vibration levels are being maintained within the allowable criteria.

III. PART III - ENVIRONMENTAL MANAGEMENT

A. The environmental management system (EMS), site-specific environmental management plan (SSEMP), and work plans

30. The EMS for the project functions procedures identified in the SSEMP that is based on the on the EIA including the Contractors operating procedures and site specific information, that was not known when the EIA was prepared. The SSEMP is made up of a series of four Management plans for Camp operations, Workshop, Plant operation and Road Construction and supporting plans for environmental indicator areas (air, noise, water, etc.) and turtle management (See Figure 16)

31. In addition to daily informal monitoring by the TERA and KOLIN environmental teams there is a joint weekly inspection by TERA and KOLIN of the camp and working sites. Kolin use a monitoring template identified in the SSEMP covering all aspects of the works, TERA use a modified template covering specific site activities. Observations are that work was carried out in accordance with the environmental requirements of the EIA its EMP and the SSEMP during the reporting period. There were no environmental non-conformities recorded in the reporting period, though there were a small number of minor “observations” that the CC dealt with promptly.

B. Status

32. The project is in its second year, in terms of environmental management the key issue is to ensure that the Contractor (Kolin) maintains focus on the environmental requirements of the project and that these requirements are being met, including the necessary environmental documentation and licenses being in place.

C. Documents

33. The guiding environmental documentation used on the project are the EIA and the Contractors SSEMP. The SSEMP is made up of a series of four sub-plans (Management plans for Camp, Workshop, Plant Operation and Road Construction. The Management plans are fed from ten supporting plans representing the environmental indicator areas identified in the EIA (water, air, noise, solid and liquid waste, soil contamination, site drainage / runoff, borrow pits, flora and fauna, cultural heritage and the GRM / complaints mechanism) and a unique turtle management plan for work in wetlands (See Figure 16).

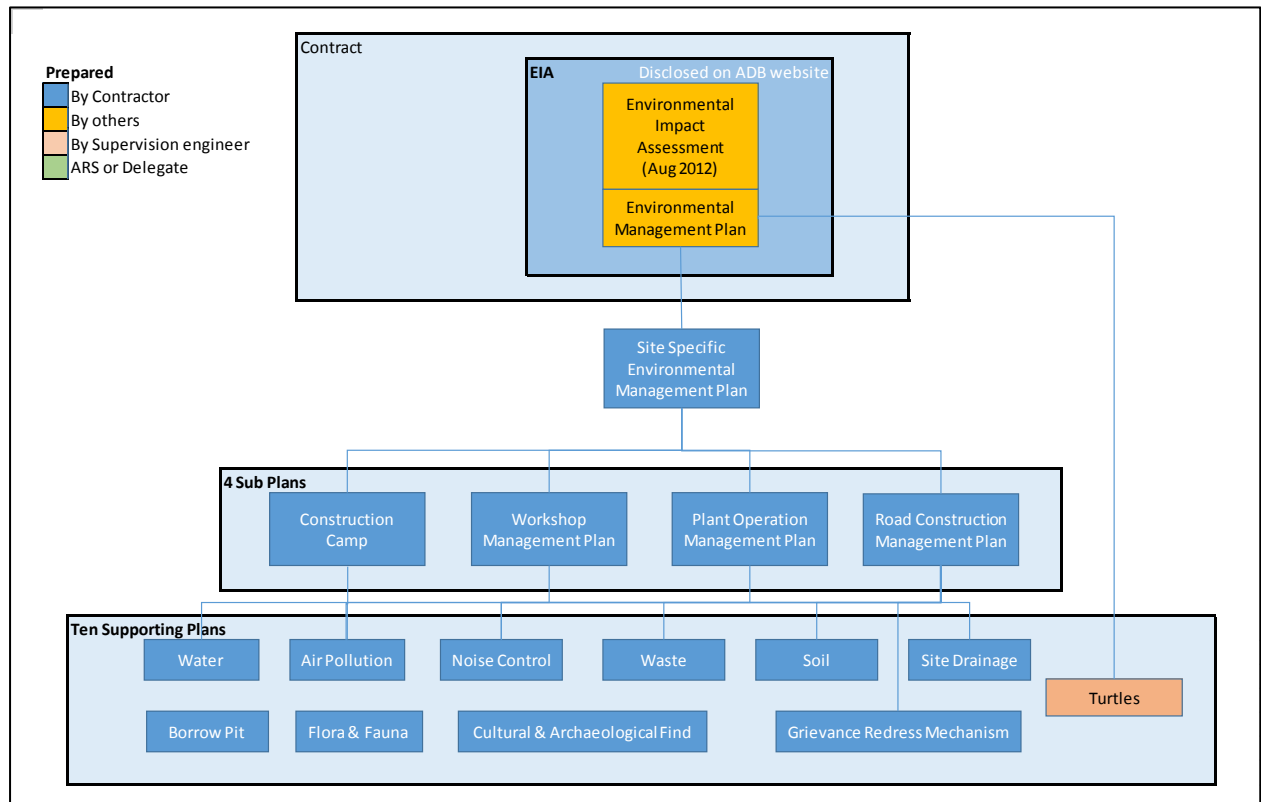


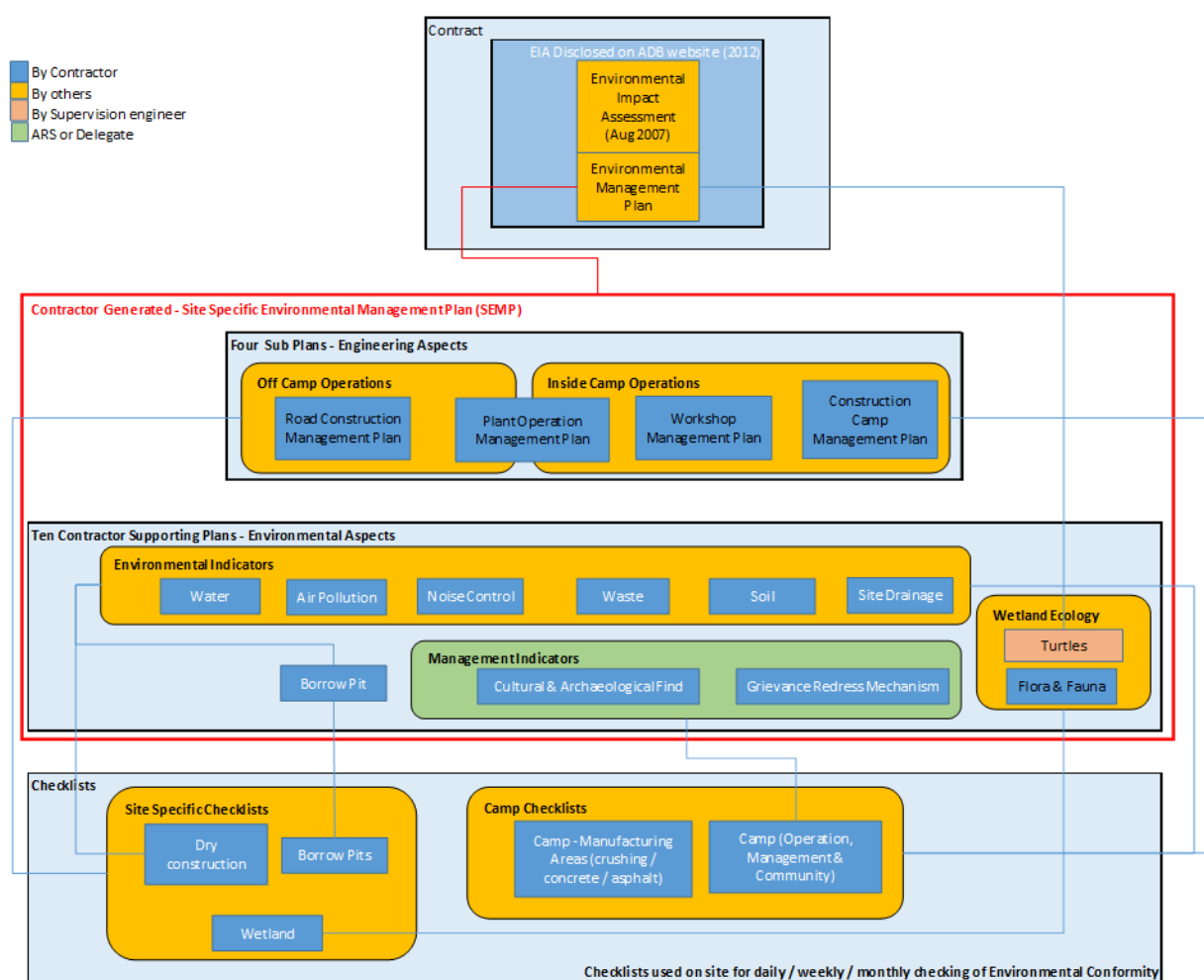
Figure 16: The Environmental Management System for the project

D. Inspections and Audits

1. Inspection procedures and documentation

34. Kolin and TERA carry out weekly site audits covering all operational sites and the camp compound. Kolin use a checklist identified in the SSEMP comprising a single document that covers all work aspects. Kolin have developed this document over a number of years and projects and they find that it provides the detail that they need to monitor environmental performance of the works. TERA use a modified document comprising a series of one page sheets covering specific aspects of the work.
35. The TERA checklists feed from the Contractor generated SSEMP. The following figure illustrates the relationship.

Table 9: TERA checklist concept – Feeding from Contractor SSEMP



36. The TERA checklists cover:

- Camp (including the offices, canteen, recreation areas and accommodation units)
- Crushing plant (including the pre-processing and post-processing stockpiles)(not in use from April,2017)
- Concrete Plant (Including the batching plant stockpiles and settlement tanks);
- Workshop Area (including bundled storage of liquids, wash down& settlement tanks);
- Borrow Pits (Operation activities including dust & noise control, and runoff control)
- Wetland (activities within the wetland)
- Management and Community (Environmental document control, Grievance Redress)

37. The TERA sheets also include options for recording three level of impact:

- Observation – a potential for localized environmental impact but none has occurred;
- Opportunity for Improvement – a recurrent “observation” requiring action but again no incident has occurred.
- Non Conformity – recurrent OFI or an incident has occurred and a Corrective Action Plan (CAP) and staff retraining / education may be required

Table 10: Log of Audits carried out

Date	Weekly Joint monitoring		Monthly TERA Audit by:	Non-conformity
	Kolin	TERA		
6 July 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
13 July 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
21 July 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
27 July 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Alizamin	PPE not being worn; exceedance of speed limits; insufficient signage, site waste not put in bins; additional bins needed; watering of Uzuntapa village road needs extra effort. Resolved.
3 Aug 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
10 Aug 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
18 Aug 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
26 Aug 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Alizamin	Domestic and construction waste not removed from general workshop area. Resolved
9 Sept 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
15 Sept 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
22 Sept 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
29 Sept 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Alizamin	No incidents recorded.
6 Oct 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
16 Oct 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
18 Oct 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
26 Oct 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

2 Nov 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
8 Nov 17			Alizamin / Taylor	No incidents recorded.
9 Nov 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
16 Nov 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
22 Nov 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
29 Nov 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
5 Dec 17			Alizamin / Taylor and Isayev (ADB)	No incidents recorded.
7 Dec 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
14 Dec 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
18 Dec 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
27 Dec 17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

Note: In the reporting period there have only been ‘incidents’ in the “observation” and “opportunity for improvement” category (see para 37) that are addressed promptly without major intervention and do not initiate “non-conformity” actions.

2. Non-Compliance and Corrective Actions

38. The Contractor, Kolin, has registered minor deviations from the Environmental Management Plan in the project EIA. These deviations are considered to be in the lowest level of “non-conformity” at a level of “observation” and have been promptly addressed by the CC.

E. Consultations, Grievance Redress Mechanism and Training

1. Public Consultations

39. In the SSEMP Kolin identifies formal public meetings at six monthly intervals to inform the local community of project activities. The first public meeting was on 5th February 2016 in the Kolin Camp for the villagers of Uzuntepe village, that is immediately east of the camp. Subsequent public meetings have been held in the Kolin camp at six monthly intervals with the latest held on 5th August 2017. Kolin briefed attendees on the works progress and explained the Grievance Redress Mechanism, specifically how complaints can be made. There were no questions raised by the public at the meeting. The next public meeting will be scheduled in February 2018. For 2018 TERA proposed that the frequency of public consultations be shortened to three monthly to address any public concerns as the project approaches completion. Kolin has informally agreed to this request

Table 11: Schedule of Public Consultations

Scheduled in SSEMP	Amended Schedule	Actual	Venue	Discussion Items	Attendees
20 Dec15	Feb 16	5 Feb 16	Kolin Camp	Construction schedule & Grievance Redress Mechanism	21 – No comments from attendees.
15 Jun 16	Aug 16	27 August	Kolin Camp	Construction schedule & Grievance Redress Mechanism	16- complaints about some dust problem from attendees
10 Dec 16	Feb 17	13 February 17	Kolin Camp	Construction schedule & Grievance Redress Mechanism	19-no questions from attendees
5 Jun 17	Aug 17	5 August 2017	Kolin Camp	Construction schedule & Grievance Redress Mechanism	21-no questions from attendees
10 Dec 17	Feb 18			Construction schedule & Grievance Redress Mechanism	
15 Jun 18	Aug 18			Final works – any public concerns outstanding	
20 Dec 18	tbc - prior to camp demobilisation			All works completed – any outstanding elements	

2. Grievance Redress Mechanism

40. The Grievance Redress Mechanism (GRM) is included in the EMP and has been developed in the KolinSSEMP. A Grievance Focal Point has been established for the Uzuntepe – Celilabad Area with two hotlines. No complaints were registered in the complaints log in the reporting period. The Grievance Redress Committee has not had course to convene in the reporting period July to December 2017. A complaints register is held in the KOLIN offices at Camp and the GRM log is held in the TERA office at Camp. Complaints recorded in the recording period are set out in Table 12: Complaints and Compliments Table 12.

Table 12: Complaints and Compliments

Date	Number	Description	Resolved
Jul 2017	No incidents recorded	-	-
Aug 2017	No incidents recorded	-	-
Sept 2017	No incidents recorded		-
Oct 2017	No incidents recorded	-	-
Nov 2017	No incidents recorded	-	-
Dec 2017	One on 27 Dec 2017	Landowner complained that his land –was used during construction of Bridge #15 and is now occupied by the bridge structure.	Yes. Kolin surveyed the site with the Contractor and confirmed with him that his land was not affected.

3. Staff Training and Education

41. Environmental Training – TERA presented a training workshop about turtle preventive action to the Kolin Turtle Capture Team⁶ on 10 September 2017 in the TERA offices at the Kolin Construction camp. The workshop covered lines of ways of preventive turtles and potential environmental impacts to the turtles during the project. The CC carried out briefings on the alignment for construction staff on 27 Sept 2017. TERA made a presentation on the analysis of turtle capture / release data to the Kolin Turtle Capture Team on 30th November 2017. Photographs of the training and extracts from the PowerPoint presentation are included in Annex 1 - Analysis of turtle catch release data.

⁶The Kolin Turtle Capture Team is a dedicated team who are called to site when turtles are detected on the alignment. They capture and release turtles 200m from the alignment. They are also responsible for maintaining signage and confirming that turtle fencing is in place.

42. A summary of the findings of the analysis of turtle capture / release data is presented in Annex 1 – Analysis of turtle catch release data.

Tısbağaları Yaxalama Qrupunun Qeydləri

Layihənin adı: Ələt – Astara Avtomobil Yolu, Cəlilabad Kəşiməsindən Şorsulu Kəşiməsinədək (km 110+700 - km 80+600)

April 2017

No	Ölçünün təsviri	Tarix, saat və yer	Qəbul edilən say	Səhə işləri zamanında olan tısbağaların sayı	Xilas etmə və yerləşmə işləri	Qeyd
1	km 103+300	05.04.2017	10 xaldı	2 xaldı	Reparlanan tısbağalar 200 m aralı uşaqları xüsusi oldu.	
2	km 103+400	18.04.2017	5 xaldı	kiçiklərdən olmaqla	Reparlanan tısbağalar 200m aralı uşaqları xüsusi oldu.	

Figure 17: Extract from Turtle Capture / Release log (April 2017)

43. Turtle Management Plan –Dr. Luca Luiselli (Ecologist – Turtle Specialist) presented the Turtle Management Plan to members of the KOLIN site team on 05 May 2016. The main items covered were how to protect turtles from construction impacts. Both direct impact from construction activity (e.g. siltation, fatalities due to turtle plant interaction) and indirect actions (e.g. disruption of breeding activities) and the identification of locations of turtle exclusion fencing along the alignment in wetland areas.



Figure 18: Example of turtle exclusion fencing erected alongside the alignment in wetland areas.

Table 13: Staff training

Date	Subject	Venue	Presenter	Attendees
14 April 2016	Site Specific Environmental Management Plan (SSEMP)	TERA office, Kolin Camp at Km110	A Taylor – International Monitoring Specialist (TERA)	7
05 May.2016	Turtle Management Plan	TERA office, Kolin Camp at Km110	Mr. Luca Luiselli- Ecologist – Turtle Specialist (TERA)	5
25 May 2016	Water Pollution	TERA office, Kolin Camp at Km110	Alizamin Mustafayev – Environment/Safeguard specialist (TERA)	4
28 April 2017	Turtle Prevention Action	TERA office, Kolin Camp at Km110	Alizamin Mustafayev – Environment/Safeguard specialist (TERA)	4
10 Sept 2017	Turtle Prevention Action	TERA office, Kolin Camp at Km110	Alizamin Mustafayev – Environment/Safeguard specialist (TERA)	4
27 Sept 2017	Turtle Protection Actions for CC staff	On the alignment	Elchin Karimov – Health and Safety Manager (KOLIN)	
30 Nov 2017	Analysis of Turtle capture data	TERA office, Kolin Camp at Km110	A Taylor – International Monitoring Specialist (TERA)	6

Meeting schedule from SSEMP (April 2016 Pg 198)

4. HIV / AIDS

44. During the reporting period Kolin presented an HIV / AIDS briefing for site staff on the 4th August and 15th November 2017. The presentation was made by Mr. Murselov (Camp Doctor of Kolin) and was attended by 22 and 23 members of the Kolin team respectively.



Figure 19: HIV / AIDS briefing session 15th November 2017

Table 14: Programme of HIV / AIDS briefing by KOLIN (CC)

Scheduled	Actual	Venue	Presenter	Attendees
20 Apr 16	11 Apr 16	Kolin Camp at Km 110	Dr Murselov (Camp Doctor of Kolin)	33
20 Jul 16	No influx		No influx, meeting deferred	-
20 Oct 16	12 Nov 16		Dr B. Hasanov (Camp Doctor of Kolin)	35
20 Jan 17	21 Feb 17		Dr Murselov (Camp Doctor of Kolin)	19
20 Apr 17	15 May 17		Dr. B.Hasanov(Camp Doctor of Kolin)	18
20 Jul 17	4 Aug 17		Dr Murselov (Camp Doctor of Kolin)	22
20 Oct 17	15 Nov 17		Dr Murselov (Camp Doctor of Kolin)	20

Meeting schedule from SSEMP (April 2016, Pg. 198)

F. Emerging Issues

45. No specific emerging environmental issues have been identified but with work in and close to wetlands, Kolin must be vigilant on the potential for adverse impact and continue implementing the mitigation measures identified in the Contractor Site Specific Environmental Management Plan (SSEMP)

Table 15: Status of Environmental Management System Plans

Management Plan	Responsibility	Status
Environmental Impact Assessment (EIA)	Pre project	Completed – uploaded to ADB website

Environmental Management Plan (EMP)		As part of approved EIA
Turtle Management Plan (TMP)	TERA – Turtle expert.	Prepared and included in CC SEMP
Site-Specific EMP (SSEMP)	CC - KOLIN	Submitted, approved
Monitoring plan		Submitted and approved as part of CC SEMP

IV. PART IV – ACTION PLAN FOR THE NEXT PERIOD

46. Continued vigilance of the migration of turtles onto the alignment by Turtle Catch Group and continuing capture / release (ongoing).
47. Construction of permanent edge barriers through the wetland sections to prevent turtle access onto the alignment during operation phase (ongoing).
48. Post construction water quality monitoring at the Km 99+000 Muganxolo channel bridge crossing (Q1 2018).
49. Training of the Turtle Catch Group for the 2018 construction season (Q2 2018 April).
50. Checking temporary turtle fencing on the alignment (ongoing).
51. In early 2018 confirm the environmental audit programme for the final phases of construction (Q1 2018).

○

V. ANNEXES:

Annex 1: Analysis of turtle catch release data

52. The Contractor, through the Turtle catch group, has recorded turtle catch release data on the alignment since June 2016.

53. Figure 20 presents the number of turtles that have been captured and released since June 2016 and Figure 21 presents the same information by year showing how the capture / releases have been significantly reduced in 2017 due to the presence of physical barriers through wetland areas. Figure 23 shows the release capture information by location. The information broadly corresponds with the areas for fencing identified in the Turtle Management Plan (2016).

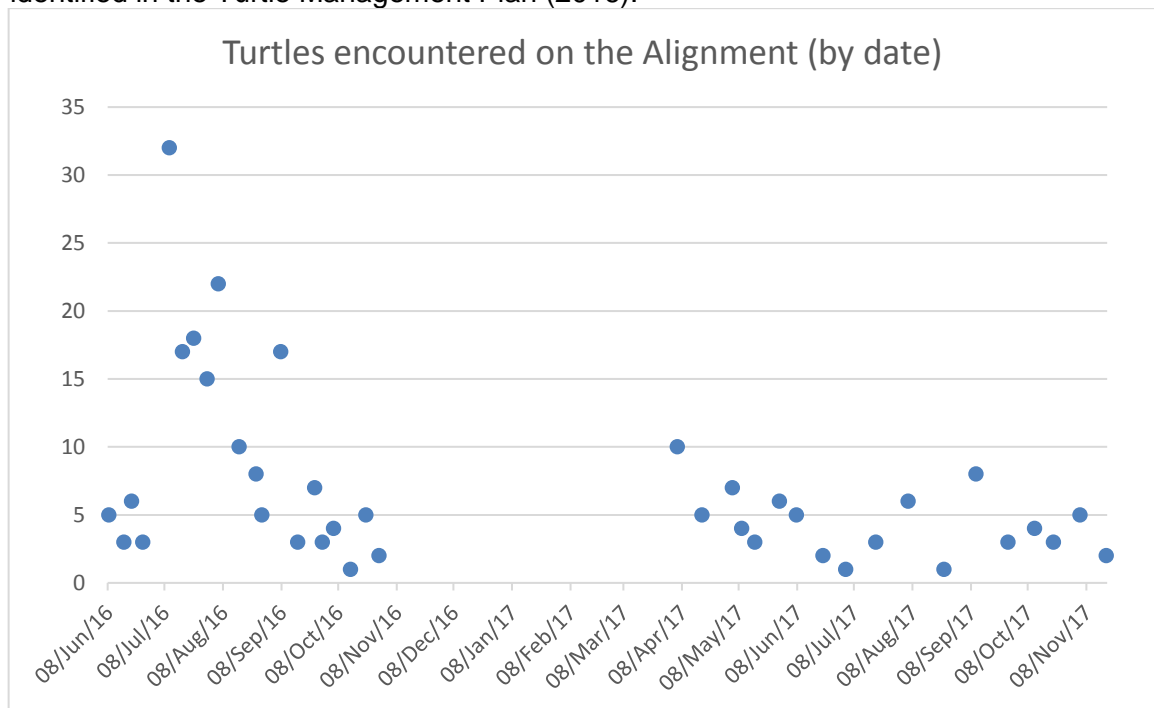


Figure 20: Turtle capture /release information (by date)

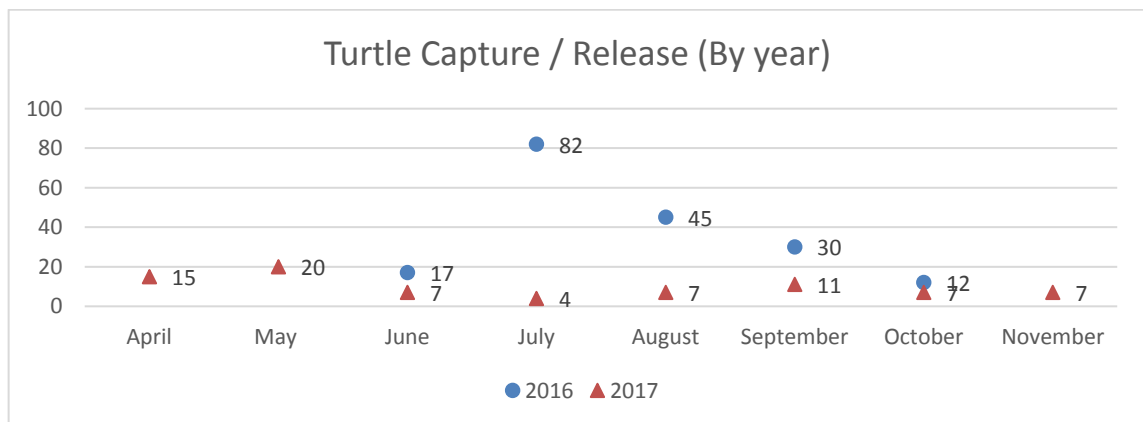


Figure 21: Turtle Capture release information (by year)

54. The Contractor installed fencing to prevent turtles straying onto the alignment in October 2016. Installation of these physical barriers appears to have significantly reduced the number of turtles straying onto the alignment. The temporary fencing will be replaced by permanent vertical concrete barriers at the edge of the alignment through wetland sections (82+700 to 83+600 [Mahmudchala] and 99+000 to 108+000 [Akchala]) see Figure 22. To allow turtle and other mammal access across the alignment there are 21 hydraulic culverts and vehicular access options through the two wetland areas.



Figure 22: Proposed edge barriers on alignment through wetland sections to prevent turtle access

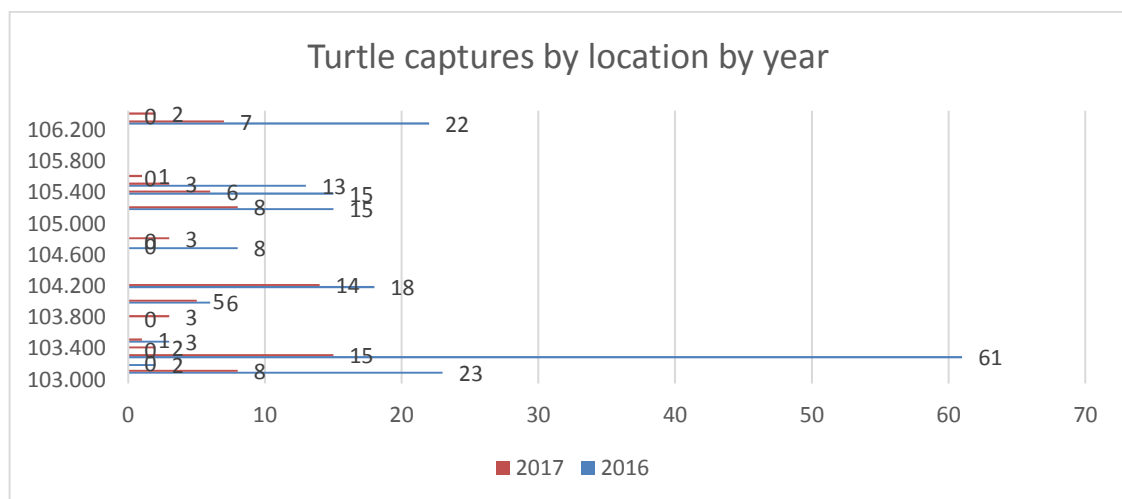


Figure 23: Turtle captures by location (chainage) and by year

Table 16: Location of wildlife crossings in the wetlands

No	Chainage		Type of passage			Distance between (m)		
			Pipe culvert	Box Culvert	Underpass	Max	Ave	Min
1	108+540	Akchala Wetland Km 99 to Km 108			6.00 X 4.60	912m	679m	18m
2	107+700		1000Ø					
3	107+120			2.00 x 2.00				
4	106+683				3.50 x 3.50			
5	106+665			2 x (4.00 x 2.50)				
6	106+010			2 x (4.00 x 2.50)				
7	105+250		1000Ø					
8	104+500		1000Ø					
9	103+675			2.00 x 2.00				
10	102+825			4.00 x 2.50				
11	102+000		1000Ø					
12	101+215			2.00 x 2.00				
13	100+303			4.00 x 2.50				
14	99+920			2.00 x 2.00				
15	99+028				3.50 x 3.50			
16	83+613	Mahmunchala Km 82.7 to 83 +600		2 x (4.00 x 2.50)		315m	214m	92m
17	83+300		1500Ø					
18	83 +013		1500Ø					
19	82+850				3.50 x 3.50			
20	82+758			2 x (4.00 x 2.50)				
			6No	10No	4No			

55. A workshop on the analysis of the Turtle data was held on 30th November 2018. Members of the Turtle Capture Team and TERA attended.

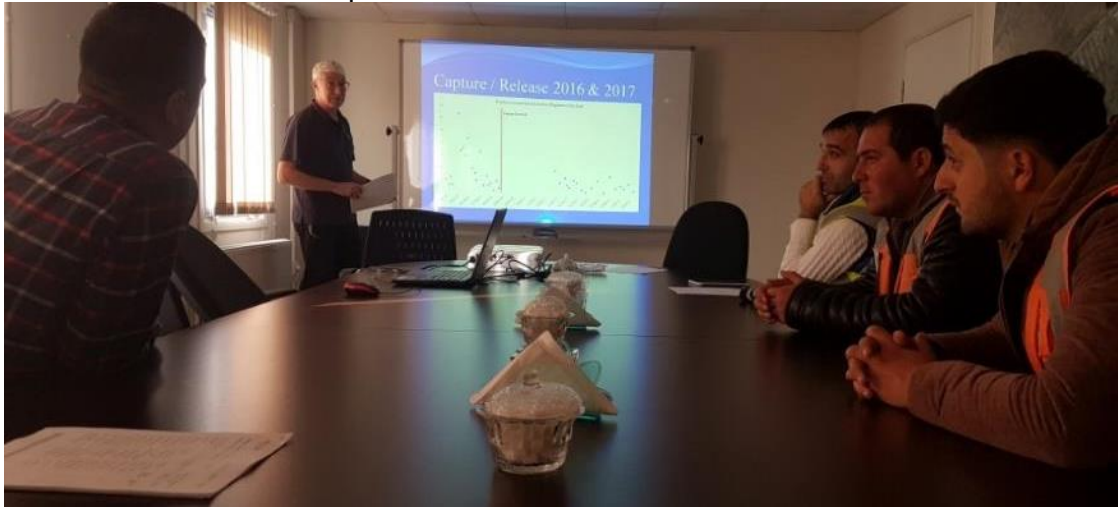


Figure 24: Attendees at the Turtle data analysis workshop held on 30th November 2017

56. The following is an extract from the PowerPoint of the workshop

**Azerbaijan Second Road Network Development Program
Tranche 2: Construction Supervision of the Alat-Astara Highway
Jalilabad Intersection - Shorsulu Intersection (km 110+700 to km 80+600)**

Analysis of Turtle Catch Team data

30 November 2017

KOLIN construction camp, Jalilabad, Azerbaijan

Andrew Taylor - Workshop Facilitator
Andrew@envision-2020.net

This Presentation

Two Modules

- 1) Module 1 – Objective of turtle protection for the project
- 2) Module 2 – Data Analysis
- 3) Module 3 – Operation phase

At the end of this presentation, you will:

- 1) Have a better understanding of turtle activities.*
- 2) Potential areas of impact on Turtles*
- 3) How the project is addressing interaction with turtles*

Module 1 – Objective of turtle protection for the project

- Reduce turtle fatalities on the alignment

Construction Phase

- Turtle Capture Team
- Prevent access (fencing)
- Staff education
 - Training
 - Signage

Operation Phases

- Prevent access (Jersey edge barriers in wetland areas)
- Preserve migration routes
 - hydraulic culverts
 - dedicated animal passes



Module 1 – Objective of turtle protection for the project

- Reduce turtle fatalities on the alignment

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Module 1 – Objective of turtle protection for the project

- Reduce turtle fatalities on the alignment

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 - Training
 - Signage

Operation Phases

- Prevent access (Jersey edge barriers in wetland areas)
- Preserve migration routes
 - hydraulic culverts
 - dedicated animal passes



Module 2 – Data Analysis

- Turtle Capture Team data sheet

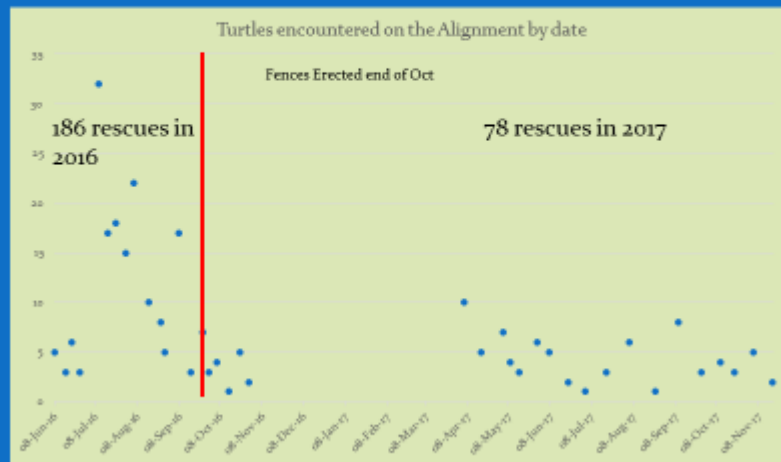
Tashqalan Yoxladan Qaydlar

Layihənin adı: Əlin - Arzu Arzuşah Yolu, Cəlbəliki Kəndindəki Jozu. Kəndindəki Jozu (Kənd 110-1700 - Kənd 99-900)

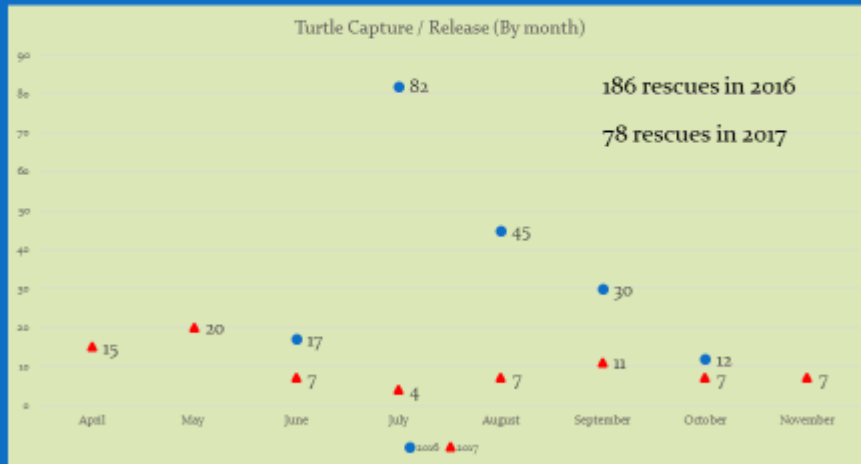
2017

No	Tarix	Yer	Yaxınlaşdırma	Yaxınlaşdırma	Yaxınlaşdırma	Yaxınlaşdırma
1	20.07.2017	20.07.2017	20.07.2017	20.07.2017	20.07.2017	20.07.2017
2	18.07.2017	18.07.2017	18.07.2017	18.07.2017	18.07.2017	18.07.2017

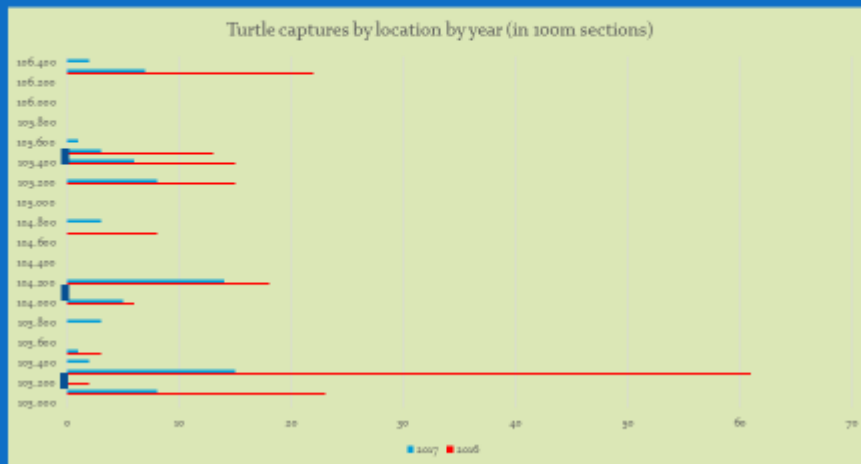
Capture / Release 2016 & 2017



Capture / Release by Year



Captures by Location



Module 3 – Operation phase 2

- Animal underpass



Box Culvert



Pipe Culvert

		distance b/w underpass		
		Max	Ave	Min
106	106.540			
	107.700	0.840		
	107.120	0.580		
	106.685	0.437		
	106.665	0.038 Min		
	106.010	0.655		
	106.250	0.790		
	104.600	0.760		
	109.675	0.825	0.532	0.675
	103.825	0.860		0.038
	103.000	0.825		
	103.215	0.785		
	100.303	0.932 Max		
	99.920	0.383		
99	99.028	0.892		
93.4	83.615			
	83.300	0.315 Max		
	83.013	0.187		
	82.950	0.163	0.335	0.244
82.7	82.758	0.092 Min		0.092



Bridge Km 99

End of document