

Environmental Monitoring Report

Loan No: 3524

#9 Semi-annual EMR

Reporting period: July – December 2022

April 2023

Georgia: Rehabilitation of Dzirula–Kharagauli–Moliti–Pona– Chumateleti Secondary Road Section (50Km)

Prepared by: Roads Department of the Ministry of Regional Development and Infrastructure of Georgia for the Asian Development Bank

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ACRONYMS & ABBREVIATIONS

ADB	Asian Development Bank
BKNP	Borjomi-Kharagauli National Park
EMP	Environmental Management Plan
GRM	Grievance Redress Mechanism
IEE	Initial Environmental Examination
Km	Kilometer
PIU	Project Implementation Unit
RD	Roads Department
SEMP	Specific Environmental Management Plan
TSEMP	Topic Specific Environmental Management Plan

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1 INTRODUCTION

1.1 Preamble

1. This report represents the Semi-annual Environmental Monitoring Review of Rehabilitation of Dzirula – Kharagauli – Moliti – Pona – Chumateleti Secondary Road Section (50Km).

2. This report is the ninth Semi-annual EMR for the project and covers July-December 2022 reporting period.

1.2 Headline Information

3. Project design review and construction activities have been commenced in September 18, 2018 by Construction Contractor – Black Sea Group (BSG) under LOT 1. There is protected area near the project related road section. The shortest distance between Borjomi-Kharagauli National Park (BKNP) and the existing project road is approximately 1.3 km. BKNP is separated from the existing project by a river gorge, which prevent the transposition of flora and fauna. The shortest distance between BKNP and the existing project road is approximately 1.3 km. BKNP is separated from the existing project by a river gorge, which prevents the transposition of flora and fauna. Therefore, the project will have no direct impacts on the biodiversity of the BKNP. During the project design review by the CS and according to the IEE, it has been confirmed that the project will have no direct impacts on the biodiversity of the BKNP. However, construction contractor selected appropriate access roads to avoid disturbance of the protected area and provide site staff with special training to prevent poaching.

4. Second Contractor “AKKORD ICIC” (Lot 2) started mobilization in July 2019 and set up office at Chumateleti. Contract with “AKKORD ICIC” has been terminated on 3rd of November 2021, consequently, no activities were carried out during the reporting period under LOT 2.

5. 4 non-compliances have been identified during the reporting period under LOT 1. CC Akkord ICIC completely abandoned site and only CC BSG carried out construction activities during the reporting period under LOT 1.

6. It is envisioned, that the road, when improved, will enhance connectivity to a number of towns and villages at the foothills of the mountain ranges and will act as alternate route to parallel segments along E60. Also, positive impact of the project is local population’s involvement in the road construction process.

2. PROJECT DESCRIPTION AND CURRENT ACTIVITIES

2.1 Project Description

7. The project road is a 50.244 km west to east secondary road, starting from E-60 in Dzirula and ending at E-60 junction at Chumateleti. Most of the project road is within Imereti Region with a few kilometers within Shida Kartli Region, through a gorge with mountain ranges with on both the northern and southern part. It is envisioned that this road, when improved, will enhance connectivity to a number of towns and villages at the foothills of the mountain ranges and can act as alternate route to parallel segments along E-60.

8. For implementation purposes the project was divided into 2 separate sections (lots) of about 25 km each. First section (Lot 1) (Construction Contractor: Black Sea Group) covers above road from Dzirula (km 0+000) to Moliti (km 24+620). The details of the proposed road project are:

- Rehabilitate and pavement of the project road from Dzirula to Kharagauli according Georgian National Standard for Public Motor Roads (SST Gzebi 2009), Geometrical and Structural Requirements with 40 km/h design speed. The pavement within Kharagauli town is planned to execute minimum 4cm asphalt surface course after milling over the area.
- Replacement or repairing of 9 bridges and 102 culverts.
- Construction of side drains and other drainage structures.
- Provision of retaining walls and river protection measures, where necessary.
- Provision of adequate road signing and marking.
- Provision of safety barriers.

9. Second section (Lot 2) (Construction Contractor: Akkord ICIC) covers the above road from Moliti (km 24+620) to Chumateleti (km 50+244). The details of the proposed road section are:

- Rehabilitation and pavement of the project road from Moliti to Chumateleti according to Georgian National Standard for Public Motor Roads (SST Gzebi 2009), Geometrical and Structural Requirements with a design speed of 40km/h.
- Construction of 13 new bridges
- Construction of 86 pipe culverts and 6 box culverts.
- Construction of side drains and other drainage structures.
- Provision of retaining walls and river protection measures, where necessary.
- Provision of adequate road signing and marking.
- Provision of safety barriers.

10. AKKORD ICIC has been selected as the Construction Contractor for LOT 2 (Km 24+620 - Km 50+244), agreement has been concluded on 04.12.2018. Mobilization started in July 2019, construction activities are commenced but far behind planned schedule. There are no construction works during the reporting period (Jul-Dec 2022) under LOT 2.

11. The road is to be designed according to Georgian geometric design standard, and accordingly, it shall be sufficient to carry the traffic loading efficiently and with the

vehicles from the opposite directions can pass safely. The design elements for the cross section of the two-lane road are as follows:

- Number of lanes: 2
- Linewidth: 3.00 m
- Carriageway width: 6.00 m
- Width of shoulder: 1.00 m
- Increase of shoulder on embankment 0.50 m
- Total road width: 9.00 m

12. The road design was carried out considering following design philosophy.

- The standards to be applied will follow the Georgian geometric design standard for the selected design speed of 40 km/h, with some flexibility in application when the strict application of the standards would result in an excessively costly technical solution.
- In general, the design follows the existing alignment wherever possible and considers the existing structures. Where the existing alignment does not correspond to the proposed parameters, certain improvements depending on topography, presence of built-up areas and structures are considered.
- The vertical alignment has been maintained in general, with improvements to the sight distances, where the existing topography allow for improvements. To accommodate new pavement layers, the road elevations have increased accordingly where possible.
- The design will result in a cost-effective construction, considering the low traffic volumes on the road and the economic viability of the design.

13. The map of the project road is given in the **Figure 1** below.

Figure 1: Map of Project Road



14. The project is classified as category B for the environment under ADB's Safeguard Policy Statement (2009). Project implementation period is 2018-2020. The Extension of Time for Completion has been decided by the Amendment No.6 (20th October 2020) that is extended up to 22nd May 2021 as same as Engineer reported in his review by its letter No. PEC/RD/DCSRS/20-269 dated on 11th September 2020. On 1st December of 2020, Contractor sent a letter (No. DZM/BSG-OUT-MNG-COR-0257) attached with signed Amendment No.6 dated on 20th October of 2020 in which he stated, that besides the signature of the Amendment No.6 the works cannot be completed by 22nd May 2021 and an additional time extension will be necessary.

15. The national EIA (IEE) was submitted to the Ministry of Environment and Natural Resources Protection for approval by the Road Department of the Georgia on 20 November 2017, and it was approved by MoEPA on 1st December 2017. Lot 1 and Lot 2 contractor have obtained all relevant required permits/clearances. The required permits and clearances, statuses, and validity are presented in the **Table 1** below:

Table 1. Statuses of permits/clearances for LOT 1 and LOT 2

Lot 1 - Permit Description	Date of approval	Status
Permit for the emissions of hazardous substances into ambient air from stationary sources for batching plant.	Approved Letter №3389/0; 24.04.18.	Valid
Waste management plan	Approved Letter N43/6680; 22.10.18.	Valid
Surface Water extraction	Approved Letter № 587/01; 10.07.18.	Valid
Lot 2 - Permit Description	Date of approval	Status
Permit for the emissions of hazardous substances into ambient air from stationary sources for batching plant.	Approved Letter N5273/01; 20.06.18.	Expired
Waste management plan	Approved Letter N43/6680; 22.10.18.	Expired
Permit for the tree cutting	Approved Letter N5/7515; 05.02.2020.	Valid

2.2 Project Contracts and Management

16. Consultancy Services (CS) Contract was awarded to JV of Pyunghwa Engineering Consultants Ltd, Yoshin Engineering Corporation and Roads Rehabilitation and Modernization Supervision Direction Ltd for three phases of the project:

- a. Phase 1–Design review, to be completed in a period of five weeks.
- b. Phase 2–Construction Supervision and Project Management. The period is for 47 months.
- c. Phase 3–Defects Notification Period, two years (24 months).

17. The TOR for the Consultancy Contract contains the following tasks for the Environmental Specialists:

- Ensure that the provisions of the approved Environmental Management Plan are reflected;
- in the Contractor’s contract site environmental management plan (SEMP) prior to its acceptance by the Engineer, the Employer and ADB, and there after ensure that the Contractor complies in every respect with the provisions of the SEMB;
- Carry out an environmental auditing for the construction period, regularly supervise the environmental monitoring and submit periodic reports based on

the monitoring data and laboratory analysis reports. These reports will be included as an annex to the Consultant's Monthly Report;

- Develop a program for hands-on training of Contractor's staff in implementing the SEMP. Conduct Post-Construction Environmental Audit and prepare post-construction environmental audit report with filled environmental audit checklist;
- Collection of photo materials of the condition of sites abandoned by the contractor;

18. During the reporting period (Jul-Dec 2022) SC carried out monitoring of the abandoned sites under LOT 2 and worked with local authorities for road maintenance.

19. All mitigation measures during construction were implemented respectively by the contractor company - Black Sea Group (BSG) LTD under LOT 1. The contractor company BSG have environmental and safety officers responsible for HSE issues during construction process. Construction Company monitored by the supervision consultant (PYUNGHWA) environmental specialist – Shalva Bosikashvili and Environmental Specialist of RD Ms. Luiza Bubashvili. Environmental Specialists of SC and RD conducted routine observations and inspections of project sites. Summary of site visits during the reporting period (July-December 2022) is provided in **Table 2**.

Table 2: Summary of Site Visits during the Reporting Period (July-December 2022)

Date of SiteVisit	Staff	Detailed Findings	Required Actions	Date of Report Submitted and to whom
15.09.2022 LOT1	SC and CC	No findings	–	–
07.10.2022 LOT1	SC and CC	<ul style="list-style-type: none"> • Backhoe operates without flagman • Spoil stockpiles and waste timber were not segregated properly and disposed at special dedicated area • Power generator without drip tray • Workers without PPE 	Correct in 10 days	Corrected (20.10.2022)
02.11.2022 LOT1	SC and CC	No findings	–	–
28.12.2022 LOT1	No CC Staff	No findings	–	–

20. Both Contractors under LOT 1 and LOT 2 prepared Site Specific and Topic Specific EMPs under the guidance of the Supervision Consultant. CS and RD reviewed and verified the applicability of the SEMP and topic-specific EMPs before clearance before the commencement of civil works.

21. The list of prepared SSEMPs/TSEMPs and Method Statements (MS) for LOT 1 and LOT 2 is given in **Table 3**.

Table 3: List of Site-Specific and Topis Specific Environmental Management Plans and Method Statements (LOT 1 and LOT 2)

No	Plan / Method Statement
1	Site Specific Environmental Management Plan
2	Environmental Management Plan (updated)
3	Waste Management Plan (Construction Phase)
4	Emergency Response Plan
5	Spill Management Plan
6	Wastewater Management Plan
7	Chance Find Procedure
8	Labor Management Procedures
9	Clearance Cultivation Restoration Plan
10	Aggregate and Borrow Pit Management Plan
11	Topsoil Disposal and Erosion Management Plan
12	Air Quality Management Plan
14	Bridge Construction Management Plan
15	Spoil Disposal Management Plan
15	Method Statement for Temporary Roads
17	Method Statement for River Crossings

22. These plans are detailed and set out how the project will address potential issues identified in the impact assessment process and ensure that specific mitigation and monitoring measures are fully implemented.

23. The names and contact details of environmental staff involved in the environmental management are presented in the **Table 4** below:

Table 4: Description of staff involved in environmental management

Organization	Position	Name	Nationality	Tenure
ADB/RM	Head Office, Senior Environmental Specialist, Environmental Focal	Ninette R. Pajarillaga npajarillaga@adb.org		

	RETA/ADB National Environmental Consultant	Name: Giorgi Kobaladze Cell: +995599689834 e-mail: gkabaladze.consultant@adb.org	Georgian	
	Associate Safeguards Officer Georgia Resident Mission Asian Development Bank	Nino Nadashvili Cell: +995 595 070442 nnadashvili@adb.org	Georgian	
Roads Department	Environmental Safeguard Consultant under ADB financed Projects	Luiza Bubashvili Cell: +995595219141 Web: www.georoad.ge likabubashvili@yahoo.com	Georgian	
Construction Contractor BSG	Environmental Specialist	Levan Kereselidze Cell: 599004082	Georgian	16 months
Construction Contractor Accord ICIC	Environmental Specialist	Farid Bairamov Cell: +995 595 909638 Farid.bairamov@inbox.ru	Azeri	16 months (Absent from 2021 January)
Supervision Consultant Pyunghwa Engineering Consultants Ltd, Yoshin Engineering Corporation and Roads Rehabilitation and Modernization Supervision Direction Ltd	Environmental Specialist	Shalva Bosikashvili sbosikashvili@yahoo.com Cell: +995 595 116041	Georgian	16 months

24. Summary of civil works up to December 2022 and work's progress is summarized in **Table 5**. All awarded contracts included EMPs cleared by ADB and conditions of applicable national EIA clearance. No progress has been made under LOT 2 during the reporting period.

Table 5 (a): Summary of Civil Works Contracts and Work's Progress for Rehabilitation of Dzirula-Kharagauli-Moliti-Pona-Chumateleti Secondary Road Section (50km)

Scope	Contractor	Signed	Approval Date		Environmental Personnel		Civil Works	
			SSEMP	COVID-19 HSMP	Environmental Officer	Health and Safety Officer	Start	End
Dzilula-Moliti road section from km 0+000 to km24+620	Company Black Sea Group LLC (LOT 1)	04 Dec. 2017	08 Feb. 2019, Submitted to RD for approval. Approved 12.02.2019	Prepared by SC Approved 25.11.2020	Beka Pangani	Beka Pangani	18 Sep. 2018	2023
Moliti-Chumateleti road section from km 24+620 to km 50+244	Accord Industry Construction Investment Corporation OJSC (LOT 2)	04 Dec. 2018	11 June 2020, Submitted to RD for approval (Rev.05) Approved 18.06.2020	Prepared by SC Approved 25.11.2020	Oleg Tabatadze	Oleg Tabatadze	31 May 2019	16 Nov. 2021

Table 5 (b): Civil works Progress status % (LOT 1)

Description	Previous Cumulative (%)	Achieved This Month (%)	Up to Date Cumulative (%)
Plan	100.00 %	0.00 %	100.00 %
Actual	87.10 %	3.85 %	90.95 %
Difference	-12.90 %	3.85 %	-9.05 %

Note: The Month/Years in brackets are planned schedule.

COVID-19 HSMP = COVID-19 Health and Safety Management Plan, ERP = Emergency Response Plan, SSEMP = site-specific environmental management plan

2.3 Project Activities during the Current Reporting Period

25. During July-December 2022 reporting period construction activities were ongoing for LOT1 (BSG) to arrange different constructions, asphalt concrete coating works, drainage channels, sidewalks and sides and arrangement of artificial structures. Quantity of employees involved in the mentioned activities is provided under below **Table 6**.

Table 6: Quantity of employees of BSG

Month	Employee	Georgian	Female
July 2022	No works have been carried out		
August	35	12	1
September	65	18	1
October	39	13	1
November	36	28	3
December	65	17	1

26. For the second lot (LOT 2) no construction activities were carried out during the reporting period, Contractor (Accord **ICIC**) abandoned the site completely.

27. Site HSE inspections for construction works have been carried out since very beginning of the project. Site HSE Inspection Dates given in **Table 7**.

Table 7. Site HSE Inspection Dates

SAEMR No.	Covering period	Site HSE Inspection Dates
1	Jul-Dec 2018	24.10;24.12;
2	Jan-Jun 2019	02.02;15.03; 23.05
3	Jul-Dec 2019	15.09; 20.10; 24.11
4	Jan-Jun 2020	22.01; 12.02; 09.03; 12.05
5	Jul-Dec 2020	25.07; 12.08; 23.09; 15.11
6	Jan-Jun 2021	07.02; 22.03; 14.04; 25.05
7	Jul-Dec 2022	09.08; 11.09; 24.10; 23.11
8	Jan-Jun 2022	05.04; 22.05
9	July-December 2022	15.09;07. 10;02.11;28.12

Progress of Works, LOT 1 (BSG)

Progress of Works (A)

No.	Description	Weight Rate (%)	Progress (%) for Current Month		
			Plan	Actual	Comparison
1	General	1.52	1.52	0.45	-1.07
2	Setting out & Site Clearance	7.17	7.17	3.80	-3.37
3	Earthworks	4.52	4.52	4.55	+0.03
4	Drainage Works	20.75	20.75	5.75	-15.00
5	Pavements	18.98	18.98	13.39	-5.59
6	Retaining Structure	35.29	35.29	35.57	+0.28
7	Junctions and Private Entrances	0.85	0.85	0.11	-0.74
8	Road Furniture & Road Markings	5.48	5.48	0.11	-5.37
9	Bridge Construction	2.59	2.59	2.04	-0.55
10	Rehabilitation of Existing Bridges	0.81	0.81	0.32	-0.49
11	Miscellaneous	2.03	2.03	0.20	-1.83
12	Material on Site		0.00	4.61	+4.61
13	Variation Order		0.00	15.34	+15.34
14	Amount in Legislation & Esca.		0.00	4.69	+4.69
Total		100.00	100.00	91.93	-8.07

Progress of Works (B)

No	Description	Total Place (Ea)	Total Length (m)	Completed (Except back fill)			In progress			No commenced			Remarks
				Place (Ea)	Length (m)	%	Place (Ea)	Length (m)	%	Place (Ea)	Length (m)	%	
1	Pipe (D=1000mm)	65	794.3	65	794.3	100%	-	-	0%	-	-	0%	
2	Pipe (D=1500mm)	32	469.9	32	469.9	100%	-	-	0%	-	-	0%	
3	BOX- Culvert	11	188.3	11	188.3	100%	-	-	0%	-	-	0%	
4	RC Retaining Wall	64	2,518.0	64	2,518.0	100%	-	-	0%	-	-	0%	
	*Additional	24	776.4	24	776.4	100%	-	-	0%	-	-	0%	
	*Changed	2	86.5	2	86.5	100%	-	-	0%	-	-	0%	
	SUM	90	3,380.9	90	3,380.9	100%	-	-	0%	-	-	0%	
	Lego Block Wall	27	2,670	27	2,670	100%	-	-	0%	-	-	0%	

5	*Additional	15	720	15	720	100%	-	-	0%	-	-	0%	
	*Changed	20	1,394	20	1,394	100%	-	-	0%	-	-	0%	
	SUM	62	4,784	62	4,784	100%	-	-	0%	-	-	0%	
6	Gabion	68	3,011	68	3,011	100%	-	-	0%	-	-	0%	
7	Bridge	9	187	9	187	100%	-	-	0%	-	-	0%	
8	Granular Base		19,910		19,910	100%	-	-	0%	-	-	0%	
9	Binder Course		19,910		19,910	100%	-	-	0%	-	-	0%	
10	Wearing Course		19,910		19,910	67.1%	-	-	0%	-	6,552	32.9%	
11	Drainage Channel		13,593		13,593	92.6%	-	-	0%	-	1,000	7.4%	
12	L-type Side Ditch		6,000		3,000	100%	-	-	0%	-	-	0%	
13	Guardrail		16,711			0%	-	-	0%	-	16,711	100%	
14	Traffic Sign		1,100			0%	-	-	0%	-	1,100	100%	
15	Terramesh	1	25	1	25	100%	-	-	0%	-	-	0%	Changed from RC Wall
16	GreenTerra mesh	-	-	-	-	0%	-	-	0%	-	-	0%	Changed to Others

Progress of Work, LOT 2 (Accord ICIC)

28. No progress in implementing of construction activities during July-December 2022 reporting period.

2.4 Description of Any Changes to Project Design and Work Scope Variation Orders, LOT 1/2

29. Variation order No. 7 issued for LOT 1, since it became necessary to remove certain sections from the project (for more details See **Annex 7 - Variation order No. 7**).

2.5 Description of Any Changes to Agreed Construction methods

30. During the reporting period, the contractors (LOT1/LOT2) did not make any major changes in the construction method and design which may influence environmental effects to the project area.

3. ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.1 General Description of Environmental Safeguard Activities

31. The Supervision Consultant (CS) supervises and monitors the project construction process for both LOTs. The SC should have both - International & National Environment Specialists in the team. According to the PAM hiring of international environmental specialist was required. International consultant has not been mobilized during the reporting period.

32. SC National Environmental Specialist (Shalva Bosikashvili) prepares semiannual environmental monitoring reports required by ADB and monitors the Construction Contractors HSE performance.

3.2 Site Monitoring/Audits

33. Only LOT 1 HSE inspections have been undertaken during reporting period (July-December) 2022, because no construction activities were implemented under LOT 2.

34. Implementation Status of Corrective Actions proposed in the current environmental monitoring report (July-December 2022) is provided in the **Table 8** below.

**Table 8: Implementation Status of Corrective Actions proposed in the last environmental monitoring report
(January- July 2022)**

	Issue	Required Action	Responsibility	Timing (Target Dates)	Description of Resolution and Timing (Actual)	If not yet resolved, indicate the reason why and specify further required action and timeframe.
1	LOT 2 Construction materials (precast concrete, rebar, timber, sand and gravel) left uncontrolled on the ground surface alongside the road.	<ul style="list-style-type: none"> Construction materials should be placed at the dedicated area and covered with tarpaulins. 	CC HSE field Officer	10.07.2022	Contract with CC Akkord has been terminated and they abandoned construction site. Non-compliance is fully corrected by the local municipality.	
2	Different waste is scattered alongside the road (spoil, timber, tree roots, domestic solid waste etc.).	<ul style="list-style-type: none"> Contractor should improve waste management alongside the road. 	CC HSE field Officer	10.07.2022	Contract with CC Akkord has been terminated and they abandoned construction site. Non-compliance is fully corrected by the local municipality.	
3	Deep cuts, trenches and pits, are without relevant barriers and warning signs	<ul style="list-style-type: none"> Contractor should install hard barriers and warning signs around deep trenches and cuts. 	CC HSE field Officer	10.07.2022	Contract with CC Akkord has been terminated and they abandoned construction site. Non-compliance is fully corrected by the local municipality.	
4	Oil drums outdoor, leaking backhoe and scattered waste at the construction base	<ul style="list-style-type: none"> Hazardous liquid should be placed at special dedicated area for hazardous materials. 	CC HSE field Officer	10.07.2022	Contract with CC Akkord has been terminated and they abandoned construction site. Non-compliance is fully corrected by the local municipality.	
5	Cracks on the ground surface at the spoil disposal area (landslide hazard).	<ul style="list-style-type: none"> Conduct survey of ground and in case of landslide hazard elaborate relevant 	CC HSE field Officer	10.07.2022	Contract with CC Akkord has been terminated and they abandoned construction site. Non-compliance is fully corrected by the local municipality.	

	Issue	Required Action	Responsibility	Timing (Target Dates)	Description of Resolution and Timing (Actual)	If not yet resolved, indicate the reason why and specify further required action and timeframe.
		mitigation measures.				

35.Existing non-compliances fully corrected by the local municipality. Please see below photos on Figure 2 of the abandoned sites of LOT 2.

Figure 2: Abandoned sites of LOT 2



3.3 Issues Tracking (Based on Non-Conformance Notices)

36. 4 non-compliances have been identified under the Lot 1 during HSE inspection conducted on 07.10.2022. General non-compliances for LOT 1 are related to non-adequate segregation and storage of construction materials and waste, improper management of oil spills, poor housekeeping and health and safety culture.

37. One non-compliance notice (NCN), reflecting all 4 non-compliances, was issued during the July-December 2022 reporting period. All 4 non-compliances are listed in NCN provided in **Annex 6 - Non-compliance Notice** and related to improper operation of backhoe (no flagman used), non-adequate segregation of spoil stockpiles and waste timber, power generator placed without drip tray and workers were without PPE.

38. All identified issues were improved according to the corrective action plan and closed. Summary of issues tracking activity for current period is provided in **Table 9**.

Table 9. Summary of Issues Tracking Activity for Current Period

Summary Table	
Total Number of Issues for Project	71
Number of Open Issues	5
Number of Closed Issues	58
Percentage Closed	81
Issues Opened This Reporting Period	4
Issues Closed This Reporting Period	4

3.4 Trends

39. As mentioned above, during July-December 2022 reporting period construction activities carried out only under LOT 1. No construction activities performed under LOT 2. Contractor of LOT 1 improved HSE performance and during the reporting period it is generally satisfactory, relevant trainings were provided to the site staff, required documents and reports submitted, waste segregation and disposal procedures acceptable. Grievance redress system is established, the grievance boxes are located at the entrance of the Company Office in Kharagauli and entrance of the Camps (Kharagauli and Sagandzile).

40. To identify trends in environmental issues, information from previous Bi-Annual EMRs is used. The summary of the issues is provided in the **Table 10** below.

Table 10: Summary of identified trends in environmental issues

Semi-Annual EMR No	Total No of Issues	New Issue/ Concern During Reporting Period	% issues Closed	% issues closed rate
1. July 2018 – December 2018	2		100%	0%
2. January – July 2019	12		75%	25%
3. July 2019 – December 2019	12		67%	33%
4. January - July 2020	4		0%	0%
5. July-December 2020	54		66.6%	0%
6. January - July 2021	62		87%	0%
7. July-December 2021	71		81%	0%
8. January-July 2022	71	5	80%	0%
9. July-December 2022	74	4	100%	0%

3.5 Unanticipated Environmental Impacts or Risks

41. So far unanticipated environmental impacts/risks are not identified.

4. RESULTS OF ENVIRONMENTAL MONITORING

4.1 Overview of Monitoring Conducted during Current Period

42. Environmental monitoring started immediately after the commencement of civil works in September 2018

43. According to the project IEE, periodic parametric measurements of air, noise and

water quality for both lots should be carried out by the construction contractors according to the appropriate monitoring program defined under IEE (see **Annex 4 - EMoP per IEE**) and then updated within the SSEMP (see **Annex 5 - CC BSG Lot 1 EMoP per SSEMP**).

44. Summary table showing the required instrumental monitoring, parameters and frequency per IEE and SSEMPs is shown below.

Table 11: EMoP: Construction Phase Instrumental Monitoring

Issue	Mitigation	Locations	Frequency	Responsibilities
According to IEE				
Air Quality	The Contractor shall establish routine Air Quality Monitoring throughout the construction period. The following parameter shall be monitored: <ul style="list-style-type: none"> Dust (PM 10 and PM 2.5), 	At the locations of the baseline measurements and at the Asphalt Plant location. Baseline measurements were conducted at: <ul style="list-style-type: none"> Dzirula School (km 2+743) Sighandzile School (km 14+968) Moliti Ambulatory (km 28+473) Moliti school (km 29+032) 	Monitoring to be undertaken monthly during construction phase.	The Contractor shall hire an independent monitoring specialist to perform the monitoring activities.
Surface Water Quality	The Contractor shall ensure that routine surface water monitoring is undertaken throughout the construction period. Measured water quality parameters shall include <ul style="list-style-type: none"> Total Suspended solids (TSS) Biological Oxygen Demand (BOD) Conductivity Fecal coliform Oil and grease or Total Petroleum Hydrocarbon (TPH) 	Baseline monitoring locations include: <ul style="list-style-type: none"> These are at 5 Sampling stations.: Station 1 is located at the lower region of the Dzirula River; Stations 2 and 4 were tributaries of Chkherimela River; Station 3 is the mid-reach of the Dzirula-Kharagauli rivers; and Station 5 is the headwaters of Chkherimela River. 	Monitoring to be undertaken monthly	Responsibilities – The Contractor shall hire an independent air quality monitoring specialist.
Noise	The Contractor shall ensure that routine noise monitoring is undertaken throughout the construction period. Parameters to be monitored to establish a baseline include: <ul style="list-style-type: none"> Laeq 1h (dBA) Average Daily Noise level 	At the locations of the baseline measurements: <ul style="list-style-type: none"> Dzirula School (km 2+743) Sighandzile School (km 14+968) Moliti Ambulatory (km 28+473) Moliti school (km 29+032) 	Monthly throughout construction.	The Contractor shall hire an independent noise monitoring specialist.
According to SSEMP				
Issue	Mitigation	Locations	Frequency	Responsibilities
Air Quality (solid particles, suspended solids, flying heavy metal particles) (dust, CO) Criteria: MAC for		Near residential buildings and Along the whole alignment of the road	Daily During material delivery and periodically (weekly) in dry periods during construction	Constructing Contractor, RD, Supervising Agency

dust 0.15mg/m3 For cement dust – 0.5mg/m3 And MAC for CO)5 mg/m3				
Surface Water Quality		Within Rivers, upstream and downstream of worksite and at worksite	To be conducted prior to construction, periodically during construction (once per week for Turbidity) and following construction completion in the river.	Constructing Contractor, RD, Supervising Agency, MEPA
Noise and vibration levels		Construction Site and near the residential buildings	Periodic (as detailed in noise and vibration monitoring plan)	Constructing Contractor, RD, Supervising Agency, MEPA

4.2 Trends

45. Due to performance of non-core construction works (i.e., asphalt concrete coating works, arrangement of drainage channels, arrangement of sidewalks, etc.), parametric measurements have not been carried out during the reporting period. Therefore, no measurement results are available to compare with baseline data and applicable standards. Baseline data for water quality, dust/noise and relevant Georgian Standards are provided in **Annex 8**.

4.3 Summary of Monitoring Outcomes

46. Last parametric measurements have been carried out on 04.07.2020. During the reporting period the construction contractor for Lot 1 has not conducted instrumental monitoring measurements. The construction contractor for Lot 2 – “Akkord ICIC” completely abandoned site (contract has been terminated).

47. Next parametric measurements for LOT 1 will be performed according to CC’s approved SSEMP in case of need.

48. Generally Monthly HSE inspections have been carried out to monitor HSE culture and performance at the construction sites. Frequently identified issues in previous reporting period are: Unacceptable housekeeping, heavy equipment operation without banksman, outdoor power generators working without drip trays and sufficient fire extinguishers, spoil/ waste stockpiles, HSE standards violation, trees damage.

49. SC and RD will monitor the improvements under the project and reflect findings in the next Semi- annual EMR as of January-June 2023 reporting period. During reporting period, the CS worked with local municipalities to reinstate the road to its pre-existing

condition on LOT2.

4.4 Material Resources Utilization

50. BSG obtained licenses for gravel and sand extraction (N10000836; N1000948; N1000491. N10000686). The quarry processing projects within these licenses have been prepared and approved by the Ministry of Economy. CC for the Lot 1 have not used any quarry sites during the reporting period. Contract with Lot 2 CC - "Akkord ICIC" has been terminated and CC completely abandoned construction site and accordingly has not used any quarries during the reporting period.

4.3.1 Current Period

51. For current reporting period water, gas and electricity consumption for LOT 1 is given below:

Water	M ³	2788
Gas	M ³	3987
Electricity	KWT/Hour	372183

52. Water, gas and electricity consumption data for LOT 2 are not available since there were no construction activities during the reporting period.

4.5 Waste Management

53. For Lot 1, CC established the waste segregation and disposal procedure during the reporting period within the arranged deadline given under the Corrective Action Plan (CAP). Appropriate waste containers for hazardous and domestic waste are installed and labeled. The warehouse for hazardous waste is arranged at the Kharagauli camp site (Lot 1). The agreement was signed with local cleaning service and domestic waste is removed twice a week, also for hazardous waste disposal agreement has been concluded with the relevant licensed company - "Ecomedi". For LOT2 waste have not been generated during the reporting period, because contract with CC Akkord has been terminated and CC Akkord abandoned the site.

4.5.1 Current Period

54. Insignificant amount of hazardous waste (~50kg) kept in warehouse at Kharagauli camp **(special room with concrete floor and locked metal gate with warning)**. So, there is no possibility of soil or ground water contamination. "Ecomedy" (licensed company) will remove and dispose hazardous waste from the construction sites in June 2023. 12 M municipal waste from the sites removed and disposed by the licensed contractor (Kharagauli Cleaning Service) in every two weeks.

55. Photos of the hazardous waste storage area and municipal waste containers are provided in the **Figure 3**.

Figure 3. Hazardous and Municipal waste management (LOT 1)



56. Spoil dumping areas agreed with local landowners and formal agreements concluded with them. Small volume (50 kg) of the hazardous waste is kept in the special room at the Kharagauli camp and finally will be deposited by the licensed contractor "Ecomedi" under LOT1.

57. CC of LOT 2 has not provided any information regarding waste disposal since CC "Akkord" completely abandoned the site.

4.6 Health and Safety

58. No accidents/near misses have been reported during the reporting period.

4.5.1 Community Health and Safety

59. BSG (LOT 1) assigned H&S officer (Dato Verulashvili) to oversee H&S performance at the construction sites and camps. During this reporting period no accidents have been identified and recorded in the H&S log book.

4.5.2 Workers Safety and Health

60. During July-December 2022 reporting period no accidents have been recorded. Log books for HSE accidents prepared and kept at the camp site. CS carried out monitoring of the construction sites for LOT 1.

61. All H&S procedures associated with COVID-19 pandemic and recommended by WHO and Georgian government are addressed and followed. H&S plan has been updated according to ADB request on 26.11.2020. Special COVID 19 Emergency Response plan has been elaborated by CCs on 26.11.2020.

4.7 Training

62. HSE induction training was provided to the contractor's relevant staff during the previous reporting periods. During the July-December 2022 reporting period no trainings were carried out.

4.8 Grievance Redress Mechanism

63. 5 complaints received during the reporting period by SC. Four of them are still under review. Two of them are related to damage of Infrastructure / assets, one - to crop compensation, one – HSE concerns and the last is related to the restriction or loss of access. One complaint out of 5 is accepted and closed. For more details, please see **ANNEX 2**.

5. FUNCTIONING OF THE SEMP

5.1 SEMP Review

64. SEMP for LOT 1 was approved on 12.02.2019. SEMP for LOT 2 was approved on 18.06.2020. During preparation of SEMP existing EMP was used as a baseline document by CCs.

65. Based on previous SAEMRs used mitigation measures are effective and there is no need for corrections or alternatives. So, no changes needed in the mitigation measures of the Environmental Management Plan at the moment. SEMP for both Lots have been updated according to ADB's requirements and include anti-COVID –19 Measures.

6. GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT

6.1 Good Practice

66. Only LOT 1 Construction Contractor (BSG) carried out construction activities during the July-December 2022 reporting period. No accidents took place during the reporting period.

6.2 Opportunities for Improvement

67. To address pending corrective actions related to proper hazardous waste management, health and safety issues, etc. CC should provide relevant site staff with housekeeping and pollution prevention trainings, also provide field staff with H&S trainings, namely: I) Heavy Equipment Operation, ii) PPE, iii) Tripping & Slipping Hazards, iv) Deep Excavation Safety, v) Fire Safeties.

68. Received 4 complaints will be resolved during next January-June 2023 reporting period.

7. SUMMARY AND RECOMMENDATIONS

7.1 Summary

69. It should be highlighted that during the July-December 2022 reporting period the HSE performance of the Contractor - BSG (LOT 1) was satisfactory. The actions of the Contractor didn't have any negative effect on biodiversity and no poaching actions were evident. No safety accident or near misses were identified. 5 grievances received from the local habitants and recorded in relevant logbook. One grievance accepted and resolved, 4 grievances are under review and resolution.

70. During the July-December 2022 reporting period construction activities were implemented only on LOT 1.

71. Generally, Environmental Monitoring Specialist of Pyunghwa Engineering Consultants Ltd, Yoshin Engineering Corporation and Roads Rehabilitation and Modernization Supervision Direction Ltd, Mr. Shalva Bosikashvili conducted monthly monitoring of project sites. He also developed Semi-Annual environmental monitoring reports based on the monthly reports and submitted to RD.

72. Generally, monitoring activities included monitoring of compliance of construction activities to the IEE/EMP and SEMP requirements for Rehabilitation of Dzirula – Kharagauli –Moliti – Pona – Chumateleti Secondary Road project.

73. During the reporting period, Environmental Specialist of RD, Ms. Luiza Bubashvili performed monitoring of CS and contractor's performance in accordance with the requirements of approved IEE/EMPs, SEMP.

74. In accordance with the IEE, and the accompanying Environmental Monitoring Plan (EMP), the Contractor is required to undertake parametric measurements and observations on air quality, surface water quality, noise and socio-cultural resources.

75. The issues identified during this monitoring period are summarized in **Table 12**.

Table 12. Issues Identified During the Monitoring Period (July-December 2022) (including the pending issues from the previous report(s))

	Issue	RequiredAction	Responsibility	Timing (TargetDates)
	LOT 1:			
1.	Backhoe operates without flagman	Provide flagman during the operation	Contractor	17.10.2022 Done
2	Spoil stockpiles and waste timber are not segregated and disposed to the specially dedicated area	Spoil stockpiles and waste timber should be segregated and disposed to the specially dedicated area	Contractor	17.10.2022 Done

3	Power generator is disposed without drip tray	Provide power generators with drip tray	Contractor	17.10.2022 Done
4	Workers are not wearing PPE	Obligate workers to wear PPE	Contractor	17.10.2022 Done
LOT 2				
1.	No construction activities performed during the reporting period and therefore no non-compliances revealed during July-December 2023 reporting period.			

7.2 Recommendations

76. The following activities are planned for the next January-June 2023 reporting period:

LOT1

- According to the monitoring plan defined under IEE and SSEMP parametric measurements of the air/water quality and noise/vibration should be scheduled and performed in case of need during January-Jee 2023 reporting period;
- CC to undertake trainings for housekeeping improvement and pollution prevention;
- CC to undertake H&S Trainings: Heavy equipment working procedure, PPE issues, rebar capping, deep excavations and cuts hazard prevention, nighttime warning signs;
- CC to undertake monthly HSE Inspections;
- CC, SC and RD to resolve 4 complaints received during the reporting period.

LOT2

- **After the Bidding procedure new contractor company** should be provided with induction training and informed about their responsibilities in HSE sphere.

ANNEXES:

Annex 1: Site Photos

Date of site visit: 01.11.2022

Earthworks



KM6+460– KM6+500Embankment



KM6+110– KM6+290Excavation, Cut, Fill.

Installation of Lego Blocks



KM2+580–KM2+672InstallationofLego Blocks

Construction of Bus Stops



KM 2+467 Construction of Bus Stop



KM 14+822 Construction of Bus Stop

Cast in Situ Lean Concrete



KM 6+550 – KM 6+750 (LHS) Casting Lean Concrete



KM 2+460 – KM 2+590 (LHS) Casting Lean Concrete

Artificial Structures



KM 0+409 Installation of Pipe



KM 6+428 Installation of Pipe.

Annex 2: Complaints

#	Project	Form (verbal or written)	Recipient	Date Received	Location(sect ion/KP)	Community (City/Village)	Soc/Env&HSE	Name & contact of Complainant	Complaint Category	Complaint Description	Resolution Description	Resolution	Resolution Date	Substantiated	Status	Days open	Comments
104	KCMP (Secondary RP)	Written	RD	01.06.22	km42+265-km42+318	Kharagauli village Phona	Env&HSE	Nozadze Gulnaz	Damage to Infrastructure /Assets	Ms. Gulnazi states, that in the process of construction of the reinforced concrete bridge at km 42+300, with the owner of the land she has verbally agreed with the Contractor, that temporary bypass road would be arranged in her land plot. The estimated time has already passed, although the temporary road is not removed from her land plot till present. She requests to Remove the temporary bypass road from her plot.	On 02.06.2022 the mentioned issue was studied in place (in the reinforced concrete village Phona) together with the owner of the land plot. The corresponding Minutes was prepared. On 10.06.2022 the Employer was informed in writing about the opinion of the Supervision Engineer.	Under review		Pending	Open	211	
105	KCMP (Secondary RP)	Phone Call	PYUNGHW A	28.06.22	km2+870-km2+900	Zestaphoni village Dzirula	Env&HSE	Gelashvili Paata	Damage to Infrastructure /Assets	Mr. Gelashvili states, that after rains the water is accumulating at km2+870 of the road, leaks into the earth bed and flows into his yard. The above mentioned results in flooding of his yard. He requests to solve the problem.	On 06.07.2022 the mentioned situation was studied in the village Dzirula together with the land plot owner and corresponding Minutes was prepared. it should be mentioned, that construction of drainage channel and sidewalks is considered on the mentioned section, which has not been started by the Contractor yet. After completion of these works, the problem will be solved. On 11.11.2022 the drainage channel was constructed on the mentioned Section, which ensures the flow of the accumulating water. .	Accepted	11.11.22	Substantiated	Closed	136	

106	KCMP (Secondary RP)	Written	RD	28.07.22	km7+440- km7+504	Kharagauli village Lashe	Social	Tsulukidze	Crop Compensation	Resident Valentina Tsulukidze states, that in the process of constructing Lego type retaining wall, the Contractor has cut slope along her land plot.	On 03.08.2022 the request stated in the letter of Valentina Tsulukidze was studied in place, in the village Lashe. Besides the owner of the land plot, the representative of the local municipality in the administrative unit of village Lashe, Mr. Kakha Kvinikadze has also participated in the discussion of the issue. The Employer was informed in writing about the opinion of Engineer concerning the mentioned issue.	Under review		Pending	Open	154
107	KCMP (Secondary RP)	Written	RD	24.11.22	km 15+475- km15+530	Kharagauli village Saghanshile	Env&HSE	Kiknadze Darejan	HSE Concerns	Resident Darejan Kiknadze states, that in the process of constructing Lego type retaining wall, the Contractor has destroyed her fence. She requests restoration of the damaged fence.	On 24.11.2022 the request stated in the letter was studied in place. Corresponding Minutes was prepared. The Employer was informed in writing about the opinion of the Engineer concerning the mentioned issue.	Under review		Pending	Open	35
108	KCMP (Secondary RP)	Written	RD	09.12.22	km2+608	Zestaphoni village Dzirula	Social	Ebanoidze Davit	Restriction or loss of access	Mr. Ebanoidze states, that in the process of road construction, access road to the school gates was damaged, also road from gate till school is Damaged. Requests arrangement of a/concrete pavement	On 12.12.2022 the issues mentioned in the letter were studied in place and relevant Minutes was prepared. On 15.12.2022 Employer was informed in writing.	Under review		Pending	Open	20

Annex 3 - Surface water and dust baseline sampling points

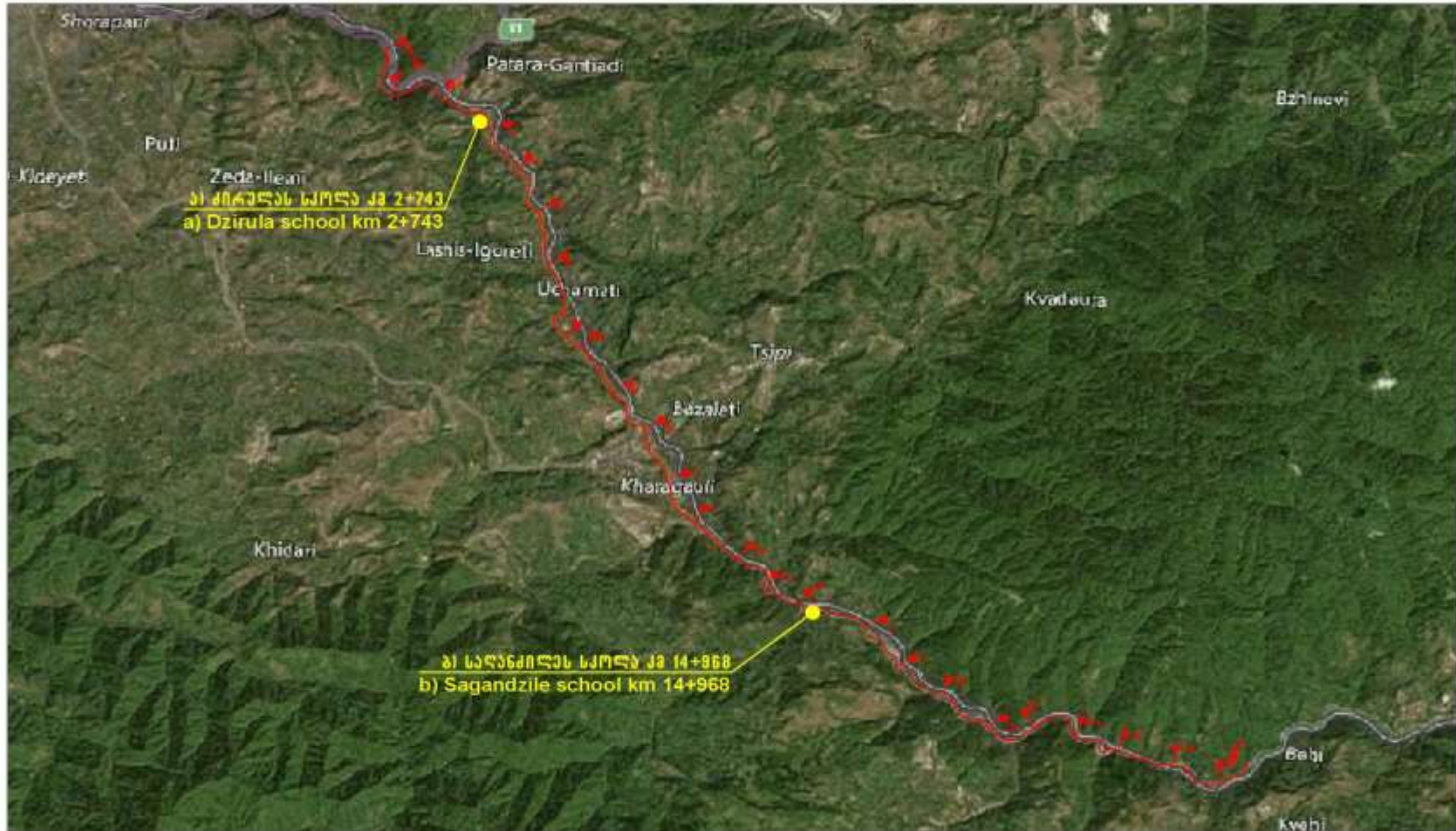
წყლის სინჯების აღების ადგილები
Water sampling places



პირაქვეყნის ადგილობრივი
LEGEND


- სანაკრებო გზა
Desing Road
- წყლის სინჯების აღების ადგილები
Water sampling places
- 17 კილომეტრი
kilometres

**მტკრის სინჯვის ადგილის ადგილზე
Place of dust sampling**



**პროექტის ადგილმდებარეობა
LEGEND**

 საავტომობილო გზა
Desing Road

 მტკრის სინჯვის ადგილის ადგილი
Place of dust sampling

 17 კილომეტრი
kilometres

Annex 4: EMoP per IEE

EMoP - Construction Phase Instrumental Monitoring

EMoP: Construction Phase Instrumental Monitoring					
Issue	Mitigation	Locations	Schedule	Responsibilities	Reporting
Air Quality	<p>The Contractor shall establish routine Air Quality Monitoring throughout the construction period. The following parameter shall be monitored:</p> <ul style="list-style-type: none"> Dust (PM 10 and PM 2.5), 	<p>At the locations of the baseline measurements and at the Asphalt Plant location.</p> <p>Baseline measurements were conducted at:</p> <ul style="list-style-type: none"> Dzirula School (km 2+743) Sighandzile School (km 14+968) Moliti Ambulatory (km 28+473) Moliti school (km 29+032) 	Monitoring to be undertaken monthly during construction phase.	The Contractor shall hire an independent monitoring specialist to perform the monitoring activities.	The Independent monitoring Specialist shall provide his results to the Contractor and Engineer within three days of the sampling activity.
Surface Water Quality	<p>The Contractor shall ensure that routine surface water monitoring is undertaken throughout the construction period. Measured water quality parameters shall include</p> <ul style="list-style-type: none"> Total Suspended solids (TSS) Biological Oxygen Demand (BOD) Conductivity Fecal coliform Oil and grease or Total Petroleum Hydrocarbon (TPH) 	<p>Baseline monitoring locations include:</p> <ul style="list-style-type: none"> All locations where baseline measurements were done in this IEE. These are at 5 Sampling stations.: Station 1 is located at the lower region of the Dzirula River; Stations 2 and 4 were tributaries of Chkherimela River; Station 3 is the mid-reach of the Dzirula-Kharagauli rivers; and Station 5 is the headwaters of Chkherimela River. 	Monitoring to be undertaken monthly	Responsibilities – The Contractor shall hire an independent air quality monitoring specialist.	The Independent monitoring Specialist shall provide his results to the Contractor and Engineer within three days of the sampling activity.
Noise	<p>The Contractor shall ensure that routine noise monitoring is undertaken throughout the construction period. Parameters to be monitored to establish a baseline include:</p> <p>Laeq 1h (dBA) Average Daily Noise level</p>	<p>At the locations of the baseline measurements:</p> <ul style="list-style-type: none"> Dzirula School (km 2+743) Sighandzile School (km 14+968) Moliti Ambulatory (km 28+473) Moliti school (km 29+032) 	Monthly throughout construction.	The Contractor shall hire an independent noise monitoring specialist.	The Independent monitoring Specialist shall provide his results to the Contractor and Engineer within three days of the sampling activity.

Annex 5: EMoP per CC BSG SSEMP

Environmental Monitoring Matrix: Construction Phase

Object of monitoring	Control/Sampling Point	Technique	Frequency/Time	Target	Entity responsible for Monitoring
Possession of official approval or valid operating license and permits	Supplier of materials (asphalt, cement and gravel)	Inspection	Before an agreement for the supply of materials is formalized	Existence of relevant documentations	Supervising Agency
Truck loads covered/ wetted Air pollution due to the dust and fumes related to the Material Transport	Construction site and access road	Supervision	Daily Unannounced inspections during work hours	Assure compliance with HSE requirements. Ensure safety, and minimize traffic disruption	Constructing Contractor, RD, Supervising Agency
Top-soil storage reinstatement, Erosion control Landscape destruction Visual impacts	Construction site	Supervision	Daily (Unannounced inspections during work hours); From top-soil stripping – to completion of the works	Assure compliance with construction standards, environmental norms and EMP provisions	Constructing Contractor, RD, Supervising Agency
Rivers Visual Inspection Turbidity	Within Rivers Upstream and downstream of worksite and at worksite	Observation Instrumental measurement of water turbidity, COD, BOD, TPH upstream and downstream	To be conducted prior to construction, periodically during construction (once per week for Turbidity) and following construction completion in the river.	Assure that turbidity is not excessively higher during construction than natural levels in the river. Confirm that other parameter levels have not been exceeded and to confirm that mitigation measures are working or need adapting	Constructing Contractor, RD, Supervising Agency, MEPA
Noise and vibration levels (refer to dedicated Noise and Vibration Monitoring Plans for further detail)	Construction Site Near the residential buildings	Inspection, compliance monitoring (equipment in use approved, engine maintenance,	Periodic (as detailed in noise and vibration monitoring plan)	Assure compliance with HSE requirements, good condition of standard construction machinery and	Constructing Contractor, RD, Supervising Agency, MEPA

		usage of mufflers, night time work limitations and other provisions of EMP), monitoring of noise continuously at a representative residence near construction activities, noise and vibration measurement by special device		limiting the works near settlements Compliance with the noise and vibration standards Compliance with the recommendations adopted by the additional studies on assessment and prevention of vibration impacts on the structural integrity of buildings. Admissible thresholds: Noise – 55dBA(Daytime) – 45 dB (Night time) Vibration 74 dB (Daytime)	
Vibration Admissible thresholds: Vibration 74 dBV (Daytime)	Construction site Near the residential buildings	Supervision (refer to dedicated Noise and Vibration Monitoring Plans for further detail)	Unannounced Inspections (as outlined in noise monitoring plan); following complaints	Assure compliance with HSE requirements.	Constructing Contractor, Supervising Agency,
Dust and Air pollution (solid particles, suspended solids, flying heavy metal particles) (dust, CO) Criteria: MAC for dust 0.15mg/m3 For cement dust – 0.5mg/m3 And MAC for CO).5 mg/m3	Near residential buildings Along the whole alignment of the road	Visually and instrumentally (dust, CO)	Daily During material delivery and periodically (weekly) in dry periods during construction	Assure compliance with HSE requirement, assure compliance with environmental norms and EMP provisions	Constructing Contractor, RD, Supervising Agency

Traffic safety/ Vehicle/ pedestrian access Visibility/ appropriate signs	Construction site	Observation	Once per week in the evening	Assure compliance	Constructing Contractor, RD, Supervising Agency
Material and waste storage, handling, use Water and soil quality (suspended solids, oils, etc.)	Material and waste storage sites; Run off from site; material storage areas; wash down areas	Observation Instrumental measurement of water turbidity, COD, BOD, TPH upstream and downstream	During material delivery and periodically during construction (average 1/week), especially during Precipitation (rain/snow/ etc.). Quarterly during construction	Assure pollution abatement; Assure compliance with construction standards, environmental norms and EMP provisions	Constructing Contractor, RD, Supervising Agency – instrumental
Waste Management	All construction sites, Camps	Observation	Once per week	Assure pollution Abatement, Assure compliance with, construction standards, environmental norms and EMP provisions	Constructing Contractor, RD, Supervising Agency
Equipment maintenance and Fueling Water and soil quality (suspended solids, oils, fuel, etc)	Refueling and equipment maintenance Facilities, Run off from site, material storage areas	Observation	During material delivery and periodically during construction (average 1/week), especially during precipitation (rain/snow/ etc.).	Assure pollution abatement	Constructing Contractor, RD, Supervising Agency,
Impacts on archaeological sites and remnants	All earthwork sites	Observation	Permanent/daily	Assure cultural heritage protection	Archaeologist from MoCS Constructing Contractor, Supervising Agency,
biological recontamination during earthworks near pestholes of soil infections (e.g. anthrax);	All earthwork sites	Observation	Permanent/daily	Assure health protection	Constructing Contractor, RD, Supervising Agency, Veterinary Department of the MEPA

Protection of infrastructure elements	Crossings of power lines, pipelines;	Observation	During construction activities at the sites of concern	Assure infrastructure protection	Constructing Contractor, RD, Supervising Agency,
Offset tree planting Program	TBD	Observation	During Construction period	Assure offset of damage to flora and landscape	Constructing Contractor, RD, Supervising Agency, MEPA
Reinstatement of work sites	work sites, road alignment, used quarries, camp sites	Observation	During Construction period, after completion of works at concrete site	Reinstatement of work sites not taken by Row	Constructing Contractor, RD, Supervising Agency,
Disposal of construction wastes	work sites, road alignment, used quarries, camp sites	Observation	During Construction period, after completion of works at concrete site	Ensure pollution prevention and landscape protection;	Constructing Contractor, RD, Supervising Agency,
Personal Protective equipment. HSE issues Organization of traffic by-pass	Construction site	Inspection	Unannounced (Daily) inspections during works	Assure compliance with HSE requirements	Constructing Contractor, RD, Supervising Agency,

Annex 6: Non-Compliance Notice

Non-Compliance Notice

Project: Construction Supervision of Rehabilitation of Dzirula – Kharagauli –Moliti – Pona – Chumateleti Secondary Road Section (50 Km) –Lot 1	Non-compliance Notice Rehabilitation of Dzirula – Kharagauli – Moliti – Pona – Chumateleti Secondary Road Section (50 Km) –Lot 1 (Contractor-BSG)
Contract No: SRIP/CS/QCBS-01	
Contractor: BSG	
Reference: LOT 1 construction sites	
<p>This notice is to advise the prime Contractor, on the referenced Contract, of the following notice on health, safety and environmental measures to be implemented urgently.</p>	
<p><u>GENERAL COMMENT FOR ALL SITES:</u> All construction materials and wastes should be properly segregated and stored adequately, Oil spills should be prevented, Oil spill response kits and drip trays should be placed at the appropriate locations, Housekeeping must be improved, H&S culture should be established and maintained.</p>	
<p><u>NON-COMPLIANCE at the Lot 1 construction sites</u></p>	
<ul style="list-style-type: none"> - Backhoe operates without flagman - Spoil stockpiles and waste timber - Power generator placed without drip tray, - Workers are without PPE 	
<p><i>Backhoe operates without flagman</i></p>	<p><i>Spoil stockpiles and waste timber</i></p>



Power generator without drip tray, workers without PPE

Date of site visit: 07.10.2022

All these conditions have to be remedied within 10 days by the prime Contractor (BSG).

Shalva Bosikashvili - Environmental specialist - Roads Rehabilitation and Modernization Supervision Direction Ltd,

Luiza Bubashvili - Environmental Safeguard Consultant under ADB & EIB financed Projects (RD)

Annex 7: Variation Order No. 7

VARIATION ORDER No.7

Project: Rehabilitation of Dzirda – Kharagauli – Moliti – Pona – Chmatelisi Secondary Road,
 Dzirda – Moliti Section from km 0+000 to km 24+620
 პროექტი: ძირულა-ხარაგაული-მოლიტი-ფონა-ჩუმათელისი მეორეხარისხიანი გზის
 რეაბილიტაცია,ძირულა-მოლიტი საგზაო სექცია კმ 0+000 - კმ 24+620

Subject of Variation: According to the minutes of the meeting in the Roads Department of Georgia on June 24,2022 as a result of mutual agreement reached between the parties, it became necessary to remove certain sections from the project which led to the issuance of the Variation Order No. 7.

ცვლილების საფუძველი: საქართველოს საავტომობილო გზების დეპარტამენტში 2022 წლის 24 ივნისს გამართული მხარეთა შორის მიღწეული ურთიერთ-შეთანხმების შედეგად გახდა საჭირო გარკვეული მონაკვეთების პროექტიდან ამოღება, რის შედეგადაც გამოიცა ვარიაციის ბრძანება No7.

PEC/RD/DCSRS-22- 035 dated 27th June 2022
 PEC/RD/DCSRS-22- 035 27 ივნისი 2022

შეხვედრის ოქმის მიხედვით პროექტიდან ამოღებული სამუშაოების საბოლოო ჯამი
 The final sum of the works removed from the project according to the Meeting Of Minutes

სექცია/section	მთლიანი ჯამი დღგ-ს გარეშე/ Total Without VAT	დღგ 18% / VAT 18%	ჯამი დღგ-ს ჩათვლით / Total including VAT
კმ 0+000 - კმ 0+230	633,124.20	113,962.36	747,086.56
კმ 6+290-კმ 6 +350	53,888.80	9,699.98	63,588.79
კმ 10+600-კმ11+080	293,747.84	52,874.61	346,622.45
კმ 11+080-კმ 12+270	383,134.15	68,964.15	452,098.30
კმ 22+670-22+900	35,553.60	6,399.65	41,953.24
კმ22+900-კმ24+620	1,144,389.34	205,990.07	1,350,379.37
Total /ჯამი	2,543,837.93	457,890.82	3,001,728.70

Bases: Engineer Letter No. PEC/RD/DCSRS-22- 034 dated 26th June 2022
 საფუძველი: ინჟინრის წერილი PEC/RD/DCSRS-22-034 26 ივნისი 2022

Issued by: JV of PEC, Yooshin and BRMSD
 Team Leader

გადამცემი: Pec, Yooshin & BRMSD ერთობლივი საწარმო
 ჯგუფის ხელმძღვანელი

Attachment/ დანართი:

- 1.BOQ
- 2.Relevant Correspondences / შეხებაშინი კორესპონდენცია
3. MOM



/ Mr. KIM Kyu Nam

/ კიმ კი ნამი

ANNEX 8: Baseline data for water quality, dust/noise and relevant Georgian Standards

Table 1: Surface water quality Baseline

N	River	Oxygen	SuspendedParticles	TPH	e-coly
1	Dzirula	8.3	128.3	0.02	5200
2	Jijaura	8.4	23.1	0.01	2600
3	Legvanura	8.0	28.4	0.01	1800
4	Chkhirimela (Middlepart)	7.8	56.9	0.03	4700
5	Chkirimela (upperpart)	8.1	30.6	0.01	1900

Table 2: Georgian Standards for Surface Water Quality

N	Parameter	Allowed concentrations	Unit
General Parameters			
1	ph	6.5-8.5	-
2	Turbidity	-	NTU
3	Total suspended solid	-	Mg/l
4	Total dissolved Solids	1000	Mg/l
5	Hardness	-	mgeqv./l
6	BODS	6 b	Mg/l
7	COD	30	Mg/l
8	Chloride	350	Mg/l
9	Alkalinity	-	Mg/l
Major ions			
10	Sodium	200	Mg/l
11	Calcium	180	Mg/l
12	Potassium	-	Mg/l
13	Sulphate	500	Mg/l
Microbiology			
14	Totalcoliforms	-	in 1 dm3
15	E-coli	5000	in 1 dm3
16	Fecalstreptococci	-	in 1 dm3
Metals (Total)			
17	Iron – Fe	0.3	Mg/l
18	Zinc - Zn	1	Mg/l
19	Cadmium - Cd	0.001	Mg/l
20	Copper - Cu	1	Mg/l
21	Nickel-Ni	0.1	Mg/l
22	Arsenic - As	0.05	Mg/l
23	Lead – Pb	0.05	Mg/l
24	Chrome - Cr	0.5	Mg/l
25	Manganese-Mn	0.1	Mg/l

26	Mercury	0.0005	Mg/l
27	Aluminum – Al	0.5	Mg/l
28	Antimony - Sb	0.05	Mg/l
29	Barium - Ba	0.1	Mg/l
30	Boron - B	0.5	Mg/l
31	Selenium - Se	0.01	Mg/l

Source: Maximum Admissible Concentrations of the harmful substances in surface water are provided in the Environmental Quality Norms approved by the Order #297N Ministry of Labour, Health and Social Protection, (16.08.2001) (as amended by the Order No 38/nof the same Ministry of 24.02.2003)

Table 3: Dust and Noise baseline

N	Measurement Points	Dust PM2.5	Dust PM10	Noise DB Amax
1	Dzirula School	33 67	39 98	48.9 53.2
2	Sghandzile School	29 168	34 218	51.2 55.4

Table 4: Georgian Standards for Ambient Air Quality

Pollutants	Maximum permissible concentrations (mg/m ³) average time	
	Maximal concentration for 30 minutes	Average daily concentration
Nitrogen Dioxide	0.085	0.04
Sulfur Dioxide (SO ₂)	0.5	0.05
Carbon Oxide	5.0	3.0
Inorganic Dust	0.3	

Source: Law of Georgia on Public Health, the environmental qualitative norms are approved by Decrees of the Minister of Labor, Health and Social Affairs of Georgia (Decrees Nos. 297/N of 16.08.2001, including the changes made to it by further decrees of the Ministry Nos. 38/N of 02.24.2003, 251/N of 09.15.2006, 351/N of 12.17.2007). and rule for calculation of index of pollution of atmospheric air with hazardous pollution (#89, 23 October 2001) Minister of Environment Protection and Natural Resources