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6.22 Impact Assessment Summary

Table 6.22.2 to Table 6.22.19 present summaries of potential environmental and social impacts and Project benefits, by discipline. The summary impact tables are provided to facilitate use of the ESMP and to provide context for the various initial management plans developed during the ESIA preparation and presented as appendices to this chapter. Where necessary, monitoring plans have been or will be developed to verify that impact mitigation and benefit enhancement activities are complying with design goals and regulatory requirements.



The summary of impacts have been assessed in accordance with the matrix in Table 6.22.1

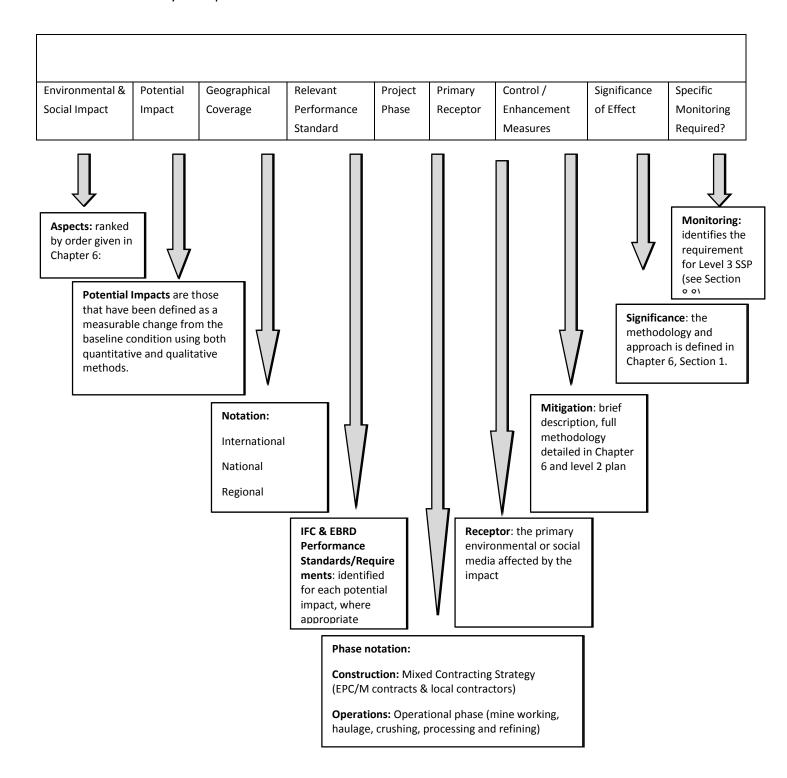


Table 6.22.1: Approach to the Summary Analysis of Impacts and Effects



							Table 6.22.	2: Greenhouse and	Climate	Change	– Sumn	ary of P	otential	Impacts ar	nd Effect	ts									
				Pi	roject Pha	ase						-		-		cance of	Effect								
Environmental / Social Impact	Potential Impact	Geographical Coverage	Relevant Performance Standard /			Closure and Rehabilitation	Primary Receptor	Control / Enhancement	Very High	Major	Moderate	Minor/ negligible	Positive	Very High	Major	Moderate	Minor/ negligible	Positive	Very High	Major	Moderate	Minor/ negligible	Positive	Specific Monitoring Requirements	Management Plan Reference
			Requirement	ion	Su	nd R		Measures		With	out Miti	gation		V	Vith Mit	igation (Short To	erm)	Witl	n Mitiga	tion (L	ong Term))	kequirements	
				Construction	Operations	Closure a																			
Greenhouse Gas Emissions	GHG including Carbon dioxide equivalent emissions (CO₂e)	Local - Site Wide	PS1, PS3	x	X		Atmosphere	Energy efficiency measures in engineering design; energy efficient mobile plant; reduced idling in construction vehicles and , continued maintenance of construction vehicles and machinery; use of biofuels, renewable energy and green electricity (when available) to power some facilities, review energy intensive uses for energy efficiency opportunities during detailed design																Yes	Energy & Carbon audit To be developed after Year 1 A greenhouse gas emissions monitoring programme will be established as part of a carbon and energy management plan
Climate Change	Temperature Increase	Site Wide/Region wide	PS1, PS3, PS4	х	х		(impacts to the project from a changing climate)	changes already built into the design and operational proposal																No specific monitoring	n/a
Abbreviations:		GHG: Greenhouse	e Gas										<u> </u>	-	-	•				<u>_</u>	<u>_</u>			•	



							Table 6.22.3: Landscape	and Visua	al Impact	t – Sumi	mary of	Potentia	al Impa	acts and	l Effects	3								
													•		ignifica		ffect							
Receptor	Viewpoint	Direction of Effect (neutral infers both	Relevant Performance Standard /	Pro	ject Pha	ase	Control / Enhancement Measures	Very High	Constru Sajor	Moderate	Minor / Negligible	Positive		Very High	Major	- suoite	Minor / Negligible	Positive	Very High	Major	Moderate	- Year 1	Specific Monitoring	Management Plan Reference
		adverse and positive)	Requirement	Construction	Operations	Closure and Rehabilitation	1		Constru	action -	Teal 2				Opera	icions -	Teal 7			Liosure	рпаѕе	- rear 1:	Requirements	nererenee
	Settled Lowland and Rocky Gorges	Adverse (neutral post closure)	PS1	х	х	х	*																Yes	FMP, EMP, pMRCRP and BMP
	Lower Farmed and Settled Foothills	Adverse (neutral post closure)	PS1	х	х	х	*																Yes	FMP, EMP, pMRCRP and BMP
Landscape Receptors	Forested Upper Gorge and Foothills	Adverse (neutral post closure)	PS1	х	х	х	*																Yes	FMP, EMP, pMRCRP and BMP
	High Steppe and Plateau Grassland	Adverse (neutral post closure)	PS1	х	х	х	*																Yes	FMP, EMP, pMRCRP and BMP
	Highland Hills and Grazing	Adverse (neutral post closure)	PS1	х	х	х	*																Yes	FMP, EMP, pMRCRP and BMP
	High Rocky Peaks	Adverse	PS1	х	Х	х	*																Yes	FMP, EMP, pMRCRP and BMP
	VP 1: Top of Jermuk Ski Lift	Adverse (neutral post closure)	PS1	х	х	х	*HLF design modified to reduce visual impact.																Yes	FMP, EMP, pMRCRP and BMP
	VP 2: Hotel Olympia, Jermuk	Adverse (neutral post closure)	PS1	х	х	х	*HLF design modified to reduce visual impact.																Yes	FMP, EMP, pMRCRP and BMP
	VP 3: Hotel Armenia, Jermuk	Adverse (neutral post closure)	PS1	х	х	х	*HLF design modified to reduce visual impact.																Yes	FMP, EMP, pMRCRP and BMP
Representative Viewpoints –	VP 4: Deer Sculpture west of Jermuk	Adverse (neutral post closure)	PS1	х	х	Х	*HLF design modified to reduce visual impact.																Yes	FMP, EMP, pMRCRP and BMP
Visual Receptors	VP 5: Western edge of Gndevaz Village	Adverse (neutral post closure)	PS1	х	х	х	*HLF design modified to reduce visual impact.																Yes	FMP, EMP, pMRCRP and BMP
	VP 6: H-42 Road south of Gndevaz	Adverse / neutral post closure	PS1	х	х	х	*HLF design modified to reduce visual impact.																Yes	FMP, EMP, pMRCRP and BMP
	VP 7: Road South-west of Heap Leach Facility																						Yes	FMP, EMP, pMRCRP and BMP



							Table 6.22.3: Landscape	and Visua	al Impac	t – Sumi	mary of	Potentia	l Impa													
														S	Significa	nce of	Effect									
Receptor	Viewpoint	Direction of Effect (neutral infers both	Relevant Performance Standard /	Pro	oject Ph	ase	Control / Enhancement Measures	Very High	Major Constru	- Moderate	Aea Minor / Negligible	Positive		Very High	Major	Moderate	Minor / Negligible	Positive		Very High	Major Closure	Moderate	Minor / Negligible		Specific Monitoring	Management Plan Reference
		adverse and positive)	Requirement	Construction	Operations	Closure and																			Requirements	
	VP 8: Armenian Silk Road (M2 Road) near Junction with the H-42 Road	Adverse (neutral post closure)	PS1	х	х	х	*																		Yes	FMP, EMP, pMRCRP and BMP
	VP 9: Armenian Silk Road (M2 Road) in Saralanj village	Adverse (neutral post closure)	PS1	x	X	Х	*																		Yes	FMP, EMP, pMRCRP and BMP
	VP 10: North end of Ughedzor Village	Adverse (neutral post closure)	PS1	Х	x	х	*																		Yes	FMP, EMP, pMRCRP and BMP
Representative Viewpoints – Visual Receptors	VP 11: Syunik Gates on the Vorotan Pass (M2 Road) betwe en Saravan and Goryak	Adverse (neutral post closure)	PS1	х	Х	х	**																		Yes	FMP, EMP, pMRCRP and BMP
	VP 12: Armenian Silk Road (M2 Road) between Tsguyk and Gorayk	Adverse (neutral post closure)	PS1	х	х	х	*																		Yes	FMP, EMP, pMRCRP and BMP
	VP 13: Minor road through Vorotan Valley	Adverse (neutral post closure)	PS1	х	х	х	*																		Yes	FMP, EMP, pMRCRP and BMP
	VP 14: Little Erato	Adverse (neutral post closure)	PS1	Х	х	х	*																		Yes	FMP, EMP, pMRCRP and BMP
Abbreviations:							getated area are minimised. Storage positioning of night time lighting.	of topso	il. Desigr	of proje	ect infras	structure	e, inclu	uding ha	aul road	ls, to m	inimise v	isibility.	. Vege	tated e	arth bu	nd scre	ening. U	se of mi	uted colours for b	ouildings and non-



		1	1	r				Table 6.22.4: Air	Quality -	- Summ	ary of P	otential	Impacts	s and E										1	_
																Signific	cance of	f Effect							
Environmental / Social Impact	Potential Impact	Geographical Coverage	Relevant Performance Standard /	Pro	oject Ph	ase	Primary Receptor	Control / Enhancement Measures	Very High	Major	Moderate	minor / Negligible	Positive		Very High	Major	Moderate	Minor / Negligible		Very High	Major Major	Moderate	Dans / Minor / A Negligible	Specific Monitoring Requirements	Management Plan Reference
			Requirement	Construction	Operations	Closure and Rehabilitation																			
Air Quality	Fugitive dust / Particulate (Blasting, Drilling, Conveying, Loading, Haulage and Crushing)	Local - site- wide	PS1, PS2, PS4	х	x		Nearby neighbours, Grazing lands/local flora, fauna, employees	Road watering, speed control, chemical dust control, proper vehicle maintenance, complaint monitoring, berms to shield sensitive areas, PPE, infrastructure design e.g. covered crusher and enclosed conveyor, cover truckloads of fill material, dust suppression/contr ol equipment at loading and unloading, storage and transfer points.																Yes	AQNVMP (Appendix 8.14) and OHSP (Appendix 8.7)
	Combustion Engine and Point Source Emissions	Local - site- wide	PS1, PS2, PS4	х	х	х	Nearby neighbours, employees	Regular vehicle maintenance, speed control, emission control devices (e.g. catalytic converters, etc.), reduce vehicle idling times																Yes	AQNVMP (Appendix 8.14) and OHSP (Appendix 8.7)
	Nuisance odours from sewage treatment	Local - site- wide	PS1, PS2, PS3	х	х	х	Nearby neighbours, employees	Cover waste regularly (daily); gas relief system, Maintain sewage treatment system in good working order, PPE, waste reduction and recycling,																Yes	SoWaMP (Appendix 8.13) and OHSP (Appendix 8.7)
Abbreviations:	1	PPE: Personal F	I Protective Equipn	nent	1	1	<u> </u>	recycling,	1 1		<u> </u>			1		1	<u> </u>		<u> </u>	 		<u> </u>		 <u> </u>	



								Table 6.22.5: I	Noise – S	Summa	ry of Pot	tential In	npacts a	and Eff	ects										
																Signific	ance of	f Effect							
Environmental / Social Impact	Potential Impact	Geographical Coverage	Relevant Performance Standard /	Pro	oject Ph	ase	Primary Receptor	Control / Enhancement Measures	Very High	Major	Moderate	Minor/ negligible	Positive		Very High	Major	Moderate	Minor/ negligible	B Positive	Very High	Major	Moderate	Minor/ negligible	Specific Monitoring Requirements	Management Plan Reference
			Requirement	Construction	Operations	Closure and Rehabilitation		Wiedsures				8							,		0			Requirements	
	Noise from vehicle traffic, heavy equipment, mobile equipment, supply traffic, diesel generators,		PS3, PR3	х	х	х	Nearby neighbours	Equipment / sound control/enclosures on high noise equipment; Noise barriers (berms, barriers), grievance mechanism, speed control, post signage denoting areas of high noise, regular vehicle maintenance																Yes	TP (Appendix 8.10), AQNVMP (Appendix 8.14) and SEP (Appendix 8.6)
Noise	concrete plant, general construction activities	Local - Entire site	PS2, PR2	х	x	х	Workers	PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring																Yes	OHSP (Appendix 8.7) and AQNVMP (Appendix 8.14)
	Noise from topsoil/soil cover stripping and replacement. Drilling, blasting, product		PS3, PR3	х	x	x	Nearby neighbours	Blasting control speed controls, noise barriers, appropriate signage denoting areas of high noise, regular vehicle maintenance, grievance mechanism																Yes	AQNVMP (Appendix 8.14) and SEP (Appendix 8.6)
	extraction and stockpiling, crushing and loading activities		PS2, PR2	х	x	х	Workers	PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring,																Yes	OHSP (Appendix 8.7) and AQNVMP (Appendix 8.14)



Geographical Coverage	Relevant Performance Standard / Requirement	Construction	Operations	Closure and 8	Primary Receptor	Control / Enhancement Measures	Very High	Wajo Wajo	Moderate	oition Minor/ negligible	Positive		Very High	Major Major		Minor/ negligible	Positive		Very High	Major	Moderate	Minor/ negligible	Positive		
	Performance Standard /		<u> </u>	1	Receptor	Enhancement	Very High				Positive		Very High	Major	Moderate	Minor/ negligible	Positive		Very High	Major	Moderate	Minor/ egligible	ositive		
	Requirement	Construction	Operations	Closure and Rehabilitation									With	Mitiga	tion (SI	hort Ter	m)					ong Ter		Specific Monitoring Requirements	Management Plan Reference
				1																				, , , , , , , , , , , , , , , , , , , ,	
	PS3, PR3	x	x	x	Nearby neighbours	Vehicle maintenance, mufflers on equipment; speed limits; training in driving techniques; post signage denoting areas of high noise noise monitoring, grievance mechanism																		Yes	AQNVMP (Appendix 8.14) and SEP (Appendix 8.6)
Local - Entire	PS2, PR2				Workers	PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring																		Yes	OHSP (Appendix 8.7) and AQNVMP (Appendix 8.14)
site	PS3, PR3		x	x	Nearby neighbours	Vehicle maintenance, mufflers on equipment; speed limits; training in driving techniques; noise monitoring, post signage denoting areas of high noise, grievance mechanism																		Yes	AQNMVP (Appendix 8.14) and SEP (Appendix 8.6)
	PS2, PR2				Workers	PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring																			OHSP (Appendix 8.7) and AQNVMP (Appendix 8.14)
	: Personal	PS2, PR2	PS2, PR2	x	PS2, PR2	PS2, PR2 X X PS2, PR2 Workers	PS3, PR3 X X X Nearby driving techniques; noise monitoring, post signage denoting areas of high noise, grievance mechanism PS2, PR2 Workers PS2, PR2 Workers equipment; speed limits; training in driving techniques; noise monitoring, post signage denoting areas of high noise, grievance mechanism PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring	PS3, PR3 X X X Nearby driving techniques; noise monitoring, post signage denoting areas of high noise, grievance mechanism PS2, PR2 Workers PS2, PR2 Workers PS3, PR3 A X Requipment; speed limits; training in driving techniques; noise monitoring, post signage denoting areas of high noise, grievance mechanism PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring	PS3, PR3 X X X Nearby neighbours Nearby neighbours Nearby neighbours Nearby noise monitoring, post signage denoting areas of high noise, grievance mechanism PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring	PS3, PR3 X X X Nearby neighbours Nearby neighbours Nearby noise monitoring, post signage denoting areas of high noise, grievance mechanism PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring	PS3, PR3 X X X Nearby neighbours Nearby neighbours Noise monitoring, post signage denoting areas of high noise, grievance mechanism PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring	PS3, PR3 X X X Workers PS3, PR3 PS3, PR3 PS3, PR3 PS2, PR2 PS2, PS2, PS2, PS2 PS2, PS2, PS2, PS2, PS2, PS2, PS2, PS2,	PS3, PR3 X X X Workers PS2, PR2 PS2, PS3, PS3, PS4, PS4, PS4, PS4, PS4, PS4, PS4, PS4	PS3, PR3 X X Nearby neighbours noise monitoring, post signage denoting areas of high noise, grievance mechanism PS2, PR2 Workers Workers PS2, PR2 PS3, PR3 A X Requipment; speed limits; training in driving techniques; noise monitoring, post signage denoting areas of high noise, grievance mechanism PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring	PS3, PR3 X X Nearby neighbours noise monitoring, post signage denoting areas of high noise, grievance mechanism PS2, PR2 Workers PS2, PR2 PS3, PR3 A X A X Rearby neighbours noise monitoring, post signage denoting areas of high noise, grievance mechanism PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring	PS3, PR3 X X X X Nearby neighbours noise monitoring, post signage denoting areas of high noise, grievance mechanism PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring	PS3, PR3 X X Nearby neighbours on signage denoting areas of high noise, grievance mechanism PS2, PR2 Workers PS2, PR2 PS3, PR3 A X X Rearby neighbours on signage denoting areas of high noise, grievance mechanism PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring	PS3, PR3 X X X X X X X X X X X X X	PS3, PR3 X X X X X X X X X X X X X	PS3, PR3 X X X X X X X X X X X X X	PS3, PR3 X X X X A Nearby neighbours driving techniques; noise monitoring, post signage denoting areas of high noise, grievance mechanism PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring	PS3, PR3 X X X X Nearby neighbours Nearby neighbours Nearby neighbours Nearby neighbours PS2, PR2 PS2, PR2 A A A A A A A A A A A A A	PS3, PR3 X X Nearby neighbours onice monitoring, post signage denoting areas of high noise, grievance mechanism PS2, PR2 Workers Workers PS2, PR2 PS3, PR3 PS4, PR5 Rain a equipment; speed limits; training in driving techniques; noise monitoring, post signage denoting areas of high noise, grievance mechanism PPE (hearing protection in high noise areas); signs where hearing protection required; training; occupational medical monitoring	PS3, PR3 X X X Nearby neighbours of driving techniques; noise monitoring, post signage denoting areas of high noise, grievance mechanism PS2, PR2 Workers Workers Workers where hearing protection required; training; occupational medical monitoring	PS3, PR3 X X Nearby neighbours in driving techniques; noise monitoring, post signage denoting areas of high noise, grievance mechanism PS2, PR2 Workers Workers Workers PS2, PR2 PS3, PR3 PS4, PR3 PS5, PR3 PS5, PR3 PS5, PR5 PS6, PR5, PR5, PR5, PR5, PR5, PR5, PR5, PR5



								Table 6.22.6: Vibr	ration –	Summa	ry of Po	tential Ir	npacts a	and Eff											
																Signific	ance of	Effect						-	
Environmental / Social Impact	Potential Impact	Geographical Coverage	Relevant Performance Standard /	Pro	oject Ph	ase	Primary Receptor	Control / Enhancement	Very High	Major	Moderate	oit Ninor/ negligible	Positive		Very High	Major	Moderate (S	Minor/ negligible		Very High	Major	Moderate (Minor/ negligible	Specific Monitoring	Management Plan Reference
	·	, and the second	Requirement	Construction	Operations	Closure and Rehabilitation	1	Measures																Requirements	
	Vehicles, Heavy Equipment	Local - Site, Access Roads and Nearby Receptors	PS2, PS3, PR2, PR3	х	х	х	Employees, Residents, Buildings	Enforce speed limits for heavy equipment. Schedule high- vibration activities to daytime hours																Yes	AQNVMP (Appendix 8.14) and SEP (Appendix 8.6)
Vibration	General Project Operations	Local - Site, Access Roads and Nearby Receptors	PS2, PS3, PR2, PR3	х	x		Employees, Residents, Buildings	Schedule high- vibration activities to daytime hours; Perform regular maintenance and inspection of equipment; Grievance mechanism - monitor vibration related complaints																Yes	AQNVMP (Appendix 8.14) and SEP (Appendix 8.6)



								Table 6.22.7:	Soils – Su	ımmarı	of Pote	ential Im	pacts a	nd Effe	ects										
																Signifi	cance o	f Effect							
Environmental / Social Impact	Potential Impact	Geographical Coverage	Relevant Performance Standard /	Pro	oject Ph	ase	Primary Receptor	Control / Enhancement	Very High	Major	Moderate	Minor/ negligible	Positive		Very High	Sajor	Moderate	Minor/ negligible		.i. Very High	Major	Moderate (Dan Minor/	Specific Monitoring	Management Plan Reference
	·	, and the second	Requirement	Construction	Operations	Closure and Rehabilitation	1	Measures															J	Requirements	
	Loss of Natural soils	Local – construction activities	PS1, PS3, PS6, PR1, PR3, PR6	х	х		Land	Clearly delineate footprint of soil disturbance before moving top and sub soils arrange soil storage area in advance, define haul routes between strip and stockpile areas																	FMP (Appendix 8.8)
Loss of Soil Resource	Soil erosion	Local – construction activities	PS1, PS3, PR3	х			Land, surface water, groundwater	Implement erosion/sediment control measures, salvage as much topsoil as possible, revegetate cleared land as soon as possible, use appropriate drainage measures																	FMP (Appendix 8.8) and EPSRP (Appendix 8.9)
	Handling and storage	Local – construction activities	PS3, PR3	х			Land	Handle soil during dry conditions, avoid traffic on soil surfaces, maximum height of soil mounds no greater than 5m for topsoil and 10m for subsoil, grass soil mounds																	FMP (Appendix 8.8) and pMRCRP (Appendix 8.18)
Contamination of Soils	Dust deposition from Haul road traffic	Local - site wide	PS3, PR3		х		Land	Dust suppression measures identified in air quality section																Yes	AQNMVP (Appendix 8.14)



1			1	1				Table 6.22.7: S	ioils – Su	ımmary	of Pote	ntial Im	pacts ar	nd Effe										1	1
																Signifi	cance of	f Effect						-	
Environmental / Social Impact	Potential Impact	Geographical Coverage	Relevant Performance Standard /	Pro	ject Ph	ase	Primary Receptor	Control / Enhancement	Very High	Wajor	tii Moderate	uoites Ninor/ negligible	Positive		S Very High	Major	Moderate	Minor/ negligible		Very High	BitiM H	Moderate (Tong Minor/	Specific Monitoring	Management Plan Reference
			Requirement	Construction	Operations	Closure and Rehabilitation		Measures																- Requirements	
Contamination of Soils	Changes to the soil chemistry and quality from equipment and vehicle use and materials handling through spills and leaks from handling materials	Local - site wide	PS3, PR3	х	х	х	Land, surface water, groundwater	Follow spill prevention and response plan, ICMC guidance – including training personnel on site, line all chemical and fuel storage areas and bund them, PPE, containment and cleanup supplies readily available																Yes	EPSRP (Appendix 8.9), CMP (Appendix 8.11), FMP (Appendix 8.8) and Environment Policy (Appendix 8.1)
	ARD	Local - site Wide	PS3, PR3		х	×	Land, surface water, groundwater	ARD management plan																Yes	ARDMP (Appendix 8.19) EPSRP (Appendix 8.9) and SoWaMP (Appendix 8.13)
Loss of soil and soil structure during rehabilitation and restoration	Soils handling and reclamation creates soil loss	Local – site- wide	PS1, PS6, PR1, PR6		x	x	Land, surface water, groundwater	Implement soil erosion control measures, save topsoil, revegetate land as soon as possible after construction, perform reclamation and rehabilitation activities in accordance with established closure plan																Yes	FMP (Appendix 8.8), EPSRP (Appendix 8.9) and pMRCRP (Appendix 8.18)
	Revegetation during post closure activities creates soil loss	Local – site- wide	PS1, PS6, PR1, PR6		х	x	Land, surface water	Soil handling programme for restoration and aftercare management programme																Yes	pMRCRP (Appendix 8.18)
Abbreviations:		PPE: Personal Pro	tective Equipmen	nt, WDF:	Waste I	Dump Fa	cility, WTP: Wat	ter Treatment Plant																	



					Ta	able 6.2	2.8: Groundwater -	- Summary of Poten	tial Imp	acts and	l Effects	<u> </u>									
								,					sitive h	ave be	en high	lighted	in a blu	ie scale)		
Environmental/	Potential Impact	Receptor	Relevant Performance	Pro	oject Pha	ase	Primary	Control / Enhancement	Very High	Major	Moderate	Minor/ negligible	Positive		Very High	Major	Bit Moderate	uoit Minor/ negligible	Positive	Specific Monitoring	Management
Social Impact		Importance	Standard / Requirement	Construction	Operations	Closure and Rehabilitation	Receptor	Measures												Requirements	Plan Reference
	Perched water / Ephermal springs in open pit areas, HLF and BRSF areas.	Local	PS1, PS3, PS4, PR1, PR3, PR4	х	х		Ground water													Yes	SWMP (Appendix 8.23) and ARDMP (Appendix 8.19)
Construction and Operation	Perennial Springs, open pit area, HLF and BRSF areas	Local	PS1, PS3, PS4, PR1, PR3, PR4	х	х		Ground water	See Section 6.9 and relevant												Yes	SWMP (Appendix 8.23)
(where temporary, Pre- closure)	Hydrothermal Springs Jermuk	Regional	PS1, PS3, PS4, PR1, PR3, PR4	х	х		Ground water	Management Plans (appendix 8.23 Surface												Yes	SWMP (Appendix 8.23)
	Groundwater used for supply purposes Kechut Springs, Springs North of Gorayk, Spandaryan- Kechut Tunnel.	Local	PS1, PS3, PS4, PR1, PR3, PR4	х	х		Ground water	Water Management Plan and 8.19 ARD Management												Yes	SWMP (Appendix 8.23)
Ground water quality impacts	Groundwater Component of surface water baseflow – Darb River catchment.	Local	PS1, PS3, PS6, PR1, PR3, PR6		х	х	Groundwater – quality of base flow to river	Plan)												Yes	SWMP (Appendix 8.23)
in pit area and crushing plant - Construction and Operation	Groundwater component of surface water baseflow to Arpa River catchment.	Regional	PS1, PS3, PS6, PR1, PR3, PR6		х	х	Groundwater – quality of base flow to river													Yes	SWMP (Appendix 8.23)
(where permanent, Post-closure)	Groundwater component of surface water baseflow to Vorotan River catchment.	Regional	PS1, PS3, PS6, PR1, PR3, PR6		х	х	Groundwater- quality of flow to river	See Section 6.10 and Water Management Plan												Yes	SWMP (Appendix 8.23)
23Groundwater impacts from WDF - Construction	Impacts of groundwater due to blasting – likely to be temporary and restricted to operational phase only, attenuating rapidly following cessation of blasting.	Local	PS3, PR3		X		Groundwater – base flow to Vorotan River ility, ARD: Acid Rich	See Section 6.9 and Technical Appendix 6.9.2.												Yes	SWMP (Appendix 8.23)



						Table	e 6.22.9: Surface Wate	r – Summary of Poten	tial Im	pacts an	d Effec	ts									
										Significa	nce of	Effect (positive	have l	een higl	nlighte	d in a b	lue scale	e)		
Environmental/	Detected largest	Receptor	Relevant Performance	Pro	ject Pha	ase	Daine and December	Control /	Very High	Major	Moderate	Minor/	Positive		Very High	Major	Moderate	Minor/ negligible	Positive	Specific	Management Plan
Social Impact	Potential Impact	importance	Standard /		1	ī	Primary Receptor	Enhancement Measures		With	out Mi	tigation				Wit	h Mitig	ation		Monitoring Requirements	Reference
			Requirement	Construction	Operations	Closure and Rehabilitation		ivicasai es												ne qu n ememo	
	Kechut Reservoir Tributaries	Local	PS3, PS4, PS6, PR3, PR4, PR6	х	х		Agriculture, stock watering, ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Arpa River Tributaries HLF Area	Local	PS3, PS4, PS6, PR3, PR4, PR6	х	х		Agriculture, stock watering, ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Darb River	Regional	PS3, PS4, PS6, PR3, PR4, PR6	х	х		Agriculture, stock watering, ecosystem services	Design mitigation												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Darb River Tributaries	Local	PS3, PS4, PS6, PR3, PR4, PR6	х	х		Agriculture, stock watering, ecosystem services	includes a minimum 110 % tank capacity of bunds, following												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
Impacts from Oil, Chemical and Fuel Spillages, decrease in	Vorotan River	Regional	PS3, PS4, PS6, PR3, PR4, PR6	х	х		Agriculture, stock watering, ecosystem services, hydroelectric power generation	protocols in the EPSRP, sediment/grease traps, effluent from facilities and wheel washes not being discharged												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
water quality as a result of accidental spillage and sediment	Voratan River Tributaries	Local	PS3, PS4, PS6, PR3, PR4, PR6	х	х		Agriculture, stock watering, Ecosystem Services	to the stream, sewage effluent												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
Scament	Kechut Reservoir	National	PS1, PS3, PS4, PR4	х	х		National water supply, hydro- electric power generation, ecosystem services	disposed of appropriately, training of employees and contractors in spill												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Spandaryan Reservoir	National	PS1, PS3, PS4, PR4	х	х		National water supply, hydro- electric power generation, ecosystem services	prevention measures												No	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Gndevaz Reservoir	Local	PS1, PS3, PS4, PR4	Х	х		Agriculture stock watering													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Wetland Ponds within Darb Tributaries including Benik's Pond	Local	PS1, PS3, PS4, PR4	Х	х		Ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)



						Table	e 6.22.9: Surface Wate	r – Summary of Potent	tial Im	pacts an	d Effect	s									
								-		Significa	nce of I	Effect (p	ositive l	nave b	een high	lighted	d in a b	lue scale)		
Environmental/		Receptor	Relevant Performance	Pro	ject Pha	ase		Control /	Very High	Major	Moderate	Minor/ negligible	Positive		Very High	Major	Moderate	Minor/ negligible	Positive	Specific	Management Plan
Social Impact	Potential Impact	importance	Standard /				Primary Receptor	Enhancement Measures		With	out Miti	igation				Wit	h Mitig	ation		Monitoring Requirements	Reference
			Requirement	Construction	Operations	Closure and Rehabilitation														,	
Impacts from Oil, Chemical and Fuel Spillages, decrease in	Wetlands within Vorotan Catchment	Regional	PS1, PS3, PS4, PR4	Х	х		Ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
water quality as a result of accidental spillage and sediment	Wetlands within Kechut Reservoir Tributaries	Local	PS1, PS3, PS4, PR4	X	х		Ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Kechut Reservoir Tributaries	Local	PS3, PS4, PS6, PR3, PR4, PR6	х			Agriculture, stock watering, ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Arpa River downstream of Kechut Reservoir	Regional	PS3, PS4, PS6, PR3, PR4, PR6	х			Stock watering from Arpa river, fisheries habitat and wildlife water supply, fish farms	Surface water ponds for												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
Impacts from construction of	Arpa River Tributaries Downstream of Ketchut Reservoir	Local	PS3, PS4, PS6, PR3, PR4, PR6	х			Stock watering from streams within the catchment, wildlife water supply	construction designed to detain and release water to the surface water catchments,												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
surface water diversions and sediment ponds resulting in reduction of	Arpa River Tributaries HLF Area	Local	PS3, PS4, PS6, PR3, PR4, PR6	х			Stock watering from streams within the catchment, wildlife water supply	dewatering of pits in advance of mining not required therefore spring flows												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
surface water catchment area	Darb River	Regional	PS3, PS4, PS6, PR3, PR4, PR6	х			Agriculture, stock watering, ecosystem services	depending on groundwater not impacted and no loss of baseflow-to surface water												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Darb River Tributaries	Local	PS3, PS4, PS6, PR3, PR4, PR6	х			Agriculture, stock watering, ecosystem services	receptors from groundwater expected												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Vorotan River	Regional	PS3, PS4, PS6, PR3, PR4, PR6	х			Agriculture, stock watering, ecosystem services, hydroelectric power generation													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)



						Table	e 6.22.9: Surface Wate	r – Summary of Poten	tial Im	pacts an	d Effects	5									
										Significa	nce of E	ffect (p	ositive h	ave b	een hig	nlighted	in a b	lue scale)		
Environmental/	Potential Impact	Receptor	Relevant Performance	Pro	ject Pha	ase	Primary Receptor	Control / Enhancement	Very High	Major	Moderate	Minor/ negligible	Positive		Very High	Major	Moderate	Minor/ negligible	Positive	Specific Monitoring	Management Plan
Social Impact	i otentiai impact	importance	Standard /			1	1 '	Measures		With	out Miti	gation				Witi	h Mitig	ation		Requirements	Reference
			Requirement	Construction	Operations	Closure and Rehabilitation															
	Voratan River Tributaries	Local	PS3, PS4, PS6, PR3, PR4, PR6	х			Agriculture, stock watering, Ecosystem Services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Kechut Reservoir	National	PS1, PS3, PS4, PR4	х			National water supply, hydro- electric power generation, ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
Impacts from	Spandaryan Reservoir	National	PS1, PS3, PS4, PR4	х			National water supply, hydro- electric power generation, ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
construction of surface water diversions and sediment ponds	Gndevaz Reservoir	Local	PS1, PS3, PS4, PR4	х			Agriculture stock watering													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
resulting in reduction of surface water catchment area	Wetland Ponds within Darb Tributaries including Benik's Pond	Local	PS1, PS3, PS4, PR4PS1, PS3, PS4	х			Ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Wetlands within Vorotan Catchment	Regional	PS1, PS3, PS4, PR4	х			Ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
	Wetlands within Ketchut Reservoir Tributaries	Local	PS1, PS3, PS4, PR4	х			Ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15) and SEP (Appendix 8.6)
Impacts as a result of accidental uncontrolled release of	Kechut Reservoir Tributaries	Local	PS1, PS3, PS4, PR1, PR3, PR4		х	х	Agriculture, stock watering, ecosystem services	Project designed for zero discharge of contact water during operations, contact water												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18)
contact water from the BRSF, HLF detention pond and non contact water	Arpa River downstream of Kechut Reservoir	Regional	PS1, PS3, PS4, PR1, PR3, PR4		х	х	Stock watering from Arpa river, fisheries habitat and wildlife water supply, fish farms	management system sized to manage extreme precipitation events, settlement												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18)
from the haul roads, pit and crusher area discharging into the receiving	Arpa River Tributaries Downstream of Ketchut Reservoir	Local	PS1, PS3, PS4, PR1, PR3, PR4		x	x	Stock watering from streams within the catchment, wildlife water supply	of runoff prior to discharge through provision of sediment control ponds and												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18)



						Table	e 6.22.9: Surface Wate	r – Summary of Poten	tial Imi	pacts an	d Effects	<u> </u>									
								,					ositive h	ave b	een high	lighted	in a bl	lue scale)		
Environmental/	Potential Impact	Receptor	Relevant Performance	Pro	ject Pha	ase	Primary Receptor	Control / Enhancement	Very High	Major	Moderate	Minor/ negligible	Positive		Very High	Major	Moderate Moderate	Minor/ negligible	Positive	Specific Monitoring	Management Plan
Social Impact		importance	Standard / Requirement	Construction	Operations	Closure and Rehabilitation		Measures												Requirements	Reference
environment	Arpa River Tributaries HLF Area	Local	PS1, PS3, PS4, PR1, PR3, PR4		х	х	Stock watering from streams within the catchment, wildlife water supply	sediment control measures, backfill of the Tigranes / Artavzades pits and partial backfill												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18)
	Darb River	Regional	PS1, PS3, PS4, PR1, PR3, PR4		х	х	Agriculture, stock watering, ecosystem services	of the Erato pit during closure with no permanent water in the open pits,												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18)
	Darb River Tributaries	Local	PS1, PS3, PS4, PR1, PR3, PR4		х	х	Agriculture, stock watering, ecosystem services	passive water treatment for drainage from BRSF and HLF, ET cover on the BRSF												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18)
Impacts as a result of accidental uncontrolled	Vorotan River	Regional	PS1, PS3, PS4, PR1, PR3, PR4		х	х	Agriculture, stock watering, ecosystem services, hydroelectric power generation	and HLF, encapsulation of PAG barren rock within BRSF, ensure regular monitoring of												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18)
release of contact water from the BRSF, HLF detention pond and non	Voratan River Tributaries	Local	PS1, PS3, PS4, PR1, PR3, PR4		х	х	Agriculture, stock watering, Ecosystem Services	water quality downstream												Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18)
contact water from the haul roads, pit and crusher area discharging into	Kechut Reservoir	National	PS1, PS3, PS4, PR1, PR3, PR4		х	х	National water supply, hydro- electric power generation, ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18)
the receiving environment	Spandaryan Reservoir	National	PS1, PS3, PS4, PR1, PR3, PR4		х	х	National water supply, hydro- electric power generation, ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18)
	Gndevaz Reservoir	Local	PS1, PS3, PS4, PR1, PR3, PR4		х	х	Agriculture stock watering													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18)
	Wetland Ponds within Darb Tributaries including Benik's Pond	Local	PS1, PS3, PS4, PR1, PR3, PR4		х	х	Ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and



	1	1				Table	e 6.22.9: Surface Wate	r – Summary of Poter					ositive l	have k	een hig	hlighte	d in a b	lue scale	e)	1	T
Environmental/	Potential Impact	Receptor	Relevant Performance	Pro	ject Pha	ise	Primary Receptor	Control / Enhancement	Very High	Major	Moderate	Minor/ negligible			Very High	Major	Moderate	Minor/ negligible		Specific Monitoring	Management Plan
Social Impact		importance	Standard / Requirement	Construction	Operations	Closure and Rehabilitation	1	Measures		VVICI										Requirements	Reference
																					pMRCRP (Appendix 8.18
	Wetlands within Vorotan Catchment	Regional	PS1, PS3, PS4, PR1, PR3, PR4		х	х	Ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18
Impacts as a result of accidental uncontrolled release of contact water from the BRSF, HLF detention pond and non contact water from the haul roads, pit and crusher area discharging into the receiving environment Abbreviations:	Wetlands within Kechut Reservoir Tributaries	Local	PS1, PS3, PS4, PR1, PR3, PR4		х	х	Ecosystem services													Yes	SWMP (Appendix 8.23), EPSRP (Appendix 8.9), CHSP (Appendix 8.15), SEP (Appendix 8.6) and pMRCRP (Appendix 8.18



							Table 6.22.	10: Biodiversity – Summary o	f Poten	tial Imi	acts a	nd Eff	fects												
								,							Significa	ance o	f Effec	t							
Receptor Category	Receptor	Impact	Relevant Performance Standard / Requirement	Proj	ject Pha	ise	Ecological Effects	Control / Enhancement Measures	Significant/ Not Offsetable		Moderate		Positive	Significant/	Significant		Neutral	Positive	Significant/	Significant	Moderate	Neutral		Specific Monitoring Requirements	Management Plan Reference
			Requirement	Construction	Operations	Closure and Rehabilitation			VV	ltilout	viitigat	lion		With	Willigat	1011 (31	lort re	, , , , , , , , , , , , , , , , , , ,	WITHIV	litigat	IOII (LO	ong n	emij		
	Caucasus Biodiversity Hotspot (Conservation International)	Impact due to presence of Project as a whole.	IFC PS6 EBRD PR6	х	х	x	Loss / degradation of natural habitat.	No specific mitigation necessary.																None. No-net-loss strategy should mean hotspot is not compromised.	n/a
	Caucasus Mixed Forest Ecoregion	No direct impacts on any features of importance. Possible indirect effects due to concentration of grazing and other activities outside Project area.	IFC PS6 EBRD PR6	×	x	x	Small, degraded fragments of shrubby vegetation in the HLF location, but not high quality examples.	Project designed to avoid remaining individual shrubs; small number affected to be translocated.																None. Offset for natural habitat in proposed Jermuk National Park will benefit Juniper scrub.	n/a
Sites and areas of conservation importance/ National Protected	State Sanctuaries (Jermuk Forest, Herher Open Woodland and Jermuk Hydrological)	No direct impacts on any features of importance.	IFC PS6 EBRD PR6	х	х	х	Not exposed to impacts.	No mitigation required.																None.	n/a
Areas	Sevan National Park	No direct impacts on any features of importance.	IFC PS6 EBRD PR6	х	х	х	Not exposed to impacts.	No mitigation required.																None.	n/a
	Proposed Jermuk National Park	No direct impacts on any features of importance.	IFC PS6 EBRD PR6	х	x	x	Not exposed to impacts.	Planned natural habitat offset in the Park should improve regional conservation and nature protection.																Offset will be monitored	BAP (Appendix 8.20)
	Jermuk IBA	Potential indirect effect due to loss of feeding area for resident species.	IFC PS6 EBRD PR6	x	х	х	Project-affected area provides foraging habitat for some birds which breed in the IBA.	No mitigation required.																None (but see requirements for individual bird species below).	n/a
	Gorayk IBA	Potential indirect effect due to loss of supporting habitat for	IFC PS6 EBRD PR6	х	х	x	Potential loss of preferred hunting areas for Lesser Kestrel and undisturbed feeding areas.	No mitigation required.																None (but see requirements for individual bird species below).	n/a



							Table 6.22.	10: Biodiversity – Summary	of Potent	ial Imp	acts	and Eff	fects												
														S	ignifica	nce o	f Effect	t							
Receptor Category	Receptor	Impact	Relevant Performance Standard / Requirement	Pro	ject Pha	ase	Ecological Effects	Control / Enhancement Measures		Significant	Moderate		Positive	Significant/ The Not Offsetable	Significant	Moderate	Neutral	Positive	Significant/	Significant	Moderate	Neutral	Positive	Specific Monitoring Requirements	Management Plan Reference
			Requirement	Construction	Operations	Closure and Rehabilitation			VVI	moder	viitiga	ation		Within	ntigati	on (si	ort re		VOICH IV	Miligat	ion (LC	nig Te	1111)		
		birds.																							
	Species-rich Sub-alpine Meadows and Sub-alpine Meadows with Alpine Elements	Part of Project footprint, including pits, is on these vegetation types and cannot be avoided.	IFC PS6 EBRD PR6	х	x	x	Loss and degradation of natural vegetation.	Arshak Peak set-aside will preserve some undamaged natural vegetation including species-rich Sub-alpine Meadow with Alpine Elements. Where possible,																	
Biodiversity and	Vegetation with Shrubs, particularly Juniper scrub vegetation	Fragments of juniper scrub occur in the HLF location and conveyor corridor.	IFC PS6 EBRD PR6	х	х	х	Loss and degradation of natural vegetation.	infrastructure will be located to avoid "good" examples of natural vegetation types and particularly rocks supporting <i>Potentilla</i>																Monitoring of set- aside and progressive and	BMP (Appendix 8.21)
Ecosystems: Plants and Vegetation	Other natural and semi- natural vegetation types: Montane Meadows, Montane Meadow Steppes, Wetlands	BRSF and haul & access roads.	IFC PS6 EBRD PR6	x	x	х	Loss and degradation of natural vegetation.	porphyrantha. Translocation of Juniper bushes is to be attempted. All impacted areas to be restored post-mining. A supporting programme of research is underway. A natural habitat offset will be established in the proposed Jermuk																post-mining restoration; monitoring of offset.	and BAP (Appendix 8.20)
	22 endemic plant species	Avoided where possible but not in all cases.	IFC PS6 EBRD PR6	х	х	х	Loss and disturbance.	National Park to compensate for loss and degradation of natural vegetation.																	



							Table 6.22.	.10: Biodiversity – Summary	of Potent	ial Im	pacts	and E	ffects	;											
															Sigr	nifica	nce of	Effect							
Receptor Category	Receptor	Impact	Relevant Performance Standard / Requirement	Pro	ject Ph	ase	Ecological Effects	Control / Enhancement Measures	Significant/ Not Offsetable	Significant	Moderate	Neutral	Positive		Significant/ Hy Not Offsetable	Significant	Moderate		Positive	Significant/		Neutral		Specific Monitoring Requirements	Management Plan Reference
			Requirement	Construction	Operations	Closure and Rehabilitation			WI	triout	. IVIICIĘ	gation		V	VICTIVITE	igatio	m (Sin	ort Ter		With	Williga	ong i	emij		
Biodiversity and Ecosystems: Plants and Vegetation	Amulsar sub- population of Potentilla porphyrantha (Tier 1 critical habitat - IFC PS6)	A large part of the Project footprint, including the open pits, is on critical habitat for Potentilla porphyrantha.	IFC PS6 EBRD PR6	x	х	х	An estimated 33% of the population at Amulsar will be lost. Other plants could be damaged due to infrastructure (roads or tracks), deposition of fugitive dust, or localized changes in microclimate that might affect availability of water.	Arshak Peak set-aside preserves a proportion of the population. Efforts made to locate infrastructure to avoid the species. Plants within the mine pits will be translocated. A significant research programme has been established to determine optimum restoration conditions and allow plants to be restored and numbers increased postmining. The residual population is predicted to remain viable albeit with reduced numbers. Net gain will be achieved through an offset if restoration is not successful.																Monitoring of plant locations including within the set-aside; comprehensive research programme to inform restoration.	BMP (Appendix 8.21) and BAP (Appendix 8.20)
	Other vegetation and plant species considered resilient and widespread	Loss and disturbance.	IFC PS6 EBRD PR6	x	х	х	Induced impacts might include increased harvesting of herbs, vegetables and medicinal plants.	No mitigation required.																None.	n/a
Biodiversity and Ecosystems: Birds	Egyptian Vulture	The breeding site in Jermuk Gorge will not be exposed to any impacts as a result of the Project, but BRSF and HLF are preferred feeding areas.	IFC PS6 EBRD PR6	х	х	×	Feeding of the breeding pair could be affected, and exposure to poisoning is possible.	No specific mitigation necessary.																Although no impacts are predicted, precautionary monitoring will be carried out due to its Endangered status.	BMP (Appendix 8.21)
	Saker Falcon	Loss off feeding habitat over the Project area in general.	IFC PS6 EBRD PR6	х	x	x	Feeding of the small number of individuals considered potentially resident may be affected.	No specific mitigation necessary.																Although no impacts are predicted, precautionary monitoring will be carried out due to its	BMP (Appendix 8.21)



							Table 6.22.	10: Biodiversity – Summary o	f Poter	tial Im	pacts	and E	ffects	<u> </u>											
															Sig	nifican	ce of	Effect							
Receptor Category	Receptor	Impact	Relevant Performance Standard / Requirement	Proj	ject Pha	ase	Ecological Effects	Control / Enhancement Measures	Significant/ Not Offsetable	Significant	Moderate	Neutral	Positive		Significant/ THE Not Offsetable		Moderate	Neutral	Positive	Significant/	Significant	Neutral		Specific Monitoring Requirements	Management Plan Reference
			Requirement	Construction	Operations	Closure and Rehabilitation			V	itilout	IVIICIE	gation			VICITIVI	ingatio	ii (Sili	ort re		With	Mitigat		emij		
																								Endangered status.	
	Lesser Kestrel	Disturbance due to presence of construction camp.	IFC PS6 EBRD PR6	х	х	х	Preferential hunting area could deteriorate due to dust deposition, suppressing vegetation and numbers of the grasshopper larvae on which they feed.	No specific mitigation necessary. However, mitigation will be implemented if adverse impacts are observed during monitoring.																Monitoring of the breeding colony.	BMP (Appendix 8.21)
	Other species included in RA Red Book and which breed in the Projectaffected area	Presence of Project in general, but particularly conveyor, service road, mine access road and HLF.	IFC PS6 EBRD PR6	x	x	x	High quality bird habitat occurs in a rocky gorge north of the HLF; presence of the conveyor and mine road may affect breeding birds.	Options for reducing impact to be investigated during detailed Project design. Distribution and signs of breeding will be monitored. Establishment of offset for natural habitat will benefit these species.																Distribution and signs of breeding will be monitored.	BMP (Appendix 8.21)
Biodiversity and Ecosystems: Birds	Migratory birds, especially raptors	Loss off feeding habitat over the Project area in general, and HLF and BRSF in particular.	IFC PS6 EBRD PR6	x	х	×	Loss of habitat might reduce small mammal populations and food availability. Lighting and overhead power lines could be a cause of mortality through collisions.	The project will aim to support and promote, where possible, traditional grazing management practices because of their role in maintaining small mammals and other prey. Precautionary monitoring will be undertaken.																Precautionary monitoring will be undertaken.	BMP (Appendix 8.21)
	Other birds considered resilient and widespread	General land use changes and disturbance.	IFC PS6 EBRD PR6	x	х	x	Loss of breeding and feeding habitat.	The monitoring programme for priority bird species will be extended to include other representative species in order to detect any unforeseen impacts on birds, particularly in the long term.																Monitoring programme for priority bird species to be extended to include other representative species in order to detect any unforeseen impacts on birds, particularly in the long term.	BMP (Appendix 8.21)



							Table 6.22.	10: Biodiversity – Summary o	of Potent	ial Im	pacts	and E	Effects	<u> </u>												
															Sig	nifican	ice of	Effect								
Receptor Category	Receptor	Impact	Relevant Performance Standard / Requirement	Proj	ject Pha	ase	Ecological Effects	Control / Enhancement Measures	2	Significant	Moderate	Neutral	Positive		Significant/ Not Offsetable	Significant	Moderate		Positive	Significant/	Significant	Moderate	Neutral		Specific Monitoring Requirements	Management Plan Reference
			Requirement	Construction	Operations	Closure and Rehabilitation			With	tnout	MITIG	gation			With Mi	tigatio	n (Sno	ort Tei	m)	With K	Viitigat	ion (L	ong I	erm)		
Biodiversity and Ecosystems: Mammals	Ursus arctos Brown Bear (critical habitat - EBRD PR6)	The open pit footprint is currently used by up to seven individuals.	IFC PS6 EBRD PR6	x	x	x	Loss of feeding area, breeding habitat and food supply. Displacement may place bears at threat of hunting or competition with other bears. Noise, light and presence of people is likely to affect the bears.	Arshak Peak set-aside will protect known breeding location. Conveyor and linear infrastructure will be designed to maintain mobility for Brown Bear, including installation of crossings. A detailed baseline survey is planned to complete assessment and consider the need for further mitigation, including offsetting, to achieve net gain for the species.																	Detailed monitoring as part of baseline assessment; monitoring during all Project phases.	BMP (Appendix 8.21) and BAP (Appendix 8.20)
	Bezoar Goat	Population centred in Jermuk Gorge not exposed to direct effects.	IFC PS6 EBRD PR6	х	x	х	None expected.	None required.																	None.	n/a
	Other mammal species considered widespread and resilient	General presence of Project.	IFC PS6 EBRD PR6	х	х	х	Potential loss of habitat, barrier effects, habitat fragmentation and disturbance.	None required.																	None.	n/a
Biodiversity	Dorcadion Beetles (Dorcadion sevangense, D. sisianum Lazar and D. bistriatum)	Project footprint.	IFC PS6 EBRD PR6	х	x	х	Possible loss and degradation of suitable habitat in some areas.	Due to their national importance, monitoring and pre-construction checks for these species will be undertaken.																	Due to their national importance, monitoring and preconstruction checks for these species will be undertaken.	BMP (Appendix 8.21)
and Ecosystems: Invertebrates	Other invertebrates (terrestrial and aquatic)	General presence of Project.	IFC PS6 EBRD PR6	x	x	х	The Project could exacerbate existing baseline impacts on water quality by removing vegetation from large areas, mobilizing sediment and fugitive dust, which could be deposited on surface water bodies.	No specific mitigation required, unless surface water quality monitoring programme indicates deterioration, in which case aquatic invertebrate survey will be undertaken.																	Surface water monitoring may trigger aquatic invertebrate survey.	BMP (Appendix 8.21)



							Table 6.22.	10: Biodiversity – Summary (of Potent	ial Imp	acts a	nd Eff	ects												
														Si	gnifica	nce o	f Effec	t							
Receptor Category	Receptor	Impact	Relevant Performance Standard / Requirement	Proj	ject Pha	ase	Ecological Effects	Control / Enhancement Measures	Z	Significant			Positive	Significant/ F Not Offsetable	Significant	Moderate	Neutral	Positive	Significant/	Significant	Moderate	Neutral PT gnd	Bositive	Specific Monitoring Requirements	Management Plan Reference
				Construction	Operations	Closure and Rehabilitation														3					
Biodiversity and Ecosystems: Reptiles and	Radde's/ Armenian Rock Viper Montivipera (Vipera) radeii and Armenian Mountain- Steppe Viper Pelias (Vipera) eriwanensis	Project footprint.	IFC PS6 EBRD PR6	х	х	x	Potential loss of habitat, particularly on the western flank of Amulsar Mountain.	Arshak Peak set-aside contains suitable habitat.																Monitoring and pre- construction checks.	BMP (Appendix 8.21)
Amphibians	Other reptiles and amphibians	Project footprint and adjacent affected areas.	IFC PS6 EBRD PR6	х	х	x	Potential decline in prey animals and decline in availability of habitat. Pollution of wetlands and water courses.	No specific mitigation required, unless surface water quality monitoring programme indicates deterioration, in which case amphibian survey will be undertaken.																Surface water monitoring may trigger amphibian survey.	BMP (Appendix 8.21)
Biodiversity and Ecosystems: Fish		Withdrawal of water from, and potential pollution of, rivers.	IFC PS6 EBRD PR6	x	x	x	Possible reduction of fish populations in Arpa and Vorotan rivers.	No specific mitigation required unless the Project results in significantly lower flows in the river than has been predicted, or in case of a release of pollutants to surface water, in which case fish surveys may be required.																River flow monitoring or pollutant release may trigger fish surveys.	BMP (Appendix 8.21)
Abbreviations:		IFC PS6: Internati	ional Finance Corp	oration F	Perform	ance Sta	andard 6; EBRD PR6: European	Bank for Reconstruction and	Develop	ment F	erforr	mance	Requ	irement 6;	n/a: n	ot app	olicabl	e							



						Та	ble 6.22.11: D	emographics – Summary o	f Potent	ial Impa	cts and	Effects									
								,					sitive h	ave b	een high	lighted	in a bl	ue scale)		
Social Impact	Potential	Geographical	Relevant Performance	Pro	ject Ph	ase	Primary	Control / Enhancement	Very High	Major	itiM Moderate	Minor/ negligible	Positive		Not Acceptable		Moderate Moderate	Minor/ negligible	Positive	Specific Monitoring	Management Plan
·	Impact	Coverage	Standard / Requirement	Construction	Operations	Closure and Rehabilitation	Receptor	Measures		With	out Wite	Sation				7010	Witigo	NIOII		Requirements	Reference
Influx – disruption to communities	Disruption to local communities through influx during construction and operation, Influx created by the Project causes changes to the social fabric of local communities	Local	PS1, PS2, PR1, PR2	x	x		Residents	Maximise local employment, provide clear information on employment opportunities that are advertised widely, training to communities in local area of influence to increase skills, support SME development and agricultural assistance in affected communities, implement employee grievance mechanism, maintain and enhance CLC meetings, regular meetings with community administrators, central office to be located at ADR plant												Yes	SEP (Appendix 8.6)
Social maladies - crime and Vice Abbreviations:	Influx of new people, particularly men with higher incomes, leads to increases in crime and vice	Local	PS1, PS2, PR1, PR2	х	х		Residents	provide induction on employee code of conduct and require compliance, develop clear policy to establish non-discrimination for employees with HIV/AIDS, provide information on preventing the transmission of STIs to employees, use of community system and reporting												Yes	ESMP, CHSP (Appendix 8.15) and SEP (Appendix 8.6)



						Ta	able 6.22.12: Eco	nomics – Summary of Pot	ential I	mpacts a	nd Effe	cts									
													ositive h	ave b	een high	lighted	in a b	lue scale)		
Socio- economic	Potential Impact	Geographical	Relevant Performance	Pro	ject Pha	ase	Primary	Control / Enhancement	Very High	Major	iti Moderate	Negligible /	Positive		Not Acceptable	Major	giti Moderate	uoi Negligible / Minor	Positive	Specific Monitoring	Management Plan
Impact		Coverage	Standard / Requirement	Construction	Operations	Closure and Rehabilitation	Receptor	Measures												Requirements	Reference
Macro- economics (royalties, taxes and profit sharing)	Job creation predominantly for local people. Some job creation for, non-local Armenian people, expatriates and contractors	National	PS1, PR1	х	х		Residents, Government	Managing macro- economic contributions, disclosure and transparency in financial transactions and accountability e.g. adhering to EITI principles and reporting, IFC reporting on taxes and government payments												Yes	ESMP
Local inflation	Inflation of local goods e.g. food, groceries	Local	PS1, PR1	х	х		Residents	Monitor the cost of goods, improve local agricultural capacity, identify vulnerable groups sensitive to increases in the cost of goods, monitor impact of local salary levels, consider technical support for small producers to access better markets for their goods												Yes	ESMP
Local rents and land payments	Project footprint and security restrictions for safety	Local	PS1, PS5, PR1, PR	х	х		Residents	Training of community administrators on financial management, brining NGO partners to host communities to increase the development budgets in communities												Yes	ESMP



					Tahl	le 6 22 °	13. Lahour and	Working Conditions – Sun	mary o	f Potent	ial Imn	arts and	Fffects								1
					iabi	0.22.	15. Labour allu	Troining Conditions - Juli						ave b	een high	lighted	l in a bl	ue scale)		
Socio- economic	Potential Impact	Geographical	Relevant Performance	Pro	oject Ph	ase	Primary	Control / Enhancement	Very High	Major	Moderate Moderate	Minor / Negligible			Not Acceptable	Major	Moderate Moderate	Minor / Negligible		Specific Monitoring	Management
Impact	·	Coverage	Standard / Requirement	Construction	Operations	Closure and Rehabilitation	Receptor	Measures			The same of the sa	Batton				77.0	······································			Requirements	Plan Reference
Direct employment	Job creation predominantly for local people. Some job creation for, non-local Armenian people, expatriates and contractors	Regional	PS1, PS2, PR1, PR2	х	х		Residents	Maximise local employment, provide skills training to local people and scholarships to local students in host communities, implement HR Policy and ensure supply chains do not use child or forced labour, use of grievance mechanism		Closure (-ve)	Operations (+ve)	Construction (+ve)				Operations (+ve)	Operations (-ve)	Construction (+ve)		Yes	ESMP, Human Resources Policy (Appendix 8.4) and SEP (Appendix 8.6)
Indirect employment and procurement	Job creation from multiplier effect and through establishing supply chains to procure goods and services	National	PS1, PS2, PR1, PR2	х	х		Residents	SME development, prioritise Armenian contractors, develop 'how to do business with Lydian' guide that is widely disseminated, and implement technical assistance programmes			Operations (+ve)	Construction (+ve), Closure (+ve)				Operations (+ve)		Construction (+ve), Closure (+ve)		Yes	ESMP
Working Conditions Abbreviations:	Accommodation standards to ensure employees have access to appropriate lodging, and services and a safe and healthy living environment	Regional	PS1, PS2, PR1, PR2	х	х	х	Residents	Accommodation standards defined and maintained, no more than 4 people per room, no hot bunking, separate quarters for male and female employees, camp is dry and closed, catering provided for camp and hotel residents												Yes	ESMP



						Table 6.22.14:	Land Use, Agricultu	re and N	latural F	Resource	es – Sum	mary o	f Pote	ntial Im	pacts ar	nd Effec	cts									
												-														
Potential Impact	Geographical Coverage	Relevant Performance Standard /	Pro	ject Pha	ase	Primary Receptor	Control / Enhancement	Very High	Major	Moderate itiM		Positive		Very High	Major	Moderate (5)				Very High	Major	Moderate			Specific Monitoring	Management Plan Reference
	_	Requirement	Construction	Operations	Closure and Rehabilitation		Measures											,						,	Kequirements	
Construction and operation of the Project	Local	PS1, PS3, PS4, PS5, PS6	х	x	x	Residents, Herders	Minimise project footprint, maintain access to land adjacent to the project where safe to do so, rehabilitation trials to determine how best to enhance soil quality and return land to grazing post closure																		Yes	FMP (Appendix 8.8) and LALRP (Appendix 8.24)
Land conversion for Project development	Local	PS1, PS3, PS4, PS5, PS6	х	х	х	Residents, Herders	Minimisation of restricted access where safe to do so, monitor land users to assess impacts caused by restricted access to pasture and grazing lands and identify mitigation measures																		Yes	FMP (Appendix 8.8) and pMRCRP (Appendix 8.18)
	Construction and operation of the Project Land conversion for Project	Construction and operation of the Project Land conversion for Project Coverage Local	Potential Impact Geographical Coverage Standard / Requirement Construction and operation of the Project Local Local PS1, PS3, PS4, PS5, PS6 Land conversion for Project Local PS1, PS3, PS4, PS5, PS6	Potential Impact Coverage Coverage Construction and operation of the Project Local Local PS1, PS3, PS4, PS5, PS6 X Relevant Performance Standard / Requirement Voijont Project Requirement Voijont Project Relevant Performance Standard / Requirement Voijont Project Relevant Performance Standard / Requirement Voijont Project PS1, PS3, PS4, PS5, PS6 X	Potential Impact Geographical Coverage Performance Standard / Requirement Performance Standard / Requirement Performance Standard / Requirement Fig. PS3, PS4, PS5, PS6 Local PS1, PS3, PS4, PS5, PS6 X X X	Potential Impact Coverage Construction and operation of the Project Conversion for Project Conversion for Project Coverage Coverage Performance Standard / Requirement Performance Standard / Requirement Performance Standard / Requirement PS1, PS3, PS4, PS5, PS6 X X X X X X	Potential Impact Geographical Coverage Relevant Performance Standard / Requirement Construction and operation of the Project Local PS1, PS3, PS4, PS5, PS6 Primary Receptor Relevant Performance Standard / Requirement Relevant Performance Standard / Receptor Receptor Residents, Herders Local PS1, PS3, PS4, PS5, PS6 X X X Residents, Herders	Potential Impact Geographical Coverage Relevant Performance Standard / Requirement Impact Construction and operation of the Project Local Local PS1, PS3, PS4, PS5, PS6 PS5, PS6 PS1, PS3, PS4, PS5, PS6 Relevant Performance Standard / Requirement Receptor Primary Receptor Minimise project footprint, maintain access to land adjacent to the project where safe to do so, rehabilitation trials to determine how best to enhance soil quality and return land to grazing post closure Local Local PS1, PS3, PS4, PS5, PS6 X X X X Residents, Herders Receptor Minimise project footprint, maintain access to land adjacent to the project where safe to do so, rehabilitation trials to determine how best to enhance soil quality and return land to grazing post closure Local PS1, PS3, PS4, PS5, PS6 X X X Residents, Herders Minimisation of restricted access where safe to do so, monitor land users to assess impacts caused by restricted access to pasture and grazing lands and identify mittgation	Potential Impact Geographical Coverage Relevant Performance Standard / Requirement Local PS1, PS3, PS4, PS5, PS6 Relevant Performance Standard / Requirement Receptor Primary Receptor Primary Receptor Minimise project footprint, maintain access to land adjacent to the project where safe to do so, rehabilitation trials to determine how best to enhance soil quality and return land to grazing post closure Land conversion for Project Local PS1, PS3, PS4, PS5, PS6 A X X X Residents, Herders Minimise project footprint, maintain access to land adjacent to the project where safe to do so, monitor land users to assess where safe to do so, monitor land users to assess impacts caused by restricted access where safe to do so, monitor land users to assess impacts caused by restricted access to pasture and grazing lands and identify mitigation	Potential Impact Geographical Coverage Relevant Performance Standard / Requirement Requirement Local PS1, PS3, PS4, PS5, PS6 Ax x x Residents, Herders Residents, Herders Residents, Herders Minimise project footprint, maintain access to land adjacent to the project where safe to do so, rehabilitation trials to determine how best to enhance soil quality and return land to grazing post closure Local Local PS1, PS3, PS4, PS5, PS6 Ax x x Residents, Herders Residents, Herders Minimisation of restricted access where safe to do so, onnointor land users to assess impacts caused by restricted access where safe to do so, onnointor land users to assess impacts caused by restricted access to assess impacts caused by restricted and grazing lands and identify mitigation	Potential Impact Geographical Coverage Relevant Performance Standard / Requirement Local PS1, PS3, PS4, PS5, PS6 Ax x x x x x x x x x x x x x x x x x x	Potential Impact Geographical Coverage Construction and operation of the Project Local Land conversion for Project development Relevant Performance Standard / Requirement The performance Standard / Receptor The performance Standard / Receptor / Re	Potential Impact Geographical Coverage Relevant Performance Standard / Requirement Local PSJ, PSJ, PSG, PSG Local PSJ, PSJ, PSG, PSG Ax X X Residents, Herders Local PSJ, PSJ, PSG, PSG Ax X X Residents, Herders Residents, Herders Residents, Herders Minimise project footprint, maintain access to land adjacent to the project where safe to do so, rehabilitation trials to determine how best to enhance soil quality and return land to grazing post closure Minimisation of restricted access where safe to do so, monitor land users to assess impacts caused by restricted access to pasture and grazing lands and identify mitigation	Potential Impact Geographical Coverage Relevant Performance Standard / Requirement Disputs of the Project Local PS1, PS3, PS4, PS5, PS6 A X X X X Residents, Herders Residents, Herders Residents, Herders Minimise project footprint, maintain access to land adjacent to the project determine how best to enhance soil quality and return land to grazing post closure Construction and operation of the Project Local PS1, PS3, PS4, PS5, PS6 X X X X X Residents, Herders Residents, Herders Residents, Herders Residents, Herders Residents, Herders Residents, Herders Minimise project footprint, maintain access to land adjacent to the project determine how best to enhance soil quality and return land to grazing post closure Minimisation of restricted access where safe to do so, menhabilitation frestricted access where safe to do so, monitor land users to assess in minimation of restricted access where safe to do so, monitor land users to assess the mean safe to do so, mean safe to do so, mean safe to do so, mean safe to	Protential Impact Geographical Coverage Relevant Performance Standard / Requirement The protect Phase Primary Receptor Receptor Receptor Residents, Herders Local Local P51, P53, P54, P55, P56 Local P51, P53, P54, P55, P56 Local P51, P53, P54, P55, P56 Ax x x x Residents, Herders Residents, Herders Residents, Herders Minimise project footprint, maintain access to land adjacent to the project where safe to do so, rehabilitation trials to determine how best to enhance soil quality and return land to grazing post where safe to do so, one phase to do so, one passes where safe to do so, one phase to do so, o	Potential Impact Geographical Coverage Relevant Performance Standard / Requirement Dight of the Project Phase Local P51, P53, P54, P55, P56 Ax x x x Residents, Herders Relevant Receptor Primary Receptor Receptor Residents, Herders Residents, Herde	Potential Impact Geographical Coverage Relevant Performance Standard / Requirement Tontrol / Requirement Residents, Herders Local PS1, PS3, PS4, PS5, PS6 Local Local PS1, PS3, PS4, PS5, PS6 Ax x x x x x x x x x x x x x x x x x x	Construction and operation of the Project Local Local PS1, PS3, PS4, PS5, PS6 Local PS1, PS3, PS4, PS5, PS6 Ax X X Residents, Herders Local Local PS1, PS3, PS4, PS5, PS6 Ax X X Residents, Herders Receptor Receptor Receptor Receptor Receptor Receptor Receptor Minimise project footprint, maintain access to land adjacent to the project where safe to do so, rehabilitation trials to determine how best to enhance soil quality and return land to grazing post closure Conversion for Project development Local PS1, PS3, PS4, PS5, PS6 X X X Residents, Herders Residents, Herders Minimise project footprint, maintain access to land adjacent to the project where safe to do so, rehabilitation trials to determine how best to enhance soil quality and return land to grazing post closure Minimisation of restricted access where safe to do so, monitor land users to assess where safe to do so, monitor land users to assess where safe to do so, monitor land users to assess where safe to do so, monitor land users to assess impacts caused by restricted access to pasture and grazing lands and identity Minimise project footprint where a project footprint is a project footprint to the project	Potential Impact Geographical Coverage Relevant Performance Standard / Requirement Replace Toward Coverage Project Phase Primary Receptor Primary Rece	Potential Impact Potential Impact Potential Impact Performance Standard Performance Standard Receptor Primary Rece	Potential Impact Relevant Performance Coverage Receptor Requirement Construction and operation of the Project Local PS1, PS3, PS4, PS5, PS6 Local PS5, PS6 X X X X X Residents, Herders Residents, H	Potential Impact Project Phase Project Phase Project Phase Project Phase Project Phase Primary Primar	Potential Impact Relevant Coverage Relevant Requirement Reprinciple to the Project Project Project Project (Augustian Coverage) Relevant Performance Project (Augustian Coverage) Residents, Herders Project (Augustian Coverage) Residents Project (Aug	Potential Impact Relevant Performance Coverage Relevant Performance Control / Enhancement Requirement Requirement Local PS1, PS3, PS4, PS5, PS6 X X X X Residents, Herders Residents, Herders Residents, Herders Residents, Herders Residents, Herders Residents, Herders Residents	Potential Impact Relevant Project Phase Relevant Performance Coverage Relevant Performance Coverage Relevant Recurrement Requirement Local PSS, PSS, PS4, PS4, PS5, PS4 Residents, PSS, PS6 Relevant Recurrement Recurrement Recurrement Recurrement Resource Recurrement Recurrement	Potential Geographical Potential Geographical Potential Geographical Project Phase Performance of Effect Phase Per



							Table 6.22.1	L5: Livelihoods – Summary of	Potent	ial Impa	cts and	Effects									
										Significa	nce of E	ffect (po	sitive h	ave bee	en highl	lighted	in a bl	ue scale)		
Socio- economic	Potential Impact	Geographical	Relevant Performance	Pro	ject Pha	ase	Primary	Control / Enhancement	Very High	Wajor	Moderate iti	Minor / Negligible	Positive		Not Acceptable	Major	Moderate	Minor / Negligible	Positive	Specific Monitoring	Management Plan
Impact		Coverage	Standard / Requirement	Construction	Operations	Closure and Rehabilitation	Receptor	Measures				Sauci								Requirements	Reference
Economic displacement of land users and land owners	Land required for project infrastructure located on private and state owned lands in the communities of Gndevaz and Saravan	Project Footprint	PS5, PR5	x	х		Residents	No physical displacement necessary, compensation for private land and crops paid prior to being taken and compensated at replacement value orphan land is compensated, all sale purchase agreements registered, normal sale-purchase transactions with private landowners, use of grievance mechanism, vulnerable people identified and provided assistance during and after land acquisition process, impacts are monitored.												Yes	LALRP (Appendix 8.24) and Guide to Land access and Compensation
Economic displacement of herders	Project footprint and security restrictions for safety	Regional	PS1, PS2, PS5, PR1, PR2, PR5	х	х		Residents	Carry out a herder census, support herders with new land agreements (including illegal herders), replace lost assets at equal/improved level, monitor herders livelihoods, expand Lydian agricultural programmes to herders, provide similar support to for technical assistance to seasonal herders												Yes	SEP (Appendix 8.6), LALRP (Appendix 8.24) and CDP (Appendix 8.16)



							Т	able 6.22.16: Cultura	l Herita	ge- Sum	mary o	f Potent	al Impa	acts an	d Effects	5										
																Signific	ance o	f Effect	 							
Environmental / Social Impact	Potential Impact	Geographical Coverage	Relevant Performance Standard /	Pro	ject Pha	ase	Primary Receptor	Control / Enhancement	Very High	Major	Moderate	uoisei negligible	Positive		Very High	Major	Moderate	Minor/ The megligible		Very High	Major	Moderate	Minor/ an negligible		Specific Monitoring	Management Plan Reference
/ Social Impact	impact	Coverage	Requirement	Construction	Operations	Closure and Rehabilitation		Measures		With	Sut Will	igation			With	ITIVITUIG	ation (.	SHOIL TE		VVIC	ii iviitig	ation (i	Long Fer	,	Requirements	riali Reference
Direct physical impacts to cultural heritage	Excavation, grading and other ground disturbing activities; passage of heavy vehicles on top of archaeological sites, especially in wet weather	Local – site- wide	PS1, PS4, PS8	х	x		Known cultural heritage,	Additional surface reconnaissance surveys to evaluate sites of unknown importance than can't be avoided by project redesign, implement chance finds procedure,																	Yes	CHMP, including Chance Finds Procedure (Appendix 8.17)
Indirect physical impacts to cultural heritage	Blasting, vibration; transit of	Local – site- wide	PS1, PS4, PS8	х	х		Known cultural heritage,	training of employees and staff, excavation of cultural heritage sites by national authorities, marking of known sites or high potential areas with high visibility establish appropriate buffer zones and no go areas around known archaeological sites and high potential areas																	Yes	CHMP, including Chance Finds Procedure (Appendix 8.17)
Abbreviations:																										



						Table (5.22.17: Commur	nity Health and Safety – Sum	nmary o	f Potent	ial Impa	cts and	Effects								
														sitive	it is has	been h	ighligh	ted)	1		
Environmental / Social Impact	Potential Impact	Geographical Coverage	Relevant Performance Standard / Requirement		ject Pha	ı	Primary . Receptor	Control / Enhancement Measures	Very High	Wajor	Moderate	be Minor/ negligible	Positive		Very High	Wajor	Moderate Moderate	uoin Minor/	Positive	Specific Monitoring Requirements	Management Plan Reference
				Construction	Operations	Closure and Rehabilitation															
Communicable disease linked to the living environment	Influx from the Project, particularly of men, increasing the spread of communicable diseases	Local	PS1, PS2, PS4	х	x		Residents, employees	Management of influx generated by Project, monitor housing inflation, support development of a community health information system, review WHO Pandemic influenza alerts, screening of employees for communicable diseases, community health awareness programmes												Yes	HIV and Communicable Diseases Policy (Appendix 8.4) and CHSP (Appendix 8.15)
Vector related diseases	Transportation of products and personnel increasing the spread of vector related diseases	Local	PS1, PS2, PS4	х	х		Residents, employees	On-going monitoring of health records and health profiles in the region												Yes	CHSP (Appendix 8.15)
Soil, water and waste related diseases	Earthworks activities for the Project affecting soil, water and waste related diseases, increased pressure on facilities	Local	PS1, PS2, PS3, PS4	х	х		Residents, employees	Monitor water quality, on-going environmental management, communication of findings to stakeholders, effective waste management on site (including associated facilities) and in the community												Yes	ESMP and SWMP (Appendix 8.23)
High risk sexual practices, STIs including HIV/AIDS	Influx from workforce brings more men into the area with higher disposable incomes who change their sexual practices	Regional	PS1, PS2, PS4	х	х	х	Residents, employees	Increasing employee awareness of STIs and preventative measures, implementation of employee code of conduct, monitor commercial sex work activity, particularly in Jermuk, develop support programme, employee code of conduct												Yes	HIV and Communicable Diseases Policy (Appendix 8.4) and CHSP (Appendix 8.15)



						Table (5.22.17: Commun	nity Health and Safety – Sum	mary o												
										Sig	nificanc	e of Effe	ct (if po	sitive	it is has	been h	ighligh	ted)	1		
Environmental	Potential	Geographical	Relevant Performance	Pro	ject Pha	ase	Primary	Control / Enhancement	Very High	Major	Moderate	: Minor/ negligible	Positive		Very High	Major	Moderate	Minor/ negligible	Positive	Specific Monitoring	Management Plan
/ Social Impact	Impact	Coverage	Standard / Requirement	Construction	Operations	Closure and Rehabilitation	Receptor	Measures		With	out Miti	gation				Wit	h Mitig	ation		Requirements	Reference
Food and nutrition	Loss of pasture land, food hygiene/health associated with mine camp food and higher incomes, inflation of food prices	Local	PS1, PS2, PS4	х			Residents, employees	Monitor food inflation, nutritional surveillance and awareness programmes and support local agricultural programmes												Yes	CHSP (Appendix 8.15)
Non- communicable Diseases linked to lifestyle changes	Mine camp catering and increased incomes changing diet	Local	PS1, PS2, PS4	x	х	х	Residents, employees	Support IEC campaigns on nutrition and well-being, medical surveillance programme of employees and wellness programme in workforce, develop partnerships with NGOs who can deliver health programmes												Yes	CHSP (Appendix 8.15)
Environmental health determinants - including hazardous chemical substances	Risks associated with cyanide, hydrocarbon, other chemicals	Regional	PS1, PS2, PS3, PS4	x	х	х	Residents, employees	Implement HCS management programmes, compliance with ICMC, employee health and safety training, PPE, monitor exposure to HCS, emergency response and preparedness plan, medical surveillance and site facilities, complete detailed risk assessment of all HCS, effective communication with communities on use, handling and risks of cyanide												Yes	ESMP
Social determinants of health	Job creation and economic benefits improve livelihoods and well being	Local	PS1, PS2, PS4	х	х		Residents, employees	Support local economic development and communication at a local level												Yes	CDP (Appendix 8.16) and CHSP (Appendix 8.15)



						Table (6.22.17: Commur	nity Health and Safety – Sum	mary c	f Poten	tial Impa	acts and	Effects								
												e of Effe		sitive	it is has	been h	ighligh	ted)			
Environmental / Social Impact	Potential Impact	Geographical Coverage	Relevant Performance Standard /	Pro	ject Pha	ase	Primary Receptor	Control / Enhancement Measures	Very High	Major	Moderate Moderate	minor/ unegligible	Positive		Very High	Hie	Moderate Moderate	u Minor/ negligible	Positive	Specific Monitoring	Management Plan Reference
y social impact	impacc	Coverage	Requirement	Construction	Operations	Closure and Rehabilitation	-													Requirements	Reference
Cultural health issues and health seeking behaviour	Project reduce land to foragers collecting plants, cultural health practices change	Local	PS1, PS4, PS5	х	х	х	Residents	Improve local health systems relating to: affordability, access to local people and range of services offered, evaluate access to local herbs and plants used for medicinal purposes on the project site										(Note: does not account for social		No	
Health services and systems	Influx of people putting pressure on health systems	Regional	PS1, PS4	x	Х		Residents, employees	Monitor demographic changes in community health, improve health services locally, develop occupational health and emergency infirmary, enhance health information management, develop CHIS, develop partnerships with NGOs												Yes	CHSP (Appendix 8.15)
Injuries and accidents, including road accidents	Increased road traffic accidents	Regional	PS1, PS2, PS4	х	х	х	Residents, employees	Compulsory alcohol testing for employees, develop emergency, Adhere to Voluntary Principles of Security and Human Rights, response plans for accidents, minimise additional traffic volume, partner local authority in improving road traffic safety												Yes	Drug and Alcohol Testing Procedure (tbd), OH&SP



		1	T			Table 6	5.22.17: Commur	nity Health and Safety – Sum	mary o											T	ı
										Sig	gnifican	ce of Eff	ect (if p	ositive	it is has	been h	ighligh	ted)	1	4	
Environmental	Potential	Geographical	Relevant Performance	Pro	oject Pha	ise	Primary	Control / Enhancement	Very High	Major	Moderate	Minor/	Positive		Very High	Major	Moderate	Minor/ negligible	Positive	Specific	Management Plan
/ Social Impact	Impact	Coverage	Standard /				Receptor	Measures		With	out Mit	tigation				Wit	h Mitig	ation		Monitoring	Reference
,			Requirement	Construction	Operations	Closure and Rehabilitation	•													Requirements	
Security conflicts	Potential conflicts developing between private and public security guards impacting on community safety	Local	PS1, PS2, PS4	Х	x		Residents	Comply with Voluntary Principles on Security and Human Rights, award local security contracts, maintain access to land where possible and training of security guards, memorandum of understanding will be developed with the Armenian Police to establish the use of force, armed guards will be used to protect the doré product and to secure the explosives magazine												Yes	CHSP (Appendix 8.15)
A b b was sladia w = :		*1	-: - -				<u> </u>	шавалие]
Abbreviations:		*Includes negli	gibie																		



			ı	1			1	Table 6.22.18: Tran	sport - S	Summar	y of Pot	ential In	pacts a	nd Eff	ects										<u> </u>	
															Si	gnificar	nce of E	ffect								
Environmental / Social Impact	Potential Impact	Geographical Coverage	Relevant Performance Standard /	Proj	ject Pha	ase	Primary Receptor	Control / Enhancement	Very High	Major	Moderate	Minor/ negligible	Positive		Very High	Major	Moderate	Minor/ negligible	Positive	Very High	Major	Moderate	Minor/ negligible		Specific Monitoring	Management Plan Reference
/ Social impact	iiipact	Coverage	Requirement		I	1	•	Measures		Witho	out Miti	gation			Witr	n Mitiga	ation (S	hort Ter	n)	Wit	n Mitiga	ation (L	ong Te	rm)	Requirements	rian nererence
			Requirement	Construction	Operations	Closure and Rehabilitation																				
Highway links	Heavy Goods and light vehicle passenger traffic	Local highway – H-42 and M-2	PS1, PS3, PS4	х	х	х	The highway network – capacity and integrity	Driver safety awareness course for transport of hazardous chemicals, and ICMC regulations including cyanide																	Short term construction – traffic management Long term Driver safety/ awareness	TP (Appendix 8.10), CMP (Appendix 8.11) and EPSRP (Appendix 8.9)
Junction capacity	Heavy Goods and light vehicle passenger traffic	Local junctions on highway network – serving affected communities	PS1, PS3, PS4	х	х	х	Junction capacity - degree of saturation	Minimise car journeys Project buses																	Signage (see Appendix 6.19.1)	TP (Appendix 8.10)
Project environment – affected communities	Heavy Goods and light vehicle passenger traffic	Local – affected communities	PS1, PS4	х	х	х	Residents living within project affected communities	Minimise car journeys Project buses Signage																	Signage (see Appendix 6.19.1)	TP (Appendix 8.10)
Abbreviations:					·																	·				



						Tabl	e 6.22.19: Ecosys	stem Services – Sumi	mary of	Potentia	al Impac	ts and I	ffects								
													ct (if po	sitive	it is has	been h	ighligh	ted)			
Environmental / Social Impact	Potential	Geographical	Relevant Performance Standard /	Pro	ject Pha	ase	Primary	Control / Enhancement	Very High	Wajor	Moderate	Minor/ negligible	Positive		Very High	Major	Moderate Moderate	Minor/ negligible	Positive	Specific Monitoring	Management Plan Reference
/ Social Impact	Impact	Coverage	Requirement	Construction	Operations	Closure and Rehabilitation	Receptor	Measures												Requirements	Kelerence
Ecoservices – milk, milk products and meat from livestock	Quality of Product	Local	PS3, PS4		х		Herders	Operation according to Management Plans												YES	
Ecoservices - Hay production	Yield/Quality	Local	PS3, PS4		х	х	Farmers	Operation according to Management Plans												YES	LALRP (Appendix 8.24)
Ecoservices – Commercial Apricot production	Yield/Quality	Local	PS3, PS4		х		Farmers													YES	LALRP (Appendix 8.24)
Freshwater with suitable quality for drinking water or irrigation	Agricultural Surface Water	Local	PS1, PS2, PS3, PS4	Х	х	х	Ground and Surface Water	Operation according to Management Plans and SOP's.												YES	EPSRP (Appendix 8.9), SWMP (Appendix 8.23) and ARDMP (Appendix 8.19)
Priority Ecosystem – Erosion control	Soil and Surface Water	Local	PS3, PS4, PS5, PS6		х		Surface Water	Erosion Control												YES	SWMP (Appendix 8.23)
Cultural identity from herding way of life	Landscape character/way of life	Local	PS2, PS5, PS8		х	х	Residents	Project Design												YES	CHMP (Appendix 8.17)