

APPENDIX 5-A
Project Interactions Matrix

Appendix 5-A Project Interactions Matrix

Project Component	#	Project Activity	Groundwater	Surface Hydrology	Air Quality and GHG Emissions	Noise	Surficial Geology, Terrain, and Soils			Surface Water Quality	Fish and Fish Habitat	Vegetation	Wildlife	Birds and Bird Habitat	Demographics	Economic Conditions	Social Economy		Community Infrastructure and Services	Education Services	Land and Resource Use		Community Health and Well-being	Heritage Resources			
							Terrain Stability	Unique Landforms	Soil Quality								Non-wage Economy	Traditional Economy			Non-traditional	Current Traditional		Archaeological and Historical Resources	Paleontological Resources		
Construction Phase																											
All Construction Phase Activities			N/A											2	2	1/2	2	2	2	2	2	2	2	2	2	N/A	N/A
Overall Mine Site	C-0	Confirmatory geotechnical drilling in select areas at the mine site, as necessary	0	1	2	2	1	0	2	1	0	2	2	2	N/A											2	2
	C-1	Mobilization of mobile equipment and construction materials	0	0	2	2	0	0	1	2	2	2	2	2	N/A											0	0
	C-2	Clearing, grubbing, and grading of areas to be developed within the mine site	1	1	2	2	2	2	2	2	2	2	2	2	N/A											2	2
	C-3	Material handling	0	0	2	2	0	0	1	2	2	0	2	2	N/A											0	0
Open Pits	C-4	Development of Latte pit and Double Double pit	1	2	2	2	2	0	2	2	2	2	2	2	N/A											0	2
	C-5	Dewatering of pits (as required)	1	2	1	0	0	0	0	2	2	0	0	0	N/A											0	0
WRSFs	C-6	Development and use of Alpha WRSF	1	2	2	2	2	0	2	2	2	2	2	2	N/A											0	2
Stockpiles	C-7	Development and use of temporary organics stockpile for vegetation and topsoil	1	2	2	2	1	0	2	2	2	2	2	2	N/A											0	2
	C-8	Development and use of frozen soils storage area	1	2	1/2	2	1	0	2	2	2	2	2	2	N/A											0	2
	C-9	Development and use of ROM stockpile for temporary storage of ROM ore	1	2	2	2	1	0	2	2	2	2	2	2	N/A											0	2
Crusher System	C-10	Construction and operation of crushing circuit	0	0	2	2	1	0	2	1	2	2	2	2	N/A											0	2
	C-11	Construction and operation of crushed ore stockpile	1	2	2	2	1	0	2	1	2	2	2	2	N/A											0	2
Heap Leach Facility	C-12	Staged heap leach facility (HLF) construction, including associated event ponds, rainwater pond, piping, and water management infrastructure	2	2	2	2	2	2	2	2	2	2	2	2	N/A											2	2
	C-13	Heap leach pad loading	0	2	2	2	0	0	1	1	2	2	2	2	N/A											2	2
Plant Site	C-14	Construction and operation of process plant	0	1	2/1	2	1	0	2	1	0	2	2	2	N/A											0	2
	C-15	Construction and operation of reagent storage area and on-site use of processing reagents	0	1	2/1	2	1	0	2	1	2	2	2	2	N/A											0	2
	C-16	Construction and operation of laboratory, truck shop, and warehouse building	0	1	2/1	2	1	0	2	1	0	2	2	2	N/A											0	2
	C-17	Construction and operation of power plant	0	1	2	2	1	0	2	1	0	2	2	2	N/A											0	2
	C-18	Construction and operation of bulk fuel/LNG storage and on-site use of diesel fuel or LNG	0	1	2/1	2	1	0	2	1	0	2	2	2	N/A											0	2

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					Non-waste Economy	Traditional Economy		Terrain Stability	Unique Landforms	Soil Quality								Non-traditional	Current Traditional			Archaeological and Historical Resources	Paleontological Resources			
Camp Site	C-19	Construction and operation of dormitories, kitchen, dining, and recreation complex buildings; mine dry and office complex; emergency response and training building; fresh (potable) water and fire water use systems; and sewage treatment plant	0	1	2/1	2	1	0	1	2	2	2	2	2	2					N/A					0	2
	C-20	Construction and operation of waste management building and waste management area	1	1	2	2	1	0	1	1	2	2	2	2	2					N/A					0	2
Bulk Explosive Storage Area	C-21	Construction of storage facilities for explosives components and on-site use of explosives	0	0	2	2	2	0	2	2	2	2	2	2					N/A					0	2	
Mine Site and Haul Roads	C-22	Upgrade, construction, and maintenance of mine site service roads and haul roads	1	1	2	2	2	0	1	2	2	2	2	2					N/A					2	2	
Site Water Management Infrastructure	C-23	Development and use of sedimentation ponds and conveyance structures, including discharge of compliant water	1	2	0/2	2	2	0	2	2	2	2	2	2					N/A					2	2	
	C-24	Initial supply of HLF process water	1	2	0	0	0	0	0	0	2	0	0	0					N/A					0	0	
	C-25	Ongoing use of site contact water (i.e., precipitation, stored rainwater) as HLF process water	1	2	0	0	0	0	0	0	2	0	0	0					N/A					2	2	
Ancillary Components	C-26	Upgrade of existing road sections for Northern Access Route (NAR), including installation of culverts and bridges	1	1	2	2	2	0	1	2	2	2	2	2					N/A					2	2	
	C-27	Construction of new road sections for NAR, including installation of culverts and bridges	1	1	2	2	2	0	2	2	2	2	2	2					N/A					2	2	
	C-28	Development, operation, and maintenance of temporary work camps along road route	1	1	2/1	2	1	0	2	1	0	2	2	2					N/A					2	2	
	C-29	Vehicle traffic, including mobilization and re-supply of freight and consumables	0	0	2	2	0	0	2	2	2	2	2	2					N/A					0	0	
	C-30	Development, operation, and maintenance of barge landing sites on Yukon River and Stewart River	0	1	2/1	2	2	0	2	1	2	2	2	2					N/A					0	2	
	C-31	Barge traffic on Stewart River and Yukon River, including barge mobilization of equipment for NAR construction	0	0	2	0	0	0	0	1	1	0	1	1					N/A					0	0	
	C-32	Annual construction, operation, maintenance, and removal of Stewart River and Yukon River ice roads	0	1	2	2	0	0	0	1	2	2	2	2					N/A					0	0	
	C-33	Annual construction and operation of winter road on the south side of the Yukon River	0	1	2	2	0	0	1	1	2	2	2	2					N/A					0	2	
	C-34	Construction, operation, and maintenance of permanent bridge over Coffee Creek	0	1	2	2	2	0	1	2	2	2	2	2					N/A					0	2	
	C-35	Construction and maintenance of gravel airstrip	1	1	2	2	2	0	2	2	0	2	2	2					N/A					0	2	
	C-36	Air traffic	0	0	2	2	0	0	0	0	0	2	2	2					N/A					0	0	
	C-37	Use of all laydown areas	0	0	1	0	1	0	1	1	0	2	2	2					N/A					0	0	
C-38	Use of Coffee Exploration Camp	1	0	1	0	0	0	0	0	0	2	2	2					N/A					0	0		

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							Terrain Stability	Unique Landforms	Soil Quality								Non-wage Economy	Traditional Economy			Non-traditional	Current Traditional		Archaeological and Historical Resources	Paleontological Resources	
Operation Phase																										
All Operation Phase Activities			N/A											2	2	1/2	2	2	2	2	2	2	2	2	N/A	N/A
Overall Mine Site	O-1	Material handling	0	0	2	2	0	0	1	2	2	0	2	2	N/A						0	0				
	O-2	Excavation of contaminated soils followed by on-site treatment or temporary storage and off-site disposal	0	0	2	2	1	0	2	2	2	2	2	2	N/A						2	2				
	O-3	Progressive reclamation of disturbed areas within mine site footprint	1	2	2	2	0	0	1	2	2	2	2	2	N/A						0	0				
Open Pits	O-4	Development of Kona pit and Supremo pit and continued development of Double Double pit and Latte pit	1/2	2	2	2	2	0	2	2	2	2	2	2	N/A						0	2				
	O-5	Cessation of mining at Double Double pit, Latte pit, Kona pit, and Supremo pit	1/2	2	0	0	0	0	0	2	2	2	1	1	N/A						0	0				
	O-6	Partial backfill of Latte pit and Supremo pit	2	2	2	2	0	0	1	2	2	2	2	2	N/A						0	0				
	O-7	Backfill of Double Double pit and Kona pit	1/2	2	2	2	0	0	1	2	2	2	2	2	N/A						0	0				
	O-8	Dewatering of pits (as required)	2	2	1	2	0	0	0	2	2	0	0	0	N/A						0	0				
WRSFs	O-9	Continued development and use of Alpha WRSF	1	2	2	2	2	0	2	2	2	2	2	2	N/A						0	2				
	O-10	Development and use of Beta WRSF	1	2	2	2	2	0	2	2	2	2	2	2	N/A						2	2				
Stockpiles	O-11	Continued use of temporary organics stockpile for vegetation and topsoil	1	2	2	0	0	0	1	2	2	2	2	2	N/A						0	0				
	O-12	Continued use of frozen soils storage area	1	2	1	0	0	0	1	2	2	2	2	2	N/A						0	0				
	O-13	Continued use of ROM stockpile for temporary storage of ROM ore	1	2	2	0	0	0	1	2	2	2	2	2	N/A						0	0				
Crusher System	O-14	Crusher operation	0	0	2	2	0	0	1	1	2	2	2	2	N/A						0	0				
	O-15	Continued use of crushed ore stockpile	1	2	2	0	0	0	1	1	2	2	2	2	N/A						0	0				
Heap Leach Facility	O-16	Continued staged HLF construction, including related water management structures and year-round operation	0	2	2	2	2	0	2	2	2	2	2	2	N/A						0	2				
	O-17	Progressive closure and reclamation of HLF	0	2	2	2	0	0	1	2	2	2	2	2	N/A						0	0				
Plant Site	O-18	Process plant operation	0	1	1	2	0	0	0	0	0	1	1	N/A						0	0					
	O-19	Continued on-site use of processing reagents	0	0	1	2	0	0	1	0	2	0	1	1	N/A						0	0				
	O-20	Continued on-site use of diesel fuel or LNG	0	0	2	2	0	0	1	0	0	0	1	1	N/A						0	0				
Camp Site	O-21	Continued use of facilities	0	0	1	0	0	0	0	2	0	2	2	N/A						0	0					
Bulk Explosive Storage Area	O-22	Continued on-site use of explosives	0	0	0	2	0	0	1	2	0	2	2	N/A						0	0					
Mine Site and Haul Roads	O-23	Use and maintenance of mine site service roads and haul roads	1	1	2	2	0	0	1	2	2	2	2	N/A						0	0					

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					Terrain Stability	Unique Landforms		Soil Quality	Non-wage Economy	Traditional Economy								Non-traditional	Current Traditional			Archaeological and Historical Resources	Paleontological Resources				
Site Water Management Infrastructure	O-24	Continued use of sedimentation ponds conveyance structures	1	2	0	2	0	0	0	2	2	0	1	1											0	0	
	O-25	Ongoing use of site contact water (i.e., precipitation, stored rainwater) as HLF process water	1	2	0	0	0	0	0	0	2	0	0	0												0	0
	O-26	Installation and operation of water treatment facility for HLF rinse water	1	2	2/0	0	2	0	2	2	2	0	2	2												2	2
Ancillary Components	O-27	NAR road maintenance (e.g., aggregate re-surfacing, sanding, snow removal)	1	0	2	2	0	0	1	1	2	2	2	2												0	0
	O-28	NAR vehicle traffic, including mobilization and re-supply of freight and consumables	0	0	2	2	0	0	1	2	2	2	2	2												0	0
	O-29	Operation and maintenance of barge landing sites on Stewart River and Yukon River	0	1	1	0	0	0	1	1	2	0	2	2												0	0
	O-30	Barge traffic on Stewart River and Yukon River	0	0	2	0	0	0	0	1	1	0	1	1												0	0
	O-31	Annual construction, operation, maintenance, and removal of Stewart River and Yukon River ice roads	0	1	2	2	0	0	0	1	2	0	2	2												0	0
	O-32	Annual construction and operation of winter road on the south side of the Yukon River	0	1	2	2	0	0	0	1	2	0	2	2												0	0
	O-33	Operation and maintenance of gravel air strip	1	0	2	2	0	0	1	1	0	0	2	2												0	0
	O-34	Air traffic	0	0	2	2	0	0	0	0	0	2	2	2												0	0
	O-35	Use of all laydown areas	0	0	1	0	1	0	1	1	0	2	2	2												0	0
	O-36	Use of Coffee Exploration Camp if required	1	1	1	0	0	0	0	0	0	2	2	2												0	0
Reclamation and Closure Phase																											
All Reclamation and Closure Phase activities			N/A												1	1	1/2	2	2	1	2	2	2	N/A	N/A		
Overall Mine Site	R-1	Reclamation of disturbed areas within mine site footprint	1	2	2	0	0	0	1	2	2	2	2	2												0	0
	R-2	Excavation of contaminated soils followed by on-site treatment or temporary storage and off-site disposal	1	0	2	2	1	0	2	2	2	2	2	2												0	0
Open Pits	R-3	Reclamation of Double Double pit, Latte pit, Supremo pit, and Kona pit	1/2	2	2	0	0	0	1	2	2	2	1	1												0	0
WRSFs	R-4	Reclamation of Alpha WRSF	1	2	2	0	0	0	1	2	2	2	2	2												0	0
	R-5	Reclamation of Beta WRSF footprint area	1	2	2	0	0	0	1	2	2	2	2	2												0	0
Stockpiles	R-6	Reclamation of temporary organics stockpile area, frozen soils storage area, and ROM stockpile area	1	2	2	0	0	0	1	2	2	2	2	2												0	0
Crusher System	R-7	Dismantling and removal of crusher facility and stockpile	1	0	2	2	0	0	1	2	2	2	2	2												0	0
Heap Leach Facility	R-8	Closure of HLF and related water management structures	1	2	2	0	0	0	1	2	2	2	2	2												0	0

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							Terrain Stability	Unique Landforms	Soil Quality								Non-wage Economy	Traditional Economy			Non-traditional	Current Traditional		Archaeological and Historical Resources	Paleontological Resources		
Plant Site	R-9	Dismantling and removal of process plant, reagent storage area, laboratory, truck shop and warehouse building, power plant, and bulk fuel storage	0	1	2	0	0	0	1	1	0	2	2	2					N/A					0	0		
Camp Site	R-10	Dismantling and removal of dormitories and kitchen, dining, and recreation complex buildings, mine dry and office complex, emergency response and training building, fresh (potable) water and fire water systems, sewage treatment plant, and waste management building	0	0	2	0	0	0	1	1	0	2	2	2					N/A					0	0		
Bulk Explosive Storage Area	R-11	Dismantling and removal of explosives storage facility	0	0	2	0	0	0	1	2	0	2	2	2					N/A					0	0		
Mine Site and Haul Roads	R-12	Decommissioning and reclamation of mine site service roads and haul roads	1	1	2	0	0	0	1	2	0	2	2	2					N/A					0	0		
Site Water Management Infrastructure	R-13	Decommissioning and reclamation of selected water management infrastructure, construction of long term water management infrastructure, including water deposition to creek systems	1	2	2	0	0	0	1	1	2	2	2	2					N/A					0	0		
	R-14	Operation and maintenance of HLF water treatment facility	1	2	0	2	0	0	0	2	2	0	1	1					N/A					0	0		
	R-15	Decommissioning and removal of HLF water treatment plant	2	2	2	0	0	0	1	1	2	2	2	2					N/A					0	0		
Ancillary Components	R-16	NAR road maintenance (e.g., aggregate re-surfacing, sanding, snow removal)	1	0	2	2	0	0	1	1	2	2	2	2					N/A					0	0		
	R-17	NAR vehicle traffic	0	0	2	2	0	0	1	2	2	2	2	2					N/A					0	0		
	R-18	Operation and maintenance of barge landing sites on Stewart River and Yukon River	0	1	1	0	0	0	1	1	1	0	2	2					N/A					0	0		
	R-19	Annual resupply of consumables and materials for active closure via barge on the Yukon River	0	0	2	0	0	0	0	1	1	0	1	1					N/A					0	0		
	R-20	Annual construction, maintenance, and decommissioning of Stewart River and Yukon River ice roads	0	1	2	2	0	0	0	1	2	0	2	2					N/A					0	0		
	R-21	Decommissioning of new road portions	1	1	2	0	0	0	1	2	1	2	2	2					N/A					0	0		
	R-22	Air traffic	0	0	2	2	0	0	0	0	0	2	2	2					N/A					0	0		
	R-23	Decommissioning and reclamation of airstrip	1	0	2	0	0	0	1	1	0	2	2	2					N/A					0	0		
	R-24	Operation of Coffee Exploration Camp to support monitoring activities	1	1	2	0	0	0	0	1	0	2	2	2					N/A					0	0		
Post-closure Phase																											
Overall Mine Site	P-1	Long-term monitoring	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	0	0	1/2	0	0	

Notes: 0 – No interaction; 1 – Negligible Interaction; 2 – Potential Interaction