Table 2: Changes to the Goliath Gold Project Subsequent to the Filing of the Original EIS in 2015

#	Project Component	Original EIS (2015)	Revised EIS (April 2018)		Round 2 Information Request Process	
			Changes from Original EIS (2015)	Rationale	Changes from Revised EIS (April 2018)	Rationale
[1]	**Tailings Storage Facility (TSF)**					
	Design	• Impoundments will be constructed in stages.	• Unchanged from original EIS (2015)	—	• Unchanged from the Revised EIS (April 2018)	—
		• Initial stage to have downstream slope at 2.25H:1V and upstream at 2.5H:1V; and • Subsequent stages to have downstream slope at 1.5H:1V and upstream at 2.5H:1V.	• Unchanged from original EIS (2015)	—	• Unchanged from the Revised EIS (April 2018)	—
		• The foundation will be constructed on native clay materials.	• The TSF will be lined with an HDPE, or equivalent, liner laid over a prepared basin consisting of sand or a comparable material.	• The use of a liner will greatly reduce the potential seepage from the TSF, thereby reducing the off-site effects on surface and groundwater throughout the life of the Project.	• Once the liner is placed within the TSF, it will be covered with a layer of soil to isolate the liner from sunlight.	• Covering of the liner will prevent degradation of the liner performance that can result from exposure to sunlight and the elements.
		• The seepage rate from the TSF during operations was modelled and the results indicated a rate of 200 m^3/d.	• The seepage rate through the liner in the TSF was calculated to result in a rate of 2.4 m^3/d.	• The use of a liner will greatly reduce the potential seepage from the TSF, thereby reducing the off-site effects on surface and groundwater throughout the life of the Project.	• The seepage rate through the liner in the TSF was recalculated to result in a rate of 3.13 m^3/d.	• As only the floor and walls of the initial stage of the TSF will be covered with a continuous liner, the seepage rate from the TSF was adjusted to account for the higher rates of seepage expected through the subsequent stages of the TSF dam.
	Operations	• Tailings to be deposited sub-aqueously	• Unchanged from original EIS (2015)	—	• Unchanged from the Revised EIS (April 2018)	—
		• Tailings deposition pipelines will be places along the embankment crest. The pipelines will include regularly spaced spigots to allow uniform tailings deposition.	• Unchanged from original EIS (2015)	—	• Unchanged from the Revised EIS (April 2018)	—
		• Tailings will be maintained in a saturated condition and largely under a water cover.	• Unchanged from original EIS (2015)	—	• Unchanged from the Revised EIS (April 2018)	—
		• During operations, the TSF will serve as a combined impoundment for the storage of tailings and water from the dewatering of the open pit and underground mine.	• A separate minewater pond will be constructed at the toe of the TSF to store water from the dewatering of the open pit and underground mine. • The TSF will only be used for the storage of tailings from the processing mill.	• The use of a dedicated minewater pond will allow for a reduction in the volume of water stored within the TSF during operations.	• Unchanged from the Revised EIS (April 2018)	—
	Closure	• At closure, standing water present in the TSF at the end of the operations will be removed.	• At closure, the water in the TSF will be withdrawn, treated and used to help fill the open pit.	• Treatment of supernatant water will help ensure pit lake water quality can meet Treasury Metals' commitments.	Unchanged from the Revised EIS (April 2018)	—
		• The final tailings beach surface re-graded, as required, to ensure it is totally free draining.	• No grading of tailings is proposed.	• Tailings are expected to be relatively level as a result of the deposition method used.	Unchanged from the Revised EIS (April 2018)	—
		• A pioneer or base/stabilization layer will be placed over the over the tailings surface.	• The TSF will be covered with a granular material to physically isolate the tailings.	• Change in wording only.	• Prior to removal of the operating pond a layer of material will be deposited over the tailings surface to physically isolate the tailings. It is anticipated that this layer will be deposited utilizing the existing mill infrastructure and tailings deposition pipeline.	• The application of the layer while the TSF is still fully covered with water minimizes the amount of time that the tailings are exposed to the atmosphere and susceptible to the onset of ARD.
	Closure	• A low permeable layer of clay will then be	• The revised EIS (April 2018) evaluated both a	• Surface water quality modelling confirmed	• As part of the Round 2 responses both wet	• The wet cover option continues to result in

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	(continued)	placed over the pioneer layer.	low permeability cover (i.e., dry cover) and a non-process water cover (i.e., wet cover) to ensure that the tailings are isolated from oxygen and water to preclude acidification.	that the wet closure option resulted in improved surface water quality relative to the dry cover option. In keeping with the EIS Guidelines, the wet cover option represented the appropriate mitigation for surface water quality.	and dry cover options were presented equally and demonstrate that resulting surface water quality, post closure, will be largely unchanged from background conditions. In those cases where predicted surface water quality predictions are greater than background, the concentrations remain below the PWQO.	lower surface water quality concentrations post-closure than the dry cover option. • The dry cover option was included to address ECCC concerns regarding the long-term viability of the wet cover due to climate change.
[2]	**Waste Rock Storage Area (WRSA)**					
	Design	• Location: immediately north of open pit	• The location of the WRSA has been modified to locate it primarily in the Blackwater Creek watershed and minimize the portion that extends into the Thunder Lake watershed.	• The changes were made to respond to feedback raising concerns regarding potential effects to the Thunder Lake watershed and revaluation of the watershed management strategy.	Unchanged from the Revised EIS (April 2018)	—
		• Volume: 12.9 MT of waste rock	• Unchanged from original EIS (2015)	—	Unchanged from the Revised EIS (April 2018)	—
		• Area: 36.5 ha	• Area: 47.511 ha	• The changes to the location of the WRSA resulted in a larger footprint in order to maintain the height and side slopes.	Unchanged from the Revised EIS (April 2018)	—
		• Height: 30 m	• Unchanged from original EIS (2015)	—	Unchanged from the Revised EIS (April 2018)	—
		• Side slopes: 3H:1V	• Unchanged from original EIS (2015)	—	Unchanged from the Revised EIS (April 2018)	—
	Operations	• Ditching and seepage collection will be created around the WRSA to collect and direct runoff and seepage to the water management system	• Unchanged from original EIS (2015)	—	• Perimeter ditching will still be constructed around the WRSA, however runoff and infiltration has now been designed to flow to a segregated collection pond. Perimeter ditching will be installed around the WRSA to collect runoff. Riprap and non-woven geotextile would be placed at the base of the ditches for erosion protection. The ditches around the WRSA will be lined with a partial geosynthetic liner (HDPE or material with similar properties) that will be placed beneath the non-woven geotextile. • Runoff from the WRSA, and infiltration into the WRSA that would drain laterally through the WRSA to the perimeter of the WRSA, would be captured by the perimeter ditches and directed to segregated runoff collection pond. The water within the collection pond would be monitored, and if required, caustic material would be added to the pond to treat the water prior to its incorporation into the overall water management system.	• Additional detail has been included to describe the methods for lining the ditches. • The monitoring and treatment of infiltration and runoff from the WRSA, separate from the overall water management system, will address concerns raised by NRCAN regarding ARD affected water overwhelming the water management system.
		• Waste rock will be classified and separated according to acid generating potential.	• Given 93% of the material has been identified as potentially acid generating (PAG) material, all waste rock will be treated as if it were PAG	• At this stage it is expected that all waste rock will be treated as if it is PAG. Should additional testing programs identify significant	Unchanged from the Revised EIS (April 2018)	—

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			material and handled accordingly.	volumes of non-PAG material, the PAG and non-PAG material will be separated.		
	Closure	• Closure and reclamation of the WRSA will consist of placing a water-shedding cap over the WRSA that is tied into the up-gradient clay soil and vegetation of the cap and disturbed areas. The cap will consist of multiple layers.	• At closure, a multi-layered, low permeability dry cover would be placed over the WRSA. The dry cover would be in accordance with Section 59 of the Mine Rehabilitation Code of Ontario (O. Reg. 240/00).	• Enhanced language to reflect O. Reg. 240/00.	• The WRSA closure cover will consist of the following four basic layers, from top to bottom: (1) vegetation and rocky soil, (2) water storage/frost protection layer, (3) a hydraulic barrier, and (4) material to separate the waste from the cover and prevent migration of the cover components into the waste.	• No material changes however language has been expanded at the request of ECCC to describe in more detail, the multi-layered, low permeability dry cover for the WRSA.
		• Runoff collection ditches will be realigned to direct runoff into the open pits.	• Unchanged from original EIS (2015)	—	• Runoff from the capped WRSA, and the portion of the infiltration into the capped WRSA that would continue to drain laterally through the WRSA to the perimeter of the WRSA, would continue to be captured by the perimeter ditches and directed to a segregated runoff collection pond where it would be monitored, and treated if necessary, before being directed to the open pit.	• The monitoring and treatment of infiltration and runoff from the WRSA, separate from the overall water management system, will address concerns raised by NRCAN regarding the effects of ARD affected water from the WRSA on the pit lake.
[3]	Low Grade Ore (LGO) Stockpile					
	Design	• Location: immediately west of Tree Nursery Road, north of Norman's Road	• The location of the LGO has been relocated to be closer to the new locations of the crusher and the processing plant. The LGO stockpile is now located immediately west of Tree Nursery Road, and immediately east of the open pit.	• The changes were made to move the LGO stockpile proximate to the crusher and processing plant.	Unchanged from the Revised EIS (April 2018)	—
		• Volume: 2.2 million tonnes (MT)	• Volume: 2.5 MT	• Adjusted to reflect evolving mine plans.	Unchanged from the Revised EIS (April 2018)	—
		• Area: 9 ha	• Area: 5.75 ha	• Adjusted to reflect new footprint of Project.	Unchanged from the Revised EIS (April 2018)	—
		• Height: 10 to 15 m	Unchanged from the Original EIS (2015)	—	Unchanged from the Revised EIS (April 2018)	—
	Operations	• Ditching and seepage collection will surround this stockpile to collect any surface water runoff or seepage.	• The LGO stockpile will be lined and equipped with a runoff collection system.	• Design enhancements to ensure the protection of soil beneath the LGO stockpile.	• Riprap and non-woven geotextile would be placed at the base of the ditches for erosion protection. The ditches around the LGO stockpile will be lined with a partial geosynthetic liner (HDPE or material with similar properties) that will be placed beneath the non-woven geotextile.	• No material changes however language has been expanded to describe the methods for lining the ditches.
		• Water collected from the LGO stockpile will be directed towards the overall water management system for possible treatment or recycling within the milling process.	Unchanged from the Original EIS (2015)	—	• The runoff collection system will be directed to a small dedicated collection pond where the water will be tested and treated (if required) with batch lime addition before incorporation into the water management system.	• The monitoring and treatment of runoff from the LGO stockpile, separate from the overall water management system, will address concerns raised by NRCAN regarding ARD affected water overwhelming the water management system.
	Closure	• The low-grade stockpile will be depleted by the completion of underground mining. At	• It is expected that all ore within the LGO stockpile will be depleted by the end of operations. During the closure phase, the	• Any remaining ore within the LGO stockpile at closure can be more effectively managed within the open pit.	• Any materials that remain in the LGO stockpile at closure will be re-located to the mined-out areas of the open pit and isolated	• No material changes however language has been expanded to describe the methods used

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		closure, any residual ore or PAG material on the stockpile pad will be removed and placed in the TSF.	LGO stockpile will be decommissioned and any material that remains placed in the open pit will be covered by water.		once the pit lake forms. As the pit lake fills the water quality will be monitored and treated (as required) with batch lime addition. • It is important to note, as part of the closure plan under O.Reg 240/00, financial assurance will be set aside to ensure that no LGO is left in the LGO stockpile at closure.	to manage pit lake water quality at closure.
		• The stockpile pad will then be scarified and vegetated.	Unchanged from the Original EIS (2015)	—	Unchanged from the Revised EIS (April 2018)	—
[4]	**Overburden Stockpile(s)**					
	Design	• Location: immediately south of the open pit	• The location of the overburden stockpile has been modified to locate it primarily in the Blackwater Creek watershed and minimize the portion that extends into the Thunder Lake watershed. • The shape of the overburden stockpile has been modified to avoid overprinting Blackwater Creek Tributary #1.	• The changes were made to avoid overprinting Blackwater Creek tributary #1.	Unchanged from the Revised EIS (April 2018)	—
		• Volume: 4.3 million tonnes (MT)	Unchanged from the Original EIS (2015)	—	Unchanged from the Revised EIS (April 2018)	—
		• Area: 26 ha	• Area: 11.73 ha and 5.72 ha	• Adjusted to reflect new footprint of Project.	Unchanged from the Revised EIS (April 2018)	—
	Design (continued)	• Height: 20 m	Unchanged from the Original EIS (2015)	—	Unchanged from the Revised EIS (April 2018)	—
	Operations	• Slopes will be protected from erosion by vegetation until needed for reclamation.	Unchanged from the Original EIS (2015)	—	Unchanged from the Revised EIS (April 2018)	—
		• Ditching and seepage collection will be installed around the edges of the stockpile to direct and collect surface water runoff and seepage. This water will be directed to the mine water management system.	Unchanged from the Original EIS (2015)	—	Unchanged from the Revised EIS (April 2018)	—
	Closure	• At closure the overburden will be used for the closure and reclamation of the site.	Unchanged from the Original EIS (2015)	—	Unchanged from the Revised EIS (April 2018)	—
[5]	**Water Management**					
	Runoff Management	• There will be no perimeter ditch around the entire site. Non-contact water will be allowed to drain naturally to the surrounding areas.	• An engineered perimeter runoff and seepage collection ditch will be constructed around the entire Operations Area. Non-contact water will be collected and directed to the water management system.	• This perimeter structure will ensure compliance with the Metal Mining Effluent Regulations and prevent any direct releases of runoff to the environment once the site preparation commences.	• For seepage collection ditches, a partial geosynthetic liner (HDPE or material with similar properties) will be placed beneath the non-woven geotextile on the outboard side of the ditch. No liner will be placed on the inboard side of the seepage collection ditch to allow for the influx of seepage into the ditch. • In addition to the typical design for the perimeter seepage collection ditch, modifications using slush grout or clay	• No material changes however language has been expanded to describe the lining of the seepage collection ditches and the design for those situations where the overburden and bedrock conditions may pose challenges to the collection and capture of seepage.

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					barriers for shallow bedrock conditions, and geosynthetic liner piles (HDPE or material with similar properties) will be considered on the basis of in-situ conditions.	
		• Ditching will be installed around Project stockpiles to collect contact surface water runoff and direct the collected water to the mine water management system.	Unchanged from the Original EIS (2015)	—	• Perimeter ditching will be installed around the WRSA and LGO stockpile to collect runoff. Riprap and non-woven geotextile would be placed at the base of the ditches for erosion protection. The ditches around the WRSA and LGO stockpile will be lined with a partial geosynthetic liner (HDPE or material with similar properties) that will be placed beneath the non-woven geotextile. • The runoff collection systems for the WRSA and LGO stockpile will be directed to dedicated collection ponds where the water will be tested and treated (if required) with batch lime addition before incorporation into the water management system.	• Additional detail has been included to describe the methods for lining the ditches. • The monitoring and treatment of runoff from these stockpiles, separate from the overall water management system, will address concerns raised by NRCAN regarding ARD affected water overwhelming the water management system.
	Minewater Management	• During operations, the TSF will serve as a combined impoundment for the storage of tailings and water from the dewatering of the open pit and underground mine.	• A separate minewater pond will be constructed at the toe of the TSF to store water from the dewatering of the open pit and underground mine. • The TSF will only be used for the storage of tailings from the processing mill.	• The use of a dedicated minewater pond will allow for a reduction in the volume of water stored within the TSF during operations.	• Unchanged from the Revised EIS (April 2018)	—
	Freshwater Makeup	• The processing plant will consume an estimated average 600 m³/d of fresh water during operations.	• On average, 50 m³/d of fresh water will be required.	• Refinements to the design of the Project increased the amount of water recycle, decreasing the need from fresh water.	• Unchanged from the Revised EIS (April 2018)	—
		• Fresh water will be drawn from the tree nursery ponds. These dug ponds were used for irrigation during the historical operation of a tree nursery.	• The fresh water requirements for the Project are to be provided from three ponds within the former MNRF tree nursery. • No more than 5% of the flow of in these tributaries will be used for fresh water supply.	• Limiting the amount of allowable withdrawal of freshwater from the ponds within the former MNRF tree nursery will avoid effects to fish and fish habitat within Thunder Lake Tributary #2 and Thunder Lake Tributary #3.	• Unchanged from the Revised EIS (April 2018)	—
[6]	**Site Configuration**					
	Overall Footprint	• The overall footprint was configured to maximize the features located on land owned by Treasury Metals.	• Treasury Metals has adopted a watershed approach to the site layout which is more compact than originally proposed.	• The optimized general arrangement for the site avoids the Thunder Lake watershed to the extent practical and situates the Project primarily within the sub-watershed of the two westernmost tributaries of Blackwater Creek.	• Unchanged from the Revised EIS (April 2018)	—
	Processing Plant	• The processing plant site will be located to the east of the mining pits, and just east of the Tree Nursery Road. The road will be diverted to the east side of the process plant.	• The processing plant will be located northeast of the open pits, just west of Tree Nursery Road immediately south of the 115 kV HydroOne transmission lines.	• No requirement to divert Tree Nursery Road. • No removal of fish habitat will be required and no diversion of Blackwater Creek around the Plant site would be required. • Overburden depth is reduced and projected water table is not as shallow at this location. • Shallower bedrock and preferable foundation conditions for Plant site infrastructure.	• Unchanged from the Revised EIS (April 2018)	—