

RED MOUNTAIN  
UNDERGROUND GOLD  
**PROJECT DESCRIPTION  
SUPPLEMENTAL INFORMATION**  
**MARCH 2016**

**SUBMITTED TO:**

**BC Environmental Assessment Office**

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**PURSUANT TO:**

British Columbia Environmental Assessment Act  
and the Canadian Environmental Assessment Act 2012

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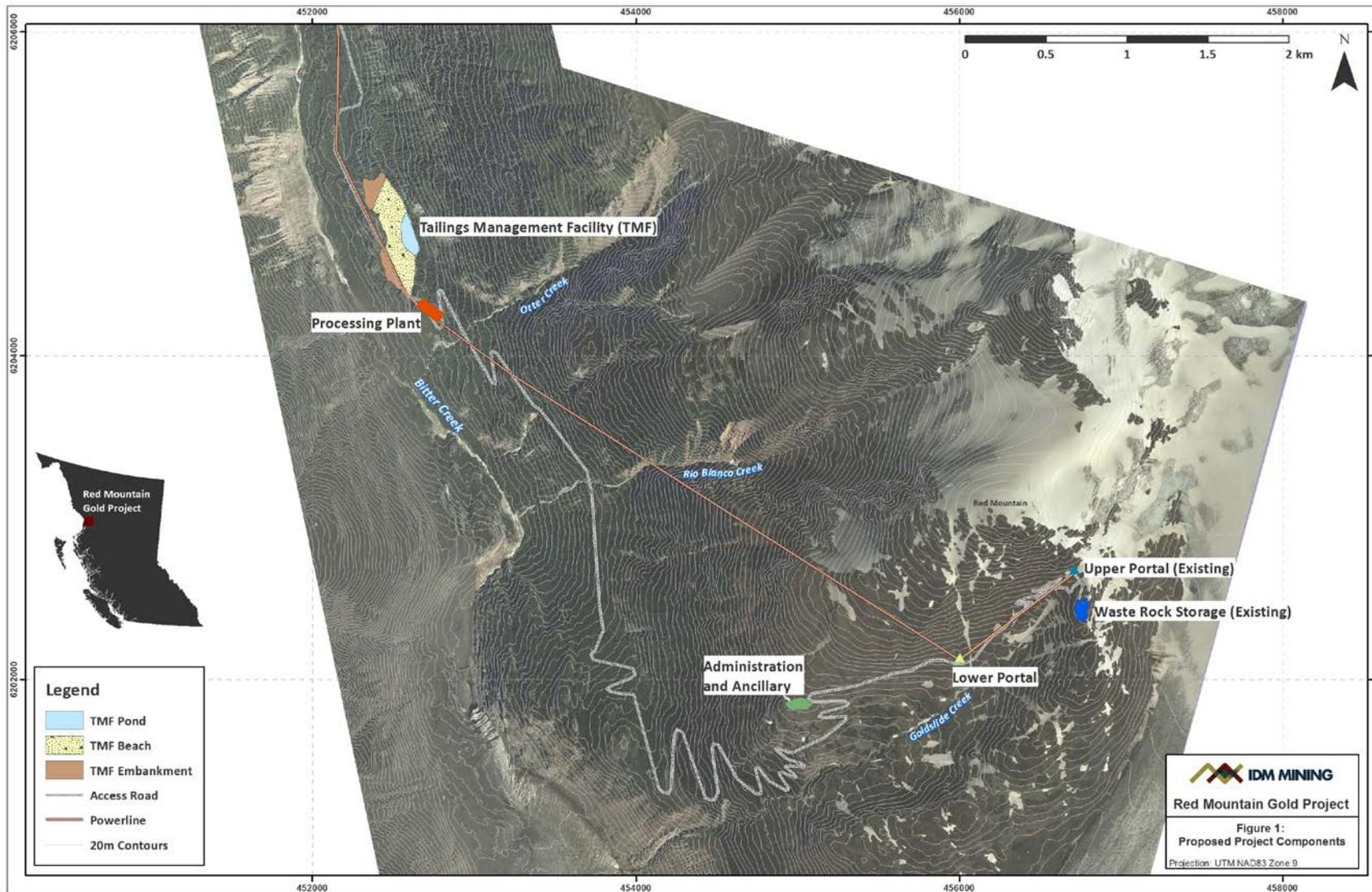
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## 1 INTRODUCTION

IDM Mining Ltd. (IDM) prepared and submitted the *Red Mountain Underground Gold Project Description* to the BC Environmental Assessment Office (BC EAO) and the Canadian Environmental Assessment Agency in September 2015. The purpose of the Project Description is to provide an overview of the proposed Project, including the Project's location, regional context, environmental baseline conditions, potential effects of the Project on the environment, and proposed construction, operational, and decommissioning activities. The Project Description also includes an overview of proposed Project infrastructure components and their preliminary layout at the Project site. IDM wishes to amend the location of the proposed mineral processing facility and tailings management facility (TMF) from the location currently described in the Project Description (in the alpine area near Goldslide Creek) to a new location called Bromley Humps, which is three kilometers to the north, near Otter Creek.

IDM has prepared this document to supplement the September 2015 Project Description and provide an overview of the updated project layout and any implications this amendment would have on the information provided in the Project Description. The following sections and figure have minor revisions applied as a result of the change in the mineral processing facility and TMF's location. IDM has provided the revised figure and wording for each section below.

Figure 1: Location of Project Components – Red Mountain Underground Gold Project



### 2.7.1 Water Supply

Water will be required for human consumption, on-site activities for maintaining facilities, and for the processing in the mill. Potable water for human consumption will be brought in from Stewart.

Mill processing water will be reclaimed from the TMF through a barge-mounted reclaim system in the tailings pond. It is estimated that approximately 20,833 litres/hour (5,504 US gallons/hour) will be required for processing make-up water.

The make-up water is to be derived from the diversion structures located above the infrastructure in the Otter Creek Catchment.

### 2.7.2 Diversions

Diversion channels will be constructed to divert water (non-contact) from areas up-slope of the plant site, temporary stockpiles and tailings facility, and upstream in Otter Creek. The diversion channels will be sized to accommodate peak flows and the flows will be returned to Otter Creek at the downstream side of the tailings facility. The point at which the diverted flows return to Otter Creek will be designed to prevent erosion and also allow extraction of water, should additional make-up water be required for the mill.

### 2.7.3 Contact Water

Contact water includes water from the underground mine, process water, and water that comes into contact with waste rock, the mill area, or the tailings impoundment.

Water from the underground mine is expected to drain by gravity to the secondary portal at elevation 1,650 m. This water will be intercepted and managed prior to discharge. Water quality monitoring completed during the 1996 and 1997 exploration programs, as well as more recent monitoring at the surface of the mine pool in the existing decline, indicate that the underground water quality meets the requirements for discharge to the receiving environment. Underground water quality will continue to be monitored during operations and, depending on the results, excess water from the mine will be either discharged directly to the environment or directed to the tailings pond for process makeup water.

Process water, runoff from the mill area and runoff from the tailings beaches will be directed to the TMF. It is estimated that the TMF water balance will be consumed by the mill operations with a minor net deficiency requiring surface water collection to be used intermittently for operations makeup water. Further work is required to determine a final water balance and whether intermittent discharge to the receiving environment would be required.

The quality of water that will be discharged from the tailings pond is expected to meet Canadian MMER guidelines. If further testwork and monitoring indicates this is not the case, then the water will be treated prior to discharge.

### 2.8.3 Access Road from Highway 37A

To minimize erosion and damage to the access road, a drainage design and road drainage management plan will be prepared to meet environmental requirements and minimize the introduction of contaminants to Otter Creek, Goldslide Creek, and Bitter Creek.

In addition, IDM will work with regulators to identify a management plan for the existing road from Highway 37A to the Project access road.

These plans will address the three to four-month closure period each year of mine operation and critical natural hazard periods along the roads.

### 3.1.5 Surface Water Hydrology

The Project site is located within the catchments of Otter Creek and Goldslide Creek. These watercourses flow into Bitter Creek, which then flows into the Bear River (Figure 3). There is also a portion of the existing waste rock storage area from the exploration decline, which is located on the divide between the Goldslide Creek catchment and Cambria Ice Field. The Cambria Ice Field flows towards the Bromley Glacier and into Bitter Creek upstream of the confluence with Goldslide Creek. The Otter Creek and the Goldslide Creek catchments are small (2.5 km<sup>2</sup> and 2.2 km<sup>2</sup>, respectively) in comparison to the Bitter Creek catchment (253 km<sup>2</sup>).

The Project area is generally steep and large portions of the Bitter Creek and Bear River catchments are glaciated, which strongly influences all of the major watercourses. Sediment loads, especially in Bitter Creek, are very high during the summer. The bottom elevation and the alignment of the streams change significantly from year to year, driven by seasonal runoff patterns and fluctuating sediment loads. The highest mean monthly flows are typically observed in July and August, while the lowest flows are typically observed in February. October is the rainiest month and peak flows are often observed during this period.

Key sources of information on the hydrology include:

- Data from a Water Survey of Canada (WSC) station (Station 08DC006) located on Bear River immediately upstream of the Bitter Creek confluence;
- Four hydrometric stations were installed for the Project in the early 1990s: Bitter Creek (installed October 1990), Goldslide Creek (installed June 1993), Kitsault River

(installed January 1994), and Upper Roosevelt Creek (installed September 1993); and

- Three new hydrometric stations installed in June 2014 at Goldslide Creek, Otter Creek and Bitter Creek.

### 3.2.2 Fish and Fish Habitat

The aquatic environment most likely to be influenced by the proposed Project is the Bitter Creek drainage. All currently proposed mining-related infrastructure (e.g., waste dump and storage tailings facility) and operations will be restricted to the Otter Creek and Goldslide Creek drainages, both tributaries to Bitter Creek located in the headwaters of the watershed.

Stream order hierarchy is a way to define the size of perennial (a stream with water in its bed continuously throughout the year) and recurring (a stream with water in its bed only part of the year) streams. A first order stream is the smallest of streams and consists of small tributaries. In addition, first and second order streams generally form on steep slopes and flow quickly until they slow down and meet the next order waterway. First through third order streams are also called headwater streams and constitute any waterways in the upper reaches of the watershed. Unlike the smaller order streams, the medium and large rivers are usually less steep and flow more slowly. They do, however, tend to have larger volumes of runoff and debris as it collects in them from the smaller waterways flowing into them.

Goldslide Creek, a short, 2.4 km-long, first-order watercourse, is one of the many tributaries of Bitter Creek and is located in the headwaters near the foot of Bromley Glacier. Otter Creek is located 3.3 km north, and is a 2.6 km-long, second-order watercourse. Bitter Creek is a 17 km-long, fourth order stream that flows west and drains into Bear River. Bear River is a large, 38 km-long, fifth order, fish-bearing watercourse that makes up an important component of the Nass watershed.

### 4.1.4 Surface Water Hydrology

Potential effects on the surface hydrology include the construction of the TMF adjacent to Otter Creek, water diversions associated with the TMF, the mill area, and the use and discharge of effluent from the process plant. The quantities of make-up water are small in comparison to the total flows in Otter Creek and are not expected to result in appreciable changes to the flow in this creek. Changes in flows to Bitter Creek and Bear River will be negligible.

#### 4.2.2 Fish and Fish Habitat

Bitter Creek, via Goldslide Creek and Otter Creek, is the primary watercourse supporting fisheries that may be affected by runoff from waste rock and tailings from the Project. However, historical and current information suggests the upper-most reaches of Bitter Creek are non-fish bearing; it is believed that the closest fish presence and habitat is approximately 6.5 km downstream from the Goldslide Creek/Bitter Creek confluence and 3.2 km downstream of Otter Creek, in the vicinity of Hartley Gulch. Ongoing field surveys specific to fish distribution, abundance, and diversity will confirm and update historical information. Along proposed rights-of-way, fish and fish habitat may be affected through degradation of habitat by erosion, sedimentation, and clearing of riparian vegetation for road construction and use. As well, increased access to fish habitat may lead to increased fishing pressure on local fish stocks; however, the local area (with the exception of Bear River) is not believed to be heavily used by Nisga'a and recreational anglers.

Although downstream changes to water and sediment quality are expected to be minimal, changes in the quality of these features downstream of the Project and potential implications to fish and fish habitat as well as lower trophic levels will be assessed. Linear features (e.g., power line and access road rights-of-way) will also be evaluated in the assessment. Mitigation measures will be implemented to manage any potential effects on fish and fish habitat as required.