



FISH HABITAT PERMIT

FH18-III-0188

ISSUED: August 30, 2018

EXPIRES: Upon Removal

Daniel Graham
Donlin Gold
4720 Business Park Blvd.
Suite G-25
Anchorage, AK 99503

Dear Mr. Graham:

RE: Crooked Creek Outfall
Crooked Creek (Stream No. 335-20-16600-2671)
Section 3, T22N, R49W, Seward Meridian, Iditarod A-5
Location coordinates (WGS84): 62.0197 N 158.2546 W

Pursuant to AS 16.05.871(b), the Alaska Department of Fish and Game (ADF&G), Division of Habitat, has reviewed your proposal to construct an outfall structure in Crooked Creek to receive treated water from mine operations. We received your application on December 29, 2017.

Project Description

Donlin Gold is proposing the development of an open pit, hardrock gold mine (Donlin Gold project). During mine operations, waters including pit dewatering water, mine drainage water, and excess precipitation water from the Tailings Storage Facility (TSF), will be treated in the site water treatment plant (WTP) to discharge limits as specified in the Alaska Pollutant Discharge Elimination System (APDES) permit. The treated water will be discharged to Crooked Creek near the confluence of Omega Gulch, where the proposed outfall structure would be installed. The reach of Crooked Creek proposed for the outfall is downstream of the area of influence of pit dewatering, in a typical meandering section of the creek. Limited coho spawning has been identified in this reach of Crooked Creek, with most mainstem spawning occurring upstream in Donlin Creek, or in Getmuna and Bell creeks. The proposed outfall structure would consist of a buried 48-inch diameter HDPE pipe installed to rest on an armored

sill that would be installed in the bed of the creek. Specifications for the installation including the armored sill would be determined during the detail design phase and in coordination with the ADF&G. The pipe would be insulated and outfitted with heat trace to resist freezing. In addition to stream bed and bank armoring, the large discharge pipe diameter will result in low discharge velocities at design flows and further reduce the potential for stream bed erosion. Detailed design for the bed and bank armoring at the outfall is not complete at this time. However, rip rap armoring on the bed of the river would extend from the thalweg to three feet below the thalweg. Bank armoring would be sloped at approximately 2H:1V and would be keyed into the banks at the upstream and downstream ends of the structure. The discharge may be operated only during the open-water season, approximately eight months (preferred operation during mine life), or year-round (during initial pit dewatering prior to process plant operation and during periods with excess water on site). Life of mine average flows over an 8-month discharge season would be 1,940 gpm (4.3 cfs); and 1,293 gpm (2.9 cfs) for a year-round discharge. Maximum projected discharge of the WTP, based on current design, would be 3,750 gpm (8.36 cfs) or less. For reference, average annual flow below Omega Gulch in Crooked Creek is approximately 84 cfs and for the months of March through October, average annual flow is approximately 107 cfs. Water discharged to Crooked Creek will meet all applicable water quality standards. The final configuration of the discharge structure in Crooked Creek and the freeze protection used will be determined during the detail engineering phase in coordination with the ADF&G. The structure could be constructed in winter or open water conditions, but in-water work would be timed to avoid salmon moving into the river to spawn. Typical construction equipment will be used during installation of the outfall structure. It is anticipated that at least one excavator would work in-stream to install the structure. It is anticipated that less than 5 days of in-water work would be needed to complete installation. Preliminary plans were included in the December 29, 2017 application.

Anadromous Fish Act

Crooked Creek has been specified as being important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The creek in the area of your activity provides spawning and rearing habitat for Chinook and coho salmon, and spawning habitat for chum salmon. Resident fish species captured in the vicinity of your project include Dolly Varden, slimy sculpin, burbot, Alaska blackfish, round whitefish, and Arctic grayling. Your project as proposed should not have adverse effects on anadromous fish or their habitat and should not obstruct the free passage of fish.

In accordance with AS 16.05.871(d), project approval is hereby given subject to the project description above with the following stipulations:

1. Donlin Gold shall submit final plans and specifications to the Division of Habitat for review and approval, noting any deviations from the preliminary plan set submitted for this permit.

2. A monitoring plan shall be developed in consultation with the ADF&G to continue to collect information comparable to baseline data collected in the project area beginning in 2004, in order to document conditions within the aquatic communities with potential to be changed by project operations. Monitoring shall be designed to provide data to evaluate changes potentially caused by development and operation of the project, including flow reductions in Crooked Creek. Results of monitoring should allow for temporal analysis between and among sites as well as for comparisons to baseline data. The objectives of the aquatic biomonitoring should be to:
 - a. monitor for major changes to aquatic communities;
 - b. monitor for smaller scale and incremental changes to aquatic communities; and
 - c. guide results based refinement to the monitoring program.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. For any activity that significantly deviates from the approved plan, you shall notify the Division of Habitat and obtain written approval in the form of a permit amendment before beginning the activity. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the Division of Habitat. Therefore, it is recommended you consult the Division of Habitat immediately when a deviation from the approved plan is being considered.

For the purpose of inspecting or monitoring compliance with any condition of this permit, you shall give an authorized representative of the state free and unobstructed access, at safe and reasonable times, to the permit site. You shall furnish whatever assistance and information as the authorized representative reasonably requires for monitoring and inspection purposes.

This letter constitutes a permit issued under the authority of AS 16.05.871 and must be retained on site during project activities. Please be advised that this determination applies only to activities regulated by the Division of Habitat; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other permits; state, federal, or local. You are still required to comply with all other applicable laws.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The department reserves the right to require mitigation measures to correct disruption to fish and game created by the project and which was a direct result of the failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

This permit decision may be appealed in accordance with the provisions of AS 44.62.330-630.

Any questions or concerns about this permit may be directed to Habitat Biologist Maria Wessel at (907) 459-7281 or emailed to maria.wessel@alaska.gov.

Sincerely,

Sam Cotten, Commissioner



BY: Audra L. J. Brase, Regional Supervisor
Division of Habitat
Alaska Department of Fish and Game

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AB/mlw