



**Magino Project  
Environmental Impact Statement  
Technical Support Document 20-14  
Draft Fish Habitat Compensation Plan**

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## SECTION 1.0 – INTRODUCTION

Prodigy Gold Incorporated (Prodigy) proposes to develop the Magino Gold Project (the Project), which is situated at a past-producing mine site. The Project is located in Northern Ontario, approximately 40 kilometres (km) northeast of Wawa. The Project will involve the mining of up to approximately 150 million tonnes (Mt) of ore and approximately 430 Mt of mine rock from an open pit in the same location as the past-producing underground mine.

The proposed development of the Magino Project site will include project components such as an open pit, a tailings management facility, a mine rock management facility, ore processing plant, mine rock and overburden stockpiles, and ancillary infrastructure required to support construction and operation activities throughout the life of the mine. Within the proposed mine site area, a number of lakes, streams and wetlands are located. The development of mine infrastructure for the Project will require the infilling and diversion of waterbodies frequented by fish, resulting in the loss of fish and fish habitat.

Under the *Fisheries Act* and MMER Schedule 2, the removal of any commercial, recreational or Aboriginal (CRA) fisheries, or the proposed deposition of mine waste material into fish frequented waterbodies requires authorization from the Department of Fisheries and Oceans, and Environment and Climate Change Canada. The *Fisheries Act* contains two key provisions on conservation and protection of fish habitat essential to sustaining freshwater and marine fish species. The Department of Fisheries and Oceans (DFO) administers Section 35, the primary habitat protection provision, prohibiting any work or undertaking that would cause the harmful alteration, disruption or destruction of fish habitat. This generally involves physical works that will affect fish and fish habitat (i.e., loss of part of a stream to build a road). As of 2014, Environment and Climate Change Canada administers Section 36, the main pollution prevention provision, which prohibits the deposit of deleterious substances into waters frequented by fish, unless authorized by regulations under the *Fisheries Act* or other federal legislation [i.e., the Metal Mining Effluent Regulations (MMER) which allows the discharge of deleterious substances at specified concentrations]. It is important to note that the definition of fish is not consistent between Section 35 and Section 36. Section 35 applies to habitats supporting commercial, recreational and aboriginal fisheries, whereas Section 36 applies to habitat frequented by fish, in which “fish” are defined as “fin fish”. Thus, habitats affected by the project development have been considered in light of the project activity (i.e., mine waste deposition vs. loss to infrastructure) and the fish community to identified habitat loss to be approved under Section 35 or Section 36 (MMER Schedule 2) of the *Fisheries Act*.

Since 2011, Prodigy has been completing baseline studies to characterize and understand potential environmental, human and socio-economic effects associated with proposed development activities. Local Aboriginal groups have provided Traditional Knowledge and Traditional Land Use Studies to provide a better understanding of how land within the project site has been, and is being utilized. Through baseline studies and engagement with the public and Aboriginal groups, Prodigy has identified that the primary potential use of affected waterbodies is for recreational purposes. No commercial or Aboriginal fisheries will be affected by the proposed development activities.

The *Fisheries Act*, under Section 35(2), requires that the proponent prepare an offsetting plan following prescribed guidelines and regulations, in order to receive authorization from the Minister. This includes consulting with the government, public and Aboriginal communities to

ensure feedback is considered and incorporated into any proposed offset plans. Similarly, MMER Schedule 2 requires the proponent to prepare a fish habitat compensation plan, on which stakeholders are to be consulted prior to the submission of that plan for approval. The objective of both processes is an overall result of no net loss, while potentially providing improved fishing and fish habitat opportunities.

This draft compensation plan presents a summary of the proposed offset strategies which are required for the Magino Project. Waterbodies requiring Fisheries Act Section 35(2) approval and MMER Schedule 2 amendments will be distinguished. Prodigy will continue to engage with the government, public and Aboriginal communities throughout the associated approvals processes to ensure the offset plans are developed in a way that results in no net loss.

## **SECTION 2.0 – BACKGROUND**

Within the Project Study Area (PSA), there are three watersheds (Herman-Otto Lake, McVeigh Creek and Webb-Goudreau) with a total of 20 lotic and lentic waterbodies providing a variety of different habitat opportunities. Dependent on the water body in question, the size and depth vary. Generally, lentic waterbodies within the PSA are shallow warm water habitats, with limited fish over wintering potential. These waterbodies tend to support small-bodied forage fish such as dace species, darters and brook stickleback. Water courses within the PSA tend to be low gradient, shallow, meandering streams with significant beaver activity influencing habitat conditions. The large-bodied fish species found within the PSA are Northern Pike, Yellow Perch, White Sucker, Walleye, Burbot and Lake Whitefish. Both Burbot and Lake Whitefish are found only within the Herman-Otto watershed in the PSA. Neither Walleye or Northern Pike are found within the McVeigh Creek watershed within the PSA. Chapter 4, Section 4.3.4 and TSD 15 describe fish and fish habitat conditions within waterbodies assessed in the RSA, LSA and PSA.

To reduce potential impacts on the waterbodies associated with the site, Prodigy has continually refined its mine site design since the submission of its initial project description. This has included improved engineering design and engagement with the public and Aboriginal communities. Aboriginal groups such as the Métis Nation of Ontario (MNO) and Missanabie Cree First Nation (MCFN) have suggested that the mine foot print be kept as small as possible. As such, the ore stockpiles will be consolidated and relocated in order to affect fewer watersheds and waterbodies. In addition, the overburden piles will be moved closer to the tailings and mine rock management area. As a result, the predicted area of disturbance has been decreased as has the number of waterbodies that could be potentially affected.

All waterbodies affected by mine site infrastructure are located within the PSA. Although impacts to some waterbodies cannot be avoided, in order to proceed the Project will require the removal of fish habitat for the development of infrastructure.

## **SECTION 3.0 – OFFSET GUIDANCE**

### **Fisheries Act**

Subsection 35(1) of the *Fisheries Act* (administered by Fisheries and Oceans Canada) prohibits the carrying on of a work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery or to fish that support such a fishery (DFO, 2013). However, under Paragraph 35(2)(b) of the *Fisheries Act*, the Minister of Fisheries and Oceans

(the Minister) may issue an authorization with terms and conditions in relation to a proposed work, undertaking or activity that may result in serious harm to fish (DFO, 2013). The proponent of a project proposing work that may result in serious harm to fish is required to prepare an offsetting plan, which follows prescribed guidelines and regulations, in order to receive authorization from the Minister.

For the Magino Project, an application under normal circumstances will be submitted for Section 35(2) authorization. This application will require Prodigy to provide information identified in Schedule 1 of the *Fisheries Act* Application Regulations and an irrevocable letter of credit to guarantee the implementation of the offsetting plan (DFO, 2013). Described below is list of information requirements that will accompany the application letter, once submitted to regulatory authorities:

- Contact Information;
- Description of the Proposed Undertaking;
- Timeline;
- Location;
- Description of Fish and Fish Habitat;
- Description of Effects on Fish and Fish Habitat;
- Measures and Standards to Avoid or Mitigate Serious Harm to Fish;
- Residual Serious Harm to Fish after Implementation of Avoidance and Mitigation Measures and Standards; and
- Offsetting Plan.

## **MMER Schedule 2**

Under Section 36 of the *Fisheries Act* (administered by Environment and Climate Change Canada), any mining project that proposes to use a natural water body frequented by fish to deposit mine waste (a deleterious substance) is required to obtain a Schedule 2 amendment of the Metal Mining Effluent Regulations. To support a Schedule 2 amendment, the project proponent must successfully complete a federal Environmental Assessment as well as:

- prepare an assessment of alternatives for mine waste disposal for consideration;
- prepare a fish habitat compensation plan for consideration as part of the EA; and
- participate in public and aboriginal consultations on the EA, including on possible amendments to the MMER (ECCC, 2013).

After completing the steps described above, an amendment package will be prepared by Prodigy. This amendment package will be completed justifying the proposed Schedule 2 amendment and then be submitted for approval by the Minister of Environment and Climate Change Canada and the Minister of Fisheries and Oceans.

## **SECTION 4.0 – AFFECTED FISH HABITAT**

Construction and operation of the Project will require the infilling, diversion and removal of waterbodies frequented by fish. The proposed Project site layout is presented in Figure 1. Figure 2 identifies waterbodies requiring *Fisheries Act* and MMER Schedule 2 approval.

Figure 1: Magino Site Layout

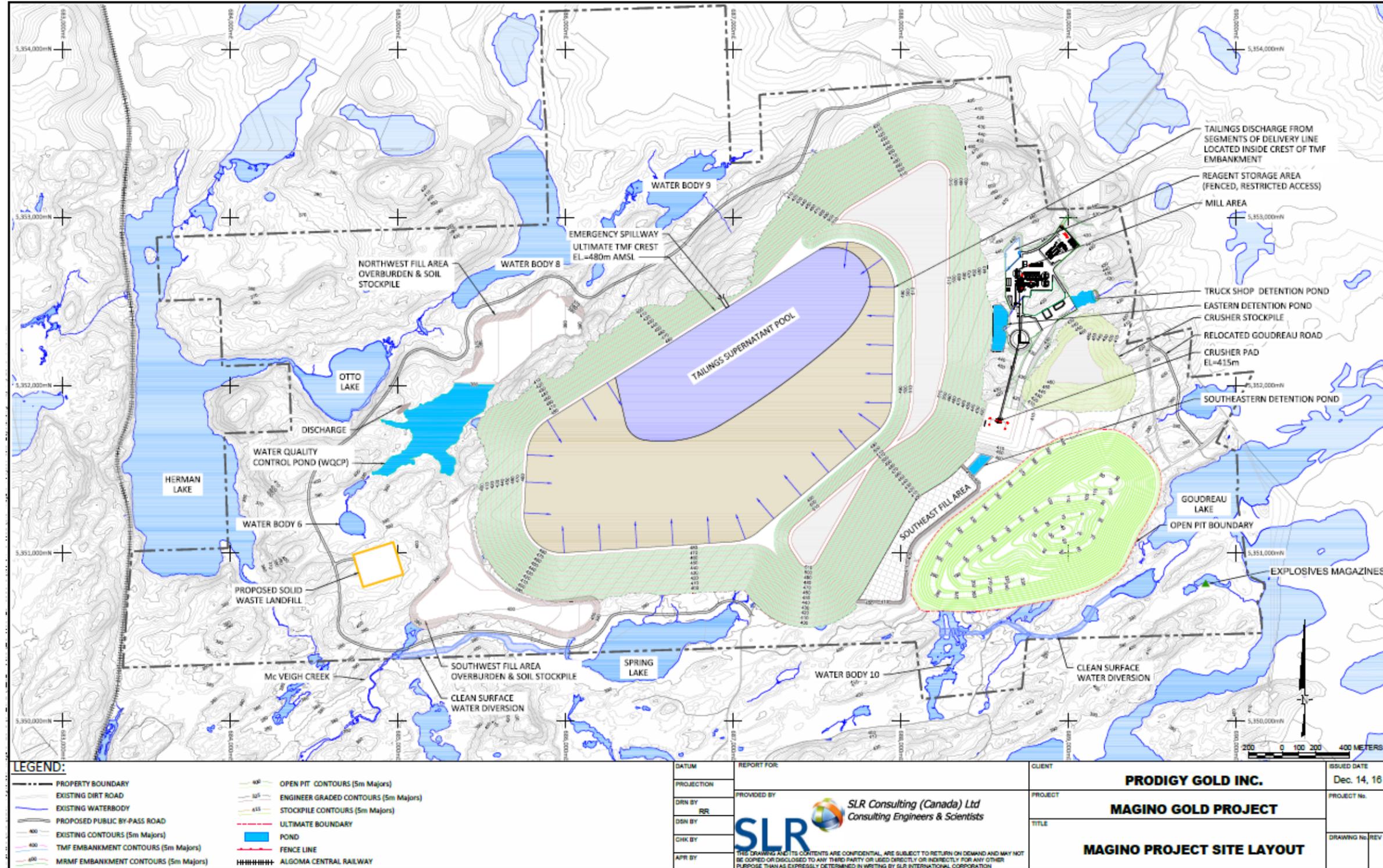
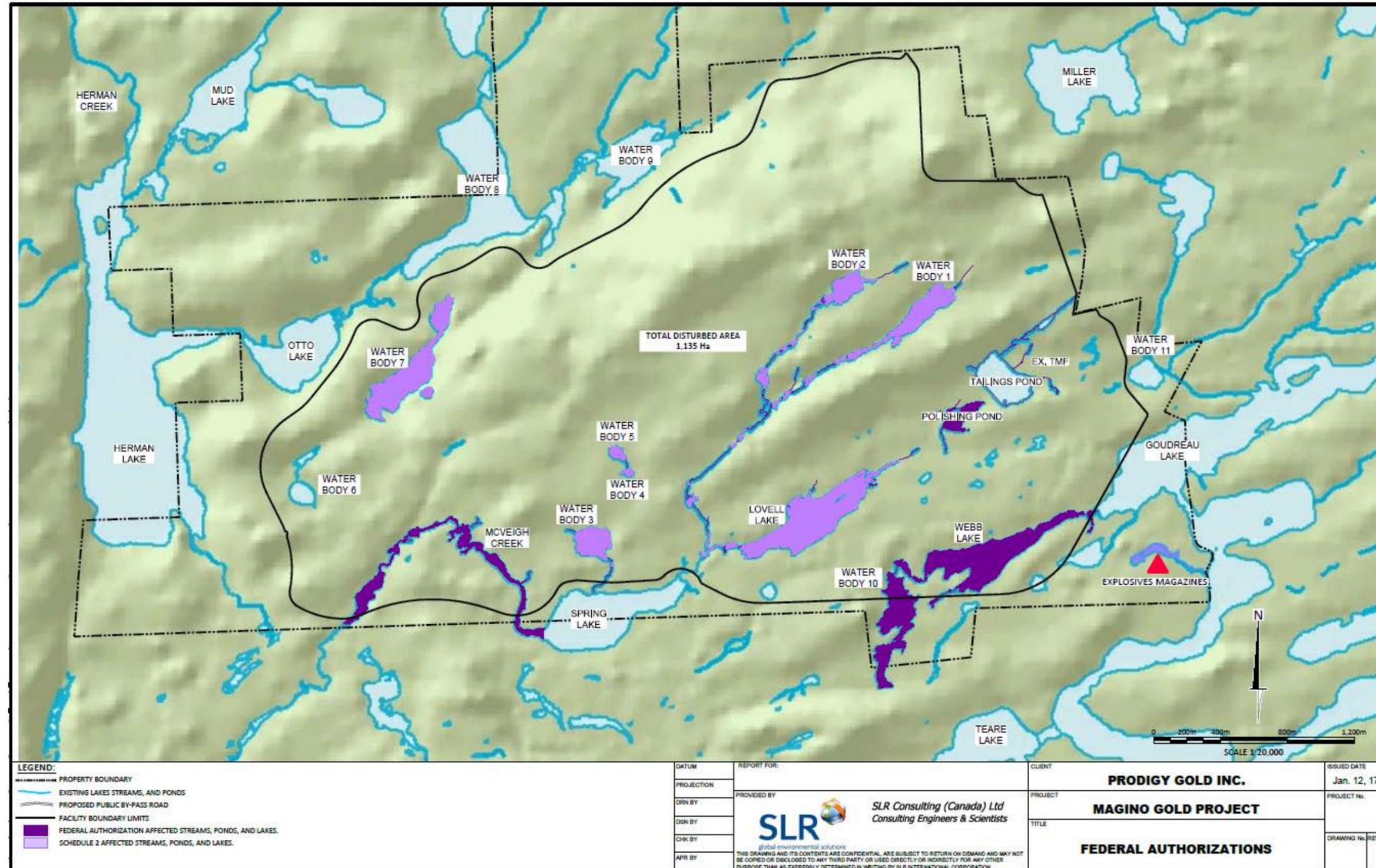


Figure 2: Federal Authorizations



A summary and break down of impacts to fish habitat by watershed are presented in the tables below (Tables 1-3). The infrastructure components affecting waterbodies are also identified.

**Table 1: Summary of total fish habitat (m<sup>2</sup>) lost to the Magino Mine**

Habitat	Schedule 2 (m <sup>2</sup> )	Fisheries Act Authorization (m <sup>2</sup> )	Total Fish Habitat Lost (m <sup>2</sup> )
Stream	22,024	84,705	106,729
Waterbody	313,835	202,363	516,198
Total	335,859	287,068	622,927

**Table 2: Breakdown of stream fish habitat (m<sup>2</sup>) by waterbody and watershed lost to the development of the Magino Mine**

Stream	Study Area	FAA/Schedule 2	Mine Infrastructure Affecting Waterbody	Distance (m)	Area (m <sup>2</sup> )
<b>McVeigh Creek Watershed</b>					
Inlet to Waterbody 2	PSA	Schedule 2	TMF/MRMF	85.1	43
Waterbody 2 to confluence with McVeigh Creek Tributary	PSA	Schedule 2	TMF/MRMF	1010.2	6,572
Waterbody 1 to confluence with Unnamed Tributary	PSA	Schedule 2	TMF/MRMF	962.3	8,270
McVeigh Creek Tributary to Confluence with McVeigh Creek	PSA	Schedule 2	TMF/MRMF	1160.7	3,609
Clarification/Polishing Pond to Lovell Lake	PSA	Schedule 2	Stockpile/Fill Area	493.1	981
Lovell Lake to Spring Lake	PSA	Schedule 2	TMF/MRMF	511.4	2,313
Waterbody 3 to Spring Lake	PSA	Schedule 2	TMF/MRMF	197.2	223

McVeigh Creek (downstream of Spring Lake)	PSA	FAA	TMF/MRMF/ Stockpile/Fill Area and Decrease in Water Flow	1,743.4	40,007
	LSA		Decrease in Water Flow	2,283.0	29,354
McVeigh Creek (downstream of Spring Lake) to Summit Lake	RSA	FAA	Decrease in Water Flow	731.9	5,107
<b>Total</b>				9,178.3	96,477
<b>Webb-Goudreau Lake Watershed</b>					
Waterbody 10 to Web Lake and upstream Inlets to Webb	PSA	FAA	Open Pit	428.9	4,997
	LSA	FAA	Open Pit	120.8	4,778
Webb to Goudreau Lake	PSA	FAA	Open Pit	128.5	462
<b>Total</b>				678.3	10,237
<b>Herman Otto Lake Watershed</b>					
Outlet of Waterbody 7	PSA	Schedule 2	Stockpile/Fill Area	84.1	19
<b>Total</b>				84.1	19

**Table 3: Breakdown of waterbody fish habitat (m2) by waterbody and watershed lost to the development of the Magino Mine**

Waterbody	Study Area	FAA/Schedule 2	Mine Infrastructure Affecting Waterbody	Area (m <sup>2</sup> )
<b>McVeigh Creek Watershed</b>				
Waterbody 2	PSA	Schedule 2	TMF/MRMF	23,236
	PSA	Schedule 2	TMF/MRMF	36,189

Waterbody 1		FAA	TMF/MRMF (outside the footprint)	5,656
Lovell Lake	PSA	Schedule 2	TMF/MRMF/ Stockpile/Fill Area	131,977
Clarification / Polishing Pond	PSA	FAA	Plant-Crusher Pad Area	18,601
Waterbody 3	PSA	Schedule 2	TMF/MRMF	28,871
Waterbody south of Lovell Lake	PSA	Schedule 2	TMF/MRMF	5,319
		FAA	TMF/MRMF (outside the footprint)	1,028
<b>Total</b>				<b>250,876</b>
<b>Webb-Goudreau Lake Watershed</b>				
Webb Lake	PSA	FAA	Open Pit	114,408
Waterbody 10	PSA	FAA	Open Pit (drawdown)	14,176
	LSA			48,494
<b>Total</b>				<b>177,078</b>
<b>Herman Otto Lake Watershed</b>				
Waterbody 7	PSA	Schedule 2	Water Quality Control Pond/Stockpile/Fill Area	88,243
<b>Total</b>				<b>88,243</b>

The total loss of fish habitat resulting from the development of the Magino mine is estimated at 622,927 m<sup>2</sup>. Under the Fisheries Act, 287,068 m<sup>2</sup> will require offsetting and 335,859 m<sup>2</sup> under MMR Schedule 2 will require compensation. As offset plans are developed, the total areas lost will be converted into habitat units to ensure no net loss is achieved. At the time of the EIS submission, the offsetting plans are not yet finalized; however design concepts have been developed.

The objective of habitat compensation measures associated with the Prodigy Gold project will be to create habitat which achieves the biotic and abiotic habitat requirements of the resident fish species (Yellow Perch, Northern Pike, Walleye, Burbot and Whitefish) and minimize the risk of adverse effects to the environment (i.e., flooding and erosion). The overarching goal will be to compensate lost habitat productive capacity on a "like for like" basis to maintain the fish communities within, and the functionality of, the existing habitat. Therefore, the general approach will be to design habitat to meet the current life history requirements of the resident fish. Consideration with respect to habitat for spawning, juveniles, and adult foraging as well as overwintering habitat will be incorporated into the offsetting plan as appropriate. The offsetting plan will consider not only the physical habitat requirements (i.e., flow, depth, fish passage, cover, and substrate) but also the biological requirements (e.g., food). Key design considerations will include:

- Maintenance of existing watersheds to the extent possible;
- Maintenance of the existing hydrologic flow regime to the extent possible;
- Minimization of temporal disruptions to the extent possible;
- Promotion of connectivity within watersheds and habitats;
- Incorporation of natural channel design concepts;
- Incorporation of opportunities to increase productivity of the system (e.g. increased littoral zones);
- Enhancement of habitat complexity; and
- Incorporation of any limiting habitat types for resident fish populations to the extent possible (i.e., overwintering habitat).

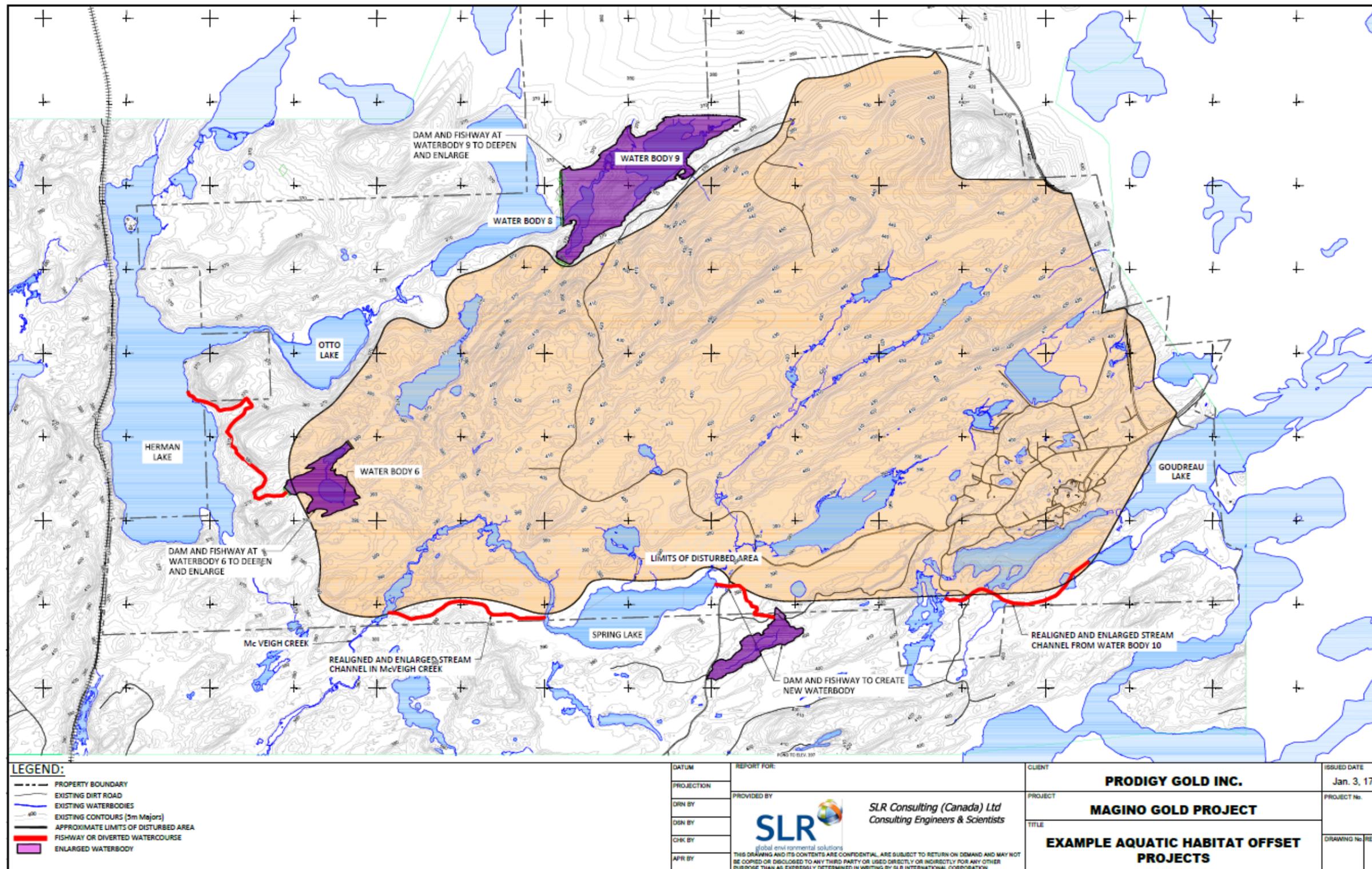
As far as practical, natural channel design techniques will be applied to mimic natural flow and flooding patterns, and incorporate shoreline and riparian vegetation. In addition, features will be incorporated for habitat and physical diversity, and to provide refuge areas (i.e., usable area for fish under either low flow or winter conditions).

Prodigy has identified five potential opportunities within the Project area that could provide sufficient fish and fish habitat compensation.

- 1) Construct an outlet diversion channel from Water Body 6 to either Herman Lake or Otto Lake. Conversely, Water Body 6's elevation could be increased to enhance fish habitat; in addition shoreline habitat improvements, such as spawning shoals, could be created near the confluence point;
- 2) There is an opportunity to create habitat during the re-alignment of McVeigh Creek to Spring Lake;
- 3) During the construction of the channel from Water Body 10 to Goudreau Lake fish habitat could be created. There is also potential for creating a water body upstream of West Goudreau Lake;
- 4) Create a new water body by increasing the pond elevation of a low area south of Spring Lake and create a channel leading into Spring Lake; and

- 5) Increase the size of Water Body 9 through damming prior to its discharge into Water Body 8.

**Figure 3: Potential Offset Opportunities**



Prodigy has discussed fish habitat offset proposals with the Aboriginal communities. BFN has suggested that Prodigy participate in an offset project in the St. Mary River sponsored by the Federal government. Due to the geographic distance and potential cost, the opportunity was determined to be a low priority.

In Prodigy's engagement with Aboriginal communities, MFN and MNO identified that they are considering other fisheries offset opportunities and will look to provide Prodigy such information prior to the Company's application to DFO. Prodigy has also engaged local community members during open houses (e.g. in Dubreuilville) to identify any other potential offset opportunities. As engagement continues, Prodigy will continue to discuss potential offset opportunities that could benefit both the public and Aboriginal communities.

It is expected that the offsetting plan to be implemented during construction of the Project will provide sufficient habitat to ensure no net loss of habitat due to the development of the Project. However, if additional habitat is required, Prodigy will seek opportunities within the region to develop additional compensation measures. Such measures will be undertaken in concert with the Ontario Ministry of Natural Resources and the Department of Fisheries and Oceans. As conceptual plans are developed, Prodigy will continue to engage with government agencies, the public and Aboriginal groups to ensure feedback is incorporated into final designs. Once feedback from stakeholders has been collected and offset plans refined, Prodigy will submit final plans for authorization to the Department of Fisheries and Oceans, and Environment and Climate Change Canada.

## **SECTION 5.0 – REFERENCES**

Environment and Climate Change Canada. (2013). Guidelines for the Assessment of Alternatives for Mine Waste Disposal. Retrieved from the Environment and Climate Change website: <https://ec.gc.ca/pollution/default.asp?lang=En&n=125349F7-1&offset=1&toc=hide>

Department of Fisheries and Oceans Canada. (2013). An Applicant's Guide to Submitting an Application for Authorization under Paragraph 35(2)(b) of the *Fisheries Act*. Retrieved from the Department of Fisheries and Oceans website: <http://www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/application-eng.html>