



Galore Creek Project

Environmental Assessment Certificate Amendment Application: Access Development and Partial Modernization

V1



Report Prepared for Submission to:
BC Environmental Assessment Office



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Document Version History

Version Number	Version Date	Document Description and Revisions Made
V1	July 21, 2023	Submission to BC EAO

EXECUTIVE SUMMARY

This Environmental Assessment Certificate (EAC) Amendment Application supports Galore Creek Mining Corporation's (GCMC) planned Access Development. The Application is primarily a request to modernize Access Development components of the EAC to develop a shared interpretation of the conditions and commitments, as well as incorporate minor Access Development changes into the EAC. More specifically, the objectives of this Amendment Application are to:

1. Modernize Access Development components of the EAC to develop a shared and explicit understanding of the EAC requirements among GCMC, Tahltan, the Environmental Assessment Office (BC EAO), and permitting agencies. This partial modernization involves replacing hundreds of commitments found throughout the documents listed in Schedule A of the EAC with a clear, measurable, and enforceable Table of Conditions (TOC) and Certified Project Description (CPD).
2. Update the EAC with three proposed Project changes related to Access Development, including: (1) the South West More Bypass realignment—a new, preliminary ~13.6 km segment of road within the proposed Access Development Corridor ; (2) Relocating Isbā Camp up to 5 km east along the Access Road; and, (3) variable camp capacities, not exceeding the total approved camp capacity for the Project (i.e., 1,640 beds) at any given time.

In terms of objective 1, this Amendment Application explains the approach to modernization.

The modernization approach identifies access development-related commitments from the EAC, categorizes these commitments, and then aligns relevant commitments with the current EAC Policy (BC EAO 2021a). The process involved the following three steps:

1. Identify commitments in the Project's EAC (i.e., create a "Commitments Database" (cDB));
2. Categorize commitments according to defined groupings that direct how commitments will be handled post-modernization (e.g., some commitments will inform the newly proposed draft TOC and CPD, while others will be deferred for considering during the permitting process or creation of management plans required by the EAC);
3. Develop and propose a new TOC and CPD, guided by the results from Step 2, for refinement and approval by Tahltan and the BC EAO.

At the conclusion of the Access Development modernization process, the updated TOC and new CPD would replace proponent commitments that pertain to Access Development. Until the remainder of the Project's EAC is modernized (in a subsequent EAC Amendment Application), all other commitments would remain in effect, as applicable, to other aspects of the Project (e.g., Mine Site or Tailings Management Facility).

In terms of objective 2, this Amendment Application provides an assessment of the potential effects of the proposed Project changes on the same Valued Ecosystem Components (VECs) assessed in the original EAC Application (NovaGold 2006). It was determined that, after mitigation is applied, the proposed Project changes are not expected to alter the characterization of residual effects in a way that would change the determinations of significance presented in the EAC Application.

This overarching conclusion is largely based on anticipated effects being similar in nature to those already assessed. While the EAC modernization process will update the previously approved mitigation measures, including best management practices (BMPs), standard operating procedures (SOPs), and the comprehensive suite of management plans required by the EAC, the modernized EAC combined with updated management plans and permits will be sufficient to uphold the conclusions presented in the EAC Application.

TABLE OF CONCORDANCE

Num.	Information Requirements for an Environmental Assessment Certification Amendment submitted under BC <i>Environmental Assessment Act</i> (2018)	Location in Application
1	EAC #, Exemption Order # (if applicable), project name and current name of EAC or Exemption Order Holder;	Section 1
2	Number of prior amendments and a short summary of each one;	Section 1
3	Short, descriptive name for the proposed amendment (Amendments will not be given a number until made);	Section 1
4	The reason for the proposed amendment;	Section 2
5	Short description of the substance of the proposed EAC or Exemption Order changes (not proposed EAC or Exemption Order wording changes). That is, what the Holder is proposing to have amended and the rationale for it, including specifics of which sentence or condition is proposed for change, if applicable; If the EAC or Exemption Order was issued under a Former Act, a request for conditions for the transfer of “project”, an “interest in a project”, or “a significant interest in a project” to be removed. (See above for more information.)	Section 2
6	A description of potential project amendment interactions with any identified Indigenous interests;	Section 7
7	The effect of the revised project on relevant valued components and Indigenous interests assessed in the project’s EA (Environmental Assessment) or exemption application and proposed mitigation measures;	Section 5,6 and 7
8	A description of any Indigenous Knowledge that was used in developing the Application and confirmation that appropriate permissions are in place2;	Section 3
9	A table showing the valued components that have the potential to be affected by the proposed amendment, and required assessment matters (Section 25 of the Act; see below). The table should include a rationale if the Holder asserts that any required assessment matter is not relevant. For more information see the Effects Assessment Policy on the EAO’s website;	Section 5.1
10	Any benefits or positive effects that would result from the revised project;	Section 2.6
11	Any studies or assessments that would be relevant to the revised project that were submitted during the EA or exemption process;	Section 2.5
12	Details of Indigenous nation, Stakeholders, public and agency engagement respecting the proposed amendment.	Section 3
13	Government approvals that are related to the requested amendment including any permits or licenses that are expected to also need amendment;	Section 2.4
14	Proposed timeline for supplementary submissions in support of the Application, and the parties, such as Indigenous nations, that may be engaged in this work; and,	NA
15	For a potential simple amendment (see Table 1 for more information): rationale why the change is minimal, why there is no possibility of a significant adverse effect, why public interest is unlikely to be affected and why there is limited need for Indigenous or public engagement.	Section 5
16	Required Assessment Matters from Section 25 of BC EAA (2018): 25 (1) The effects of a project on Indigenous nations and rights recognized and affirmed by section 35 of the Constitution Act, 1982 must be assessed in every assessment.	Section 5.3
17	25 (2) (a)positive and negative direct and indirect effects of the reviewable project, including environmental, economic, social, cultural and health effects and adverse cumulative effects;	Section 5.3.1
18	25 (2) (b)risks and uncertainties associated with those effects, including the results of any interaction between effects;	Section 5.3.2
19	25 (2) (c)risks of malfunctions or accidents;	Section 5.3.3

Num.	Information Requirements for an Environmental Assessment Certification Amendment submitted under BC <i>Environmental Assessment Act</i> (2018)	Location in Application
20	25 (2) (d)disproportionate effects on distinct human populations, including populations identified by gender;	Section 5.3.4
21	25 (2) (e)effects on biophysical factors that support ecosystem function;	Section 5.3.5
22	25 (2) (f)effects on current and future generations;	Section 5.3.6
23	25 (2) (g)consistency with any land-use plan of the government or an Indigenous nation if the plan is relevant to the assessment and to any assessment conducted under section 35 or 73;	Section 5.3.7
24	25 (2) (h)greenhouse gas emissions, including the potential effects on the province being able to meet its targets under the Greenhouse Gas Reduction Targets Act;	Section 5.3.8
25	25 (2) (i)alternative means of carrying out the project that are technically and economically feasible, including through the use of the best available technologies, and the potential effects, risks and uncertainties of those alternatives;	Section 5.3.9
26	25 (2) (j)potential changes to the reviewable project that may be caused by the environment;	Section 5.3.108
27	25 (2) (k)other prescribed matters.	NA

SOURCES:

BC EAO (2020a); Section 25 of the BC *Environmental Assessment Act* (2018).

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- Appendix A. Categorized Access-Development EAC Application Commitments**
- Appendix B. List of Relevant Studies**

ACRONYMS AND ABBREVIATIONS

BC	British Columbia
BC EAA	BC Environmental Assessment Act
BC EAO	British Columbia Environmental Assessment Office
BC EMLI	Ministry of Energy, Mines and Low Carbon Innovation
BC ENV	Ministry of Environment and Climate Change Strategy
BC MOF	Ministry of Forests
BMP	best management practice
cDB	Commitments Database
CEAA	Canadian Environmental Assessment Act
CPD	Certified Project Description
EAC	Environmental Assessment Certificate
FSR	forest service road
GCMC	Galore Creek Mining Corporation
IAAC	Impact Assessment Agency of Canada
NovaGold	NovaGold Resources Inc.
NRC	Natural Resources Canada
OLTC	Occupant Licence to Cut
RTEC	Rescan Tahltan Environmental Consultants
SOP	standard operating procedure
SUP	Special Use Permit
the C&E Branch	Compliance and Enforcement Branch
the Project	Galore Creek Project
TOC	Table of Conditions
VEC	Valued Ecosystem Component

1. INTRODUCTION

1.1. Project Overview

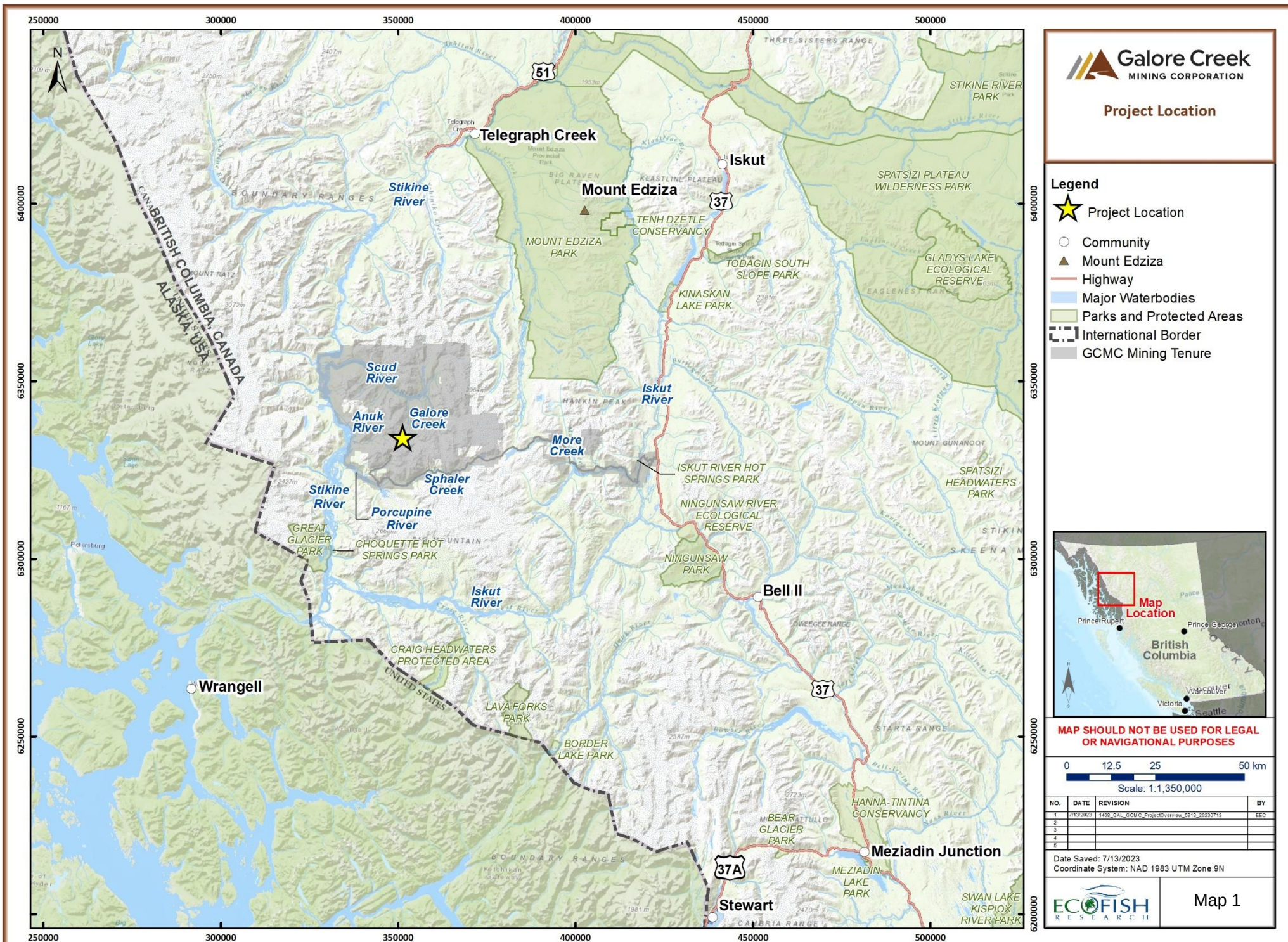
The Galore Creek Mining Corporation (GCMC) is the owner and operator of the Galore Creek Project (the Project), an approved open pit copper-gold-silver mine located in Tahltan Territory in northwest British Columbia (BC) (Map 1). The Project is jointly owned by Teck Resources Limited (50%) and the Newmont Corporation¹ (50%). In 2007, the Project received a positive federal Decision Statement (CEAA 2007) under the *Canadian Environmental Assessment Act* (CEAA) (1992) and a provincial Environmental Assessment Certificate (EAC; #M06-03) under the *BC Environmental Assessment Act* (BC EAA) (2002) (Province of BC 2007). In 2012, the Minister of Environment confirmed that the Project had been substantially started (BC EAO 2012). GCMC plans to resume Access Development as early as spring 2024.

The primary objective of this Amendment Application is to modernize the EAC to facilitate a shared understanding between Tahltan, the BC EAO, and GCMC regarding EAC requirements pertaining to Access Development. The Project's "old-style" EAC was issued in 2007 and includes numerous documents containing commitments that were designed for assessment purposes rather than enforcement. Partial modernization involves review and categorization of EAC commitments related to Access Development, and replacing some of those commitments through the amendment process with a Table of Conditions (TOC) and a Certified Project Description (CPD) (Section **Error! Reference source not found.**) while deferring others for consideration during permitting and management plan development processes. The proposed modernization process aligns with previously developed modernization procedures set out by the BC EAO (2020a).

The second objective of this Amendment Application is to assess the potential effects of the proposed Project changes on the same Valued Ecosystem Components (VECs) assessed in the original EAC Application (NovaGold 2006). The assessment evaluates whether proposed Project changes, after mitigation is applied, would alter the characterization of residual effects in a way that would change the determination of significance presented in the EAC Application (Sections 6 and 7). Project components discussed include the Access Road, camps, and stockpile, borrow and staging/laydown areas, and associated ancillary infrastructure, collectively referred to as "Access Development" components.

In general terms, the proposed Project changes are not expected to alter the conclusions presented in the EAC Application. Effects are similar in nature to those previously assessed such that they can be effectively addressed through the application of previously approved (proposed to be modernized) mitigation measures, including best management practices (BMPs), standard operating procedures (SOPs), and the comprehensive suite of management plans required by the EAC and other site-specific mitigation addressed during permitting.

¹ NovaGold sold its 50% interest in the Project to the Newmont Corporation on July 26, 2018 (NovaGold 2018).



1.2. Regulatory Authorizations and Approvals

Since the Project's EAC was issued, three amendments to the EAC have been granted:

1. "On April 27, 2007, NovaGold [Resources Inc. (NovaGold), the previous owner of Galore Creek Project] applied for an amendment to repeal and replace Certificate Condition 5 relating to indemnity for the Crown arising out of the granting of a certificate for the Project (Galore Creek) or any other subsequent approvals. On June 7, 2007, the BC Minister of Environment issued the amendment." (BC EAO 2018b).
2. "On August 31, 2007, NovaGold advised the Environmental Assessment Office (EAO) that it had entered a partnership with Teck Comino Metals to establish the Galore Creek Mining Corporation (GCMC) and requested the Certificate be amended to change the name of the Certificate Holder from NovaGold to GCMC. On January 24, 2008, the BC Minister of Environment issued the amendment." (BC EAO 2018b).
3. On March 13, 2018, GCMC advised the EAO that it "seeks to include the locations of the Isbā Camp and associated gravel pit, as well as the main staging area into the EAC" (GCMC 2018). The need for amendment #3 arose due to these project components being constructed at alternate locations to avoid winter goat habitat, per the request of the Ministry of Environment (RTEC 2018). The amendment was ratified on October 2, 2018, subject to the following condition: Extraction activities at the Gravel Pit identified in the appended Certified Project Description will not occur while the Isbā Camp is being used to house off-shift workers (BC EAO 2018a).

In 2021, the BC EAO Compliance and Enforcement Branch (the "C&E Branch") conducted an administrative inspection which sought to verify compliance of the constructed sections of the Project's Access Road (GCMC 2021a). Upon review of the inspection information and taking into account GCMC's responses (GCMC 2021a), the C&E Branch concluded that, although "the comparative map sheets indicated noticeable deviations in alignment from the PAR [Project's Access Road] at various locations," they agreed that these "refinements [were] necessitated by the commitments and conditions of the approved EAC" (GCMC 2021a). Overall, the BC EAO determined that the Project was compliant with its EAC in relation to the constructed Access Road (BC EAO 2021a). This finding by the regulator supports the Access Road corridor approach proposed through the modernization process.

In addition to the EAC and the Federal Decision Statement, the Project holds two valid Special Use Permits (SUP; S24766 and S24637) authorizing early works at Sas Staging area, Devils Creek forest service road (FSR), and other locations along the Access Road, holds an Occupant Licence to Cut (OLTC; L47464) for vegetation clearance, and holds a valid *Mines Act* Permit (M-230) that authorizes tunnel development to connect the Access Road with the Galore Creek Valley (GCMC 2021a).

1.3. Status of Existing Infrastructure and Previous Works

1.3.1. Overview

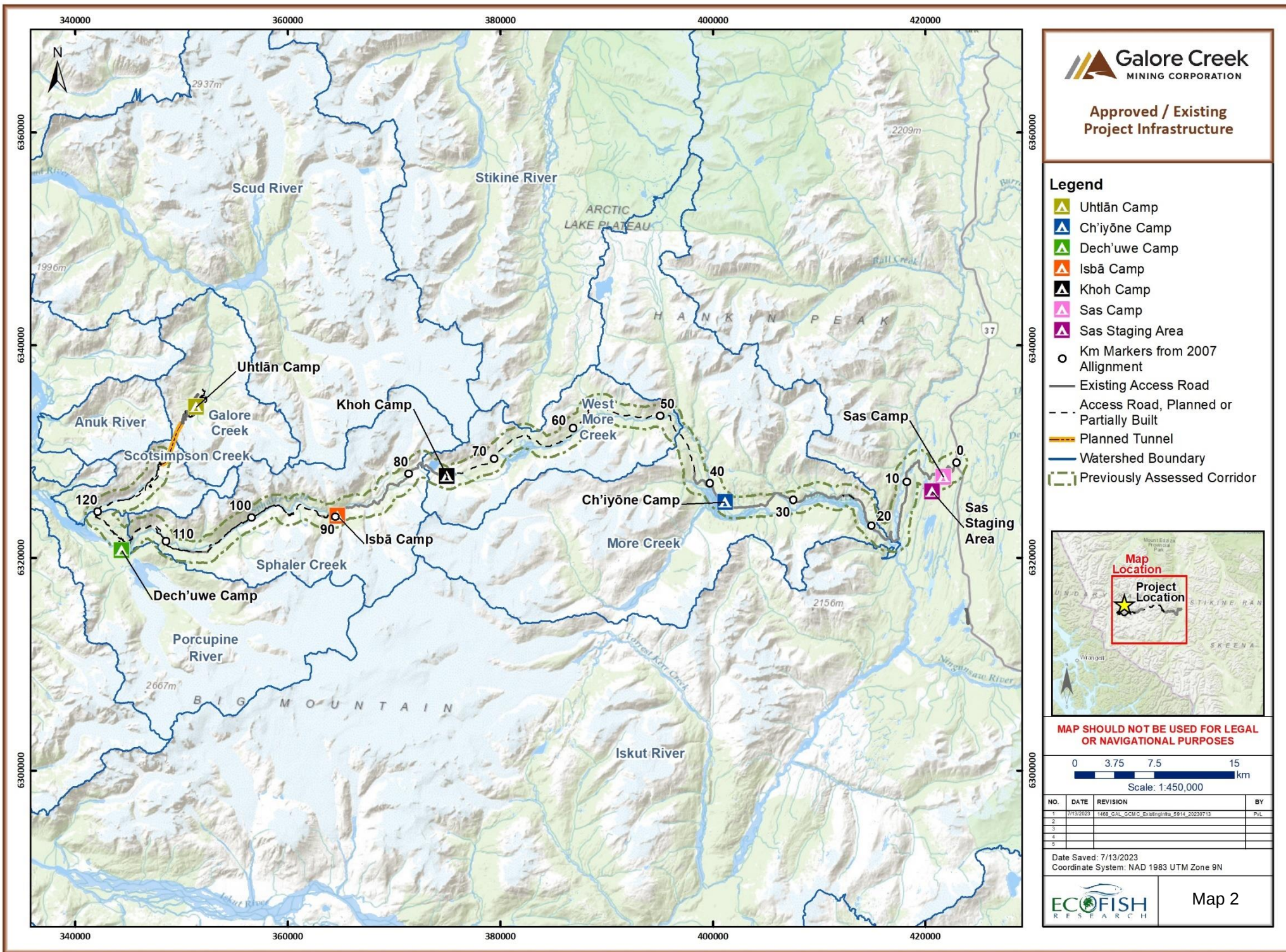
Prior to construction being stopped by the Certificate Holder in November 2007 as the Project transitioned into care and maintenance due to concerns over capital costs (GCMC 2011, 2021b), sections of the Access Road had been constructed to various stages of development. For example, tunnel excavation had begun at the North Portal and several camps and associated infrastructure were operational. Currently, the Project remains in care and maintenance with technical work and associated field data collection to support a new prefeasibility study underway (GCMC 2021a). Four objectives guide current on-site activities: 1) Ensure site safety; 2) Continue environmental management to prevent impacts; 3) Ensure that site management considers and respects Tahltan interests; and 4) Maintain the infrastructure and equipment for potential future use (GCMC 2016).

The following Project components have been partially or wholly constructed (Map 2):

- **Five camps** have been established (GCMC 2021b) with two: Ch'iyōne and Uhtlān, currently in use to support maintenance activities, baseline studies, and exploration work (GCMC 2011):
 - **Ch'iyōne Camp** (previously called "More Creek Camp"; ~km 37.5);
 - **Khoh Camp** (previously called "West More" and "Round Lake Camp"; ~km 75);
 - **Isbā Camp** (previously called "Sphaler Camp"; ~km 90);
 - **Dech'uwe Camp** (previously called "Porcupine/Aerodrome Camp"; ~km 116);
 - **Uhtlān Camp** (previously called "Mine Site Camp"; ~km 150);
 - **Sas Camp** (previously called "Filter Plant Camp") located adjacent to the Sas Staging Area at km 2.8, was decommissioned and removed from site after the suspension of construction in 2007 (GCMC 2011).
- **The Project's Access Road** linking the Mine Site to Hwy 37:
 - The first 11 km of the Access Road from Hwy 37 is the Devil Creek FSR, a previously existing road, for which GCMC holds Road Use Permit 9082-0701;
 - The Sas Staging area and multiple other smaller equipment storage areas (GCMC 2021b);
 - Access Road construction conducted beginning in 2007, included the following road sections:
 - ~61 km of serviceable Access Road (between km 0 – 43, km 73 – 91, and several other short sections of serviceable road between km 105 and 116) (GCMC 2016); and
 - ~61 km of logged right-of-way (km 48 – 73, and km 91 – 127) (GCMC 2016).
 - ~2 km of pioneering road (km 127 – 129) (GCMC 2016); and
 - Minor safety improvements to the road were completed in 2011 (GCMC 2021b) and are currently underway.
- **Infrastructure and equipment in the Galore Creek valley in addition to the Uhtlān Camp, includes:**
 - **Drill core storage area:** Situated immediately southwest of the camp (GCMC 2016);
 - **Tunnel staging area:** Infrastructure that is ancillary to tunnelling including laydowns, and a sedimentation pond that can be accessed by road from the camp (GCMC 2016);
 - **Scotsimpson Tunnel:** North Portal canopy and approximately 80 m of tunnelling from the entry point situated in the Galore Creek Valley (GCMC 2016);
 - **Historic airstrip** that is no longer in use (GCMC 2016); and
 - Heavy mobile equipment and light vehicles, to support construction², have been mobilized by heavy-lift helicopter to various Project locations, including along the Access Road and in the Galore Creek valley (GCMC 2021b).

² "[T]here is relatively limited land disturbance within the Galore Valley from mine development activities. Surface development activities to date within the area encompassed by *Mines Act* permit M-230 have also included exploration and geotechnical drilling, test pits and line cutting work. Most construction work carried out in 2007 was on the Access Road corridor from Highway 37 to the south tunnel portal in the Scotsimpson Valley (leading to the Galore Creek Valley), authorized by the EAC and SUP S24637." (GCMC 2021b).

During the years 2014 through 2018, environmental baseline work was scaled back; however, it was resumed in 2019 to support a prefeasibility study and anticipated future regulatory permit amendments and applications. The Project will remain in care and maintenance for the remainder of 2023, with resumption of Access Development construction beginning as early as 2024.



1.3.2. Approved Access Road

The general alignment of the Access Road, as described in the EAC Application, is as follows:

“[A]n all weather road from an existing forestry road connecting with Highway 37 north of Bob Quinn Lake, following More Creek to the headwaters of West More Creek, down the Sphaler Creek drainage to the Porcupine River and up the Scotsimpson Creek drainage to a tunnel at the head of Scotsimpson Creek that will provide access to the Galore Creek Valley” (Chapter 5.12 in NovaGold (2006)).

The EAC Application assessed a corridor of 1 km from each side of the centreline of this alignment.

This general routing and assessed corridor will be followed, as shown in Map 2, subject to amendment for the South More Bypass as described in Section 2.3.1. However, as road design plans have continued to advance, refinements to the alignment to improve safety and engineering feasibility while also reducing environmental and social impacts, where possible within this corridor, have been made. These types of refinements are necessitated by the commitments and conditions stipulated in the EAC (Province of BC 2007).

1.3.3. Approved Camps

Table 1 summarizes the EAC approved camp locations and capacities, totalling up to 1,640 beds during construction.

Table 1. Summary of EAC Approved Camps.

Camp Name	Location	Capacity
Uhtlān Camp ¹ (previously called “Mine Site Camp”)	Galore Creek Valley	850 beds during construction; reduced during operations
South Portal Camp ² (subsidiary of Dech’uwe Camp)	km 125.3; considered a subsidiary camp of Dech’uwe Camp	50 beds during construction
Dech’uwe Camp ^{1,3} (previously called “Porcupine Camp”)	km 116 near the aerodrome on the north side of Porcupine River	200 beds during construction reduced during operations
Isbā Camp ^{2,4} (previously called “Sphaler Camp”)	km 90	120 beds during construction
Khoh Camp ¹ (previously called “West More” or “Round Lake Camp”)	km 75	120 beds during construction
Ch’iyōne Camp ² (previously called “More Creek Camp”)	km 37.5	100 beds during construction
Sas Camp ^{1,2,4} (previously called “Filter Plant Camp”)	km 2.8	200 beds during construction; reduced during operations

SOURCES:

- ¹ Chapter 4.13.4.1 in NovaGold (2006a)
- ² NovaGold (2006b)
- ³ Section 2.5.5 of Appendix 5-K in NovaGold (2006a)
- ⁴ RTEC (2018)

2. DESCRIPTION OF PROPOSED AMENDMENT

2.1. Summary of Proposed Partial Modernization and Amendment

This Amendment Application supports GCMC's planned Access Development construction by partially modernizing the EAC to develop a shared interpretation of the EAC requirements, and assess the proposed Project changes.

More specifically, the purpose of this Amendment Application is to:

1. Modernize Access Development aspects of the EAC to align with EAO's current approach to EACs; and
2. Update the EAC with the proposed Project changes related to Access Development,

The Access Road, Scotsimpson Tunnel, camps, and associated infrastructure were selected as the first Project components to modernize and amend to support GCMC's planned Project construction schedule. Access Development construction may begin as early as 2024. Completion of the Access Road and Scotsimpson Tunnel will reduce reliance on helicopters to access the Mine Site and other Project Areas, thereby improving safety for personnel, while also providing the means to supply the materials required to build other Project infrastructure.

2.2. Partial EAC Modernization

While GCMC is authorized to proceed with site Access Development activities under the Project's existing EAC (Province of BC 2007), federal Decision Statement (CEAA 2007), and various other provincial and federal permits (Section 2.4), GCMC has elected to amend and modernize Access Development components, which includes the Access Road, camps, staging, laydown and borrow areas, and associated ancillary infrastructure.

As mentioned in Section 2.1, the purpose of modernization is to develop a shared and explicit understanding of the EAC requirements among GCMC, Tahltan, permitting agencies and the BC EAO, since interpreting an "old style" EAC can be challenging (OAG 2011). "Old style" EACs include the entire EAC Application and other assessment-related documents that were intended to inform rather than be used for enforcement. This creates challenges for all parties in interpreting the legally binding requirements, alignment with permitting and contractor management to support compliance. Modern EACs instead have a clear, measurable and enforceable TOC and a CPD which better align with the rest of the regulatory continuum. Modernization is a process whereby EAC commitments are reviewed to determine if they would be consolidated within a concise and measurable TOC and CPD (BC EAO 2020a) or more appropriately considered in the management planning or permitting processes consistent with the current EAC Policy (BC EAO 2021a). It is important to note that this partial modernization focusses on Access Development-related commitments and that the rest of the EAC will be modernized in the forthcoming major amendment planned for 2024.

As described below (Section 2.2.1, 2.2.2, and 2.2.3), the modernization process involved three steps:

1. **Commitments Database:** Identify commitments in the Project's EAC, and populate a "Commitments Database" (cDB);
2. **Categorization:** Categorize commitments according to defined groupings that guide how commitments will be accounted for. For example, some would become part of the newly proposed draft TOC and CPD, while others are categorized as being deferred for consideration in the permitting and management planning processes; and

3. **Proposed TOC and CPD³:** Develop and propose a new TOC and CPD, guided by the results of categorization from Step 2.

2.2.1. Commitments Database

The cDB was developed by reviewing Access Development-related documents included in the EAC (Schedules A and B) and extracting text (verbatim) that confers a Certificate Holder commitment. A commitment is text that relates to key design specifications, the location of infrastructure, types of Project activities anticipated, as well as mitigation and monitoring measures proposed in the EAC Application. Commitments were compiled by reading or searching for keywords in documents. A list of all documents reviewed to create the cDB is provided in Appendix A. An excel database, containing relevant categorized commitments as well as out of scope commitments that relate to the future major amendment are also included in Appendix A. Note there is potential that additional commitments may be identified during the partial modernization, in which case they will be added via an addendum to this list.

2.2.2. Categorization

Assigning commitments to a category is the core analysis required to partially modernize the Project's EAC and determines how each commitment will be treated within the context of a modern EAC and consideration in the permitting and management planning processes (BC EAO 2020a). Commitment categorization is guided by the following two principles outlined in the draft modernization process developed by the BC EAO for another project (BC EAO 2020a):

1. "An updated EAC should capture the purpose and intent of the existing EAC conditions and proponent commitments"; and
2. "An updated EAC should reduce ambiguity and provide more clarity in the expectations set out in the EAC by being clear and measurable and consistent with the current EAO Environmental Assessment Certificate Policy".

Categorization was also guided by the decision process for incorporating mitigation measures into an EAC, as outlined in Figure 1 and Sections 4, 5, and 6 in the EAC Policy (BC EAO 2021a).

Each commitment in the cDB was assessed for applicability to Access Development and categorized into one of the five following categories⁴:

- **Category 1 — TOC:** proposed for inclusion in the amended EAC as a new condition;
- **Category 2 — CPD:** proposed for inclusion in the amended EAC as a component of a CPD;
- **Category 3 — Permitting:** Deferred to permitting agencies for potential consideration in their regulatory process(es), as determined by the permitting agencies;⁵
- **Category 4 — Management Plan:** Referred for consideration in the management plans required by the amended EAC; or

³ While GCMC is supporting an efficient regulatory process by proposing a draft TOC and CPD, it is important to note that EAO will be the final author of the TOC and CPD, subject to review and approval by the statutory decision maker under the *Environmental Assessment Act* (2018) following consultation with Tahltan. Updates to the draft TOC and CPD are anticipated through the amendment process as these are regulatory documents which must address not only the partial modernization but also the proposed Project changes via the Access Development amendment process.

⁴ These categories are consistent with the BC EAO issued procedures for modernizing the Kitimat LNG EAC (BC EAO 2020a), with the addition of Category 3 related to permitting.

⁵ GCMC understands that permitting authorities need to be unfettered in their consideration of relevant matters in statutory decisions. As such, the purpose of this category is to indicate a theme/topic typically addressed by other regulators/regulations; however, the permitting authorities will determine what, if any, of these commitments to consider in their regulatory processes.

- **Category 5 — Not relevant/applicable:** These include contextual statements and out of date or otherwise not relevant or minor commitments.

In some cases, more than one category may apply for a commitment. In that circumstance, the primary category was selected with the understanding that within the regulatory continuum the topic may be addressed in more than one way. For example, commitments relating to ML/ARD were generally categorized as “Category 4: referred for consideration in a management plan required by the amended EAC” although many of the more technical details will be addressed in permitting rather than in the EAC management plan.

The full list of categorized commitments considered in the Access Development modernization process are included in Appendix A.

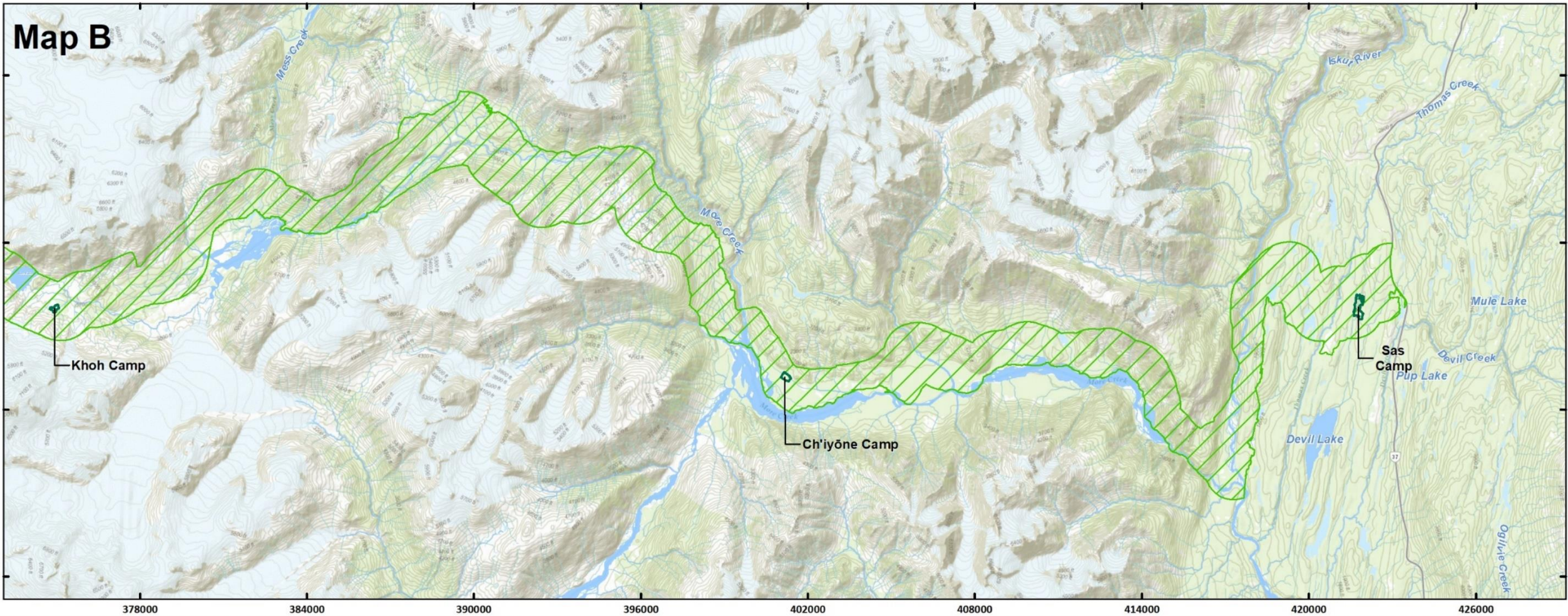
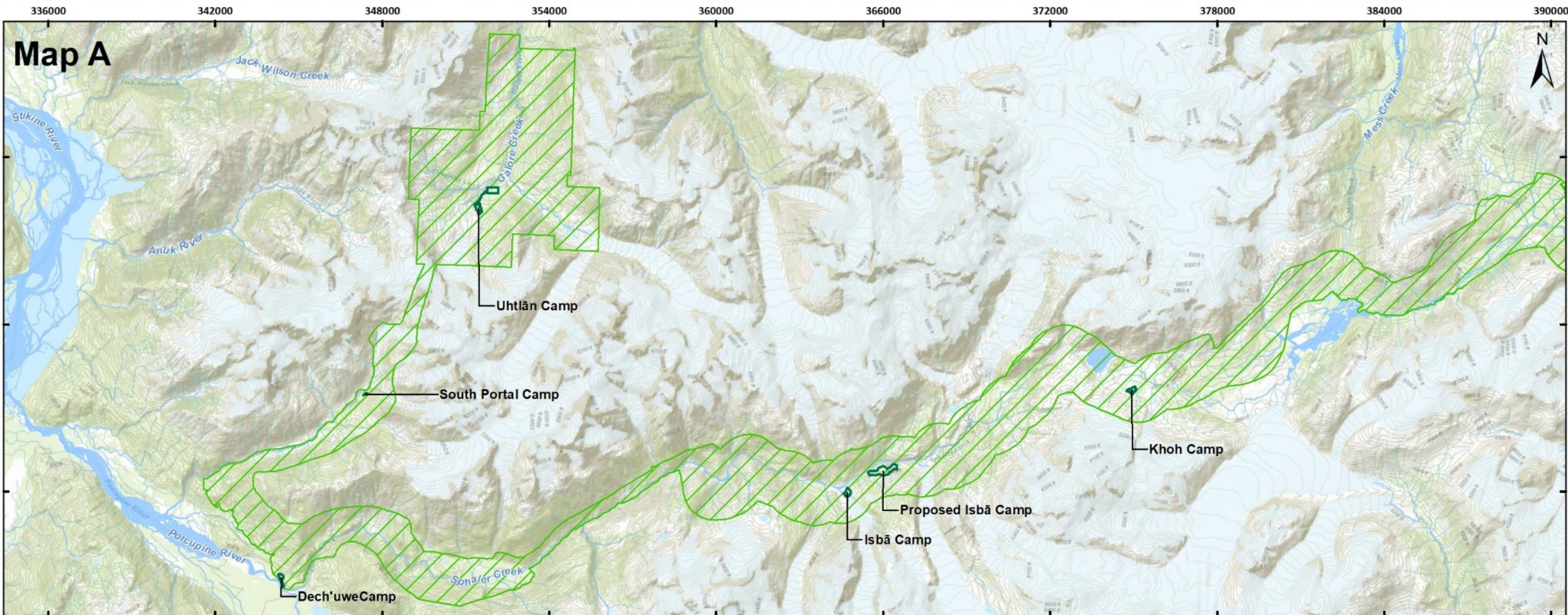
2.2.3. Proposed CPD and TOC

To develop the proposed draft CPD and TOC, the commitments assigned to categories 1 and 2 were evaluated for common themes and components. Consistent with the drafting conventions outlined within the BC EAO’s EAC Policy (BC EAO 2021a), commitments were assessed to determine if they were more appropriately addressed in the CPD or in the TOC.

For the CPD, all commitments relating to the physical components of the Project (as they pertain to Access Development) were evaluated to inform the development of the draft CPD. For example, there are numerous commitments relating to road alignment and the requirement to adapt the preliminary alignment to address geotechnical, safety, and environmental risks and issues. In consideration of these commitments, an Access Development Corridor is proposed within which GCMC may construct the road subject to permitting requirements.

For the TOC, commitments relating to particular topics were compiled (e.g., aquatic and wildlife monitoring programs). When the general intent of the original commitments still applies, a new commitment was drafted using clear, measurable and practical language.

The proposed draft Access Development CPD corridor, including proposed project changes discussed below, is shown in Map 3. The draft proposed CPD and TOC for Access Development will be provided under separate cover to EAO and Tahltan for review and for EAO finalization prior to approval by the statutory decision maker.



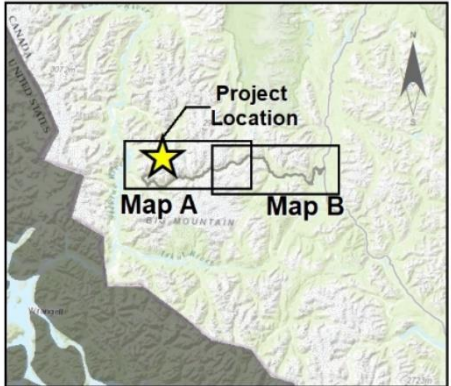


Galore Creek
MINING CORPORATION

**Proposed Certified Project
Description Access
Development Corridor**

Legend

-  Proposed Certified Access Development Corridor
-  Proposed Certified Camp Polygons



Project Location

Map A Map B

**MAP SHOULD NOT BE USED FOR LEGAL
OR NAVIGATIONAL PURPOSES**

0 1 2 4 6 Km

Scale: 1:170,000

NO.	DATE	REVISION	BY
1	2023-07-17	1468 GAL GCMC CPD 5922_20230717	KCP
2			
3			
4			
5			

Date Saved: 2023-07-17
Coordinate System: NAD 1983 UTM Zone 9N



ECOFISH
RESEARCH

Map 3

2.3. Proposed Project Changes

To align with the latest administrative inspection (BC EAO 2021b), road refinements less than 150 m from the approved EAC alignment centreline are understood to be consistent with the general routing of the approved Access Road and were not considered. Also, road refinements greater than 150 m and less than 1 km from the approved EAC alignment are consistent with Access Development-related EAC commitments and within the previously assessed corridor and were not assessed. Road refinements greater than 1 km from the EAC alignment (i.e., outside of the previously assessed corridor) were considered in this assessment. A summary of the scope of the proposed amendment is provided in Table 2.

Table 2. Summary of the proposed Project changes.

Component	Existing EAC	Scope of Amendment
Proposed Project Changes (Section 2.2)	The approved Access Road alignment along the More Creek stretch climbs at a 10% to 15% grade to a 200 m freespan bridge at the upper More Creek crossing at km 49.	South West More Bypass Re-alignment This Amendment Application assesses the potential effects associated with newly proposed corridor along the preliminary “South West More Bypass” (SWMB) road re-alignment to avoid the Upper More Creek Crossing and improve road safety.
	Isbā Camp, formerly “Sphaler Camp”, is situated at road km 90.	Isbā Camp Re-location: This Amendment Application assesses the potential effects associated with relocating the camp away from a high-risk area for rock avalanches to a more suitable area located up to 5 km east along the Access Road to improve camp safety.
	Specific approved camp locations and capacities, total up to 1,640 beds during construction.	Varying Camp Capacity: This Amendment Application assesses the potential effects associated with varying camp capacity at the approved camp locations, while maintaining the overall approved site maximum capacity of 1,640 beds. This proposed change would allow for capacity at individual camps to expand or contract as road construction is completed, reducing reliance on helicopters, and improving safety and the logistics to transport workers to site. While this was contemplated in the original EAC given a commitment that confirms individual camp capacities may vary, GCMC has included this as a change to ensure a common understanding of the flexibility to vary capacity up to the maximum of 1,640 beds.

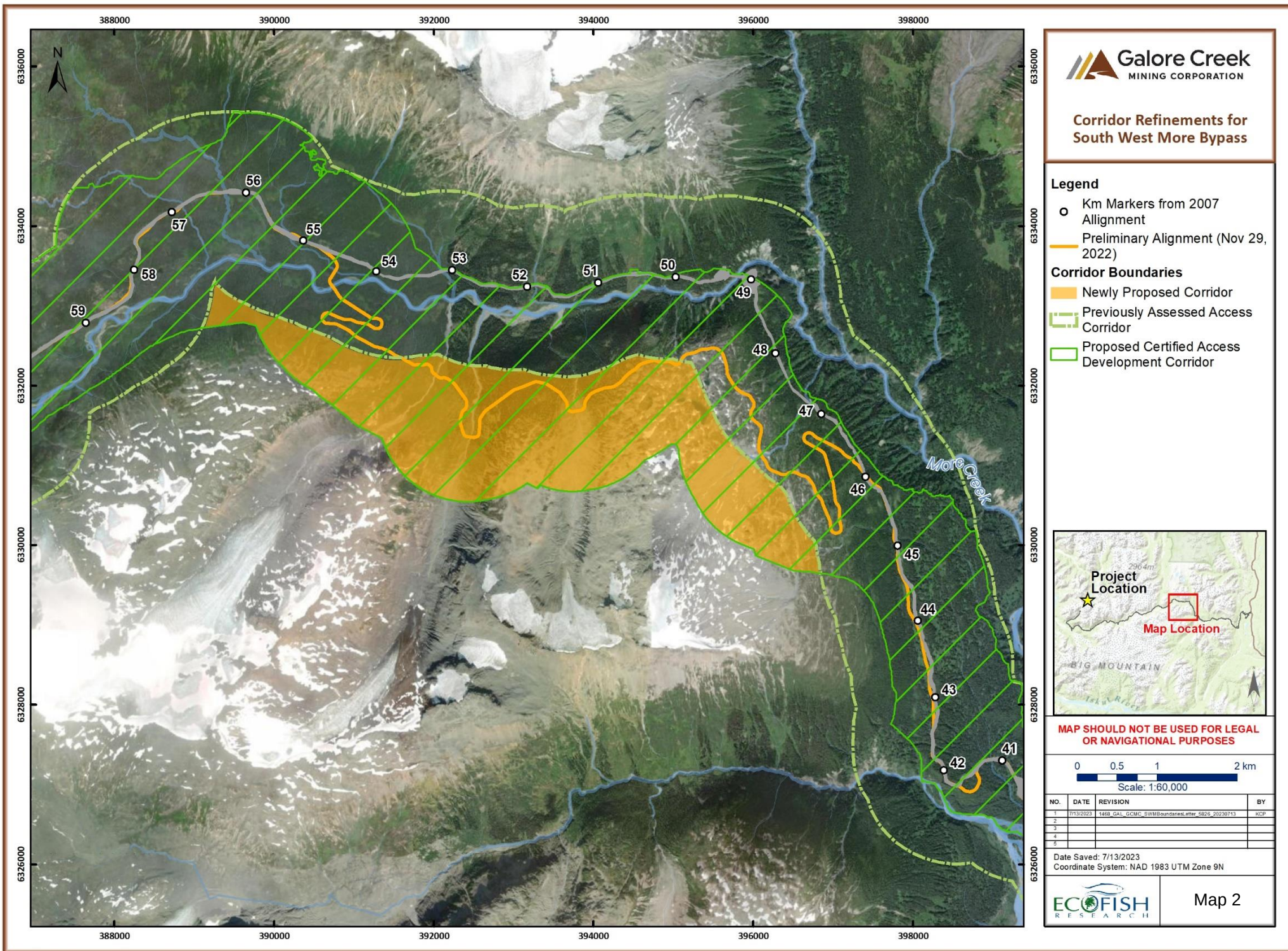
2.3.1. South West More Bypass

The “South West More Bypass (SWMB)” re-alignment⁶, beginning at km 46.5, is named as such because it avoids the More Canyon crossing (Map 4). The freespan More Canyon bridge would have had a span of ~200 m, if built (GCMC 2011). The description of the area in the EAC Application is as follows:

“More Creek Valley eventually widens beyond km 30 and the route will traverse the north side of the flood plain to a 90 m two span bridge over More Creek at km 39.5. The terrain is relatively flat throughout this section and a series of swamps and small fish bearing streams will be crossed between km 33 and km 36. The alignment will then climb steadily at a 10% to 15% grade to the 200 m bridge at the upper More Creek crossing at km 49. Gentle 15 to 20% side slopes and moist deep glacial till deposits will be encountered up to km 45 where a rock outcrop extends for 300 m. Unstable Class IV terrain exists below the road corridor from km 45.5 to km 48, forcing the route higher and across two active avalanche paths requiring mitigative measures.” (Chapter 5.12.1.2 in NovaGold (2006)).

The preliminary SWMB alignment diverges southward from the EAC Alignment by up to ~1.9 km and runs approximately parallel, following the contours of the landscape for ~13.6 km. Consistent with the rest of the Access Road, the alignment will be included within an Access Development Corridor in the amended EAC, if approved (Map 4). By siting the road on the opposite side of More Creek, the More Canyon Bridge would no longer be required, reducing environmental and safety risks associated with the construction and maintenance of a large freespan bridge. In addition to avoiding the More Canyon crossing, the corridor traverses higher elevation to avoid documented avalanche runout areas, and reduce the potential of encountering undocumented archaeological or heritage sites.

⁶ The EAC Application examined a small number of alternative routes for the Access Road, including the potential realignment from the north side of More Creek to the south side. The EA stated: “Two routes located and surveyed, with the option of staying on the south side of More Creek and traversing high-risk avalanche paths and debris flows being rejected in favour of a 200 m bridge crossing over More creek canyon into more stable terrain along the north slope.” Investigation of this statement determined that the route referred to above on the south side of More Creek originally proposed is different from the currently proposed SWMB route. The originally proposed route on south side of More Creek traversed the much steeper mid-slope section of the mountain. The currently proposed SWMB is upslope (i.e., located at a higher elevation) and traverses lower gradient slopes.



2.3.2. Isbā Camp Relocation

The camp formerly known as “Sphaler Camp” has since been renamed “Isbā Camp”, meaning “Mountain Goat” in the Tahltan language and is situated at approximately road km 90 (RTEC 2018). This name was given to the camp as part of a blessing ceremony in 2007. The estimated footprint of the camp is 4.2 ha (RTEC 2018) and is approved to accommodate up to 120 people (NovaGold 2006b). Currently, the camp is unoccupied (GCMC 2021b).

The EAC identified hazards in the vicinity of the camp’s current location including the following:

- “Outflows from the glaciers will be crossed at km 86 and km 90 and the [Access Road] alignment skirts the edge of the Great Moraine between km 90 and km 91.” (Chapter 5.12.1.2 in the EAC Application).
 - As high mountain glaciers recede, vast amounts of unconsolidated glacial sediments that lack vegetation become exposed; these features are called moraines. Moraines can pose significant hazards, including debris flows, landslides, and glacier lake outburst floods (Wang *et al.* 2022).
- Table 5.12-6 in the EAC Application identified landslide hazards near km 90 – 91 and suggests a number of mitigation options, including cement “locblobs” stacked two units high to stop boulders that might come unravelled from the nearby lateral moraine.

BGC Engineering Inc. (BGC) is conducting a review of the geohazard mitigation measures proposed in the EAC Application, including additional geohazard modelling. The review has identified that the Isbā Camp, at its current location, may be in a rock avalanche runout zone

The proposed change is to provide an option to relocate the Isbā Camp up to 5 km east along the Access Road (Map 5). This change in camp location (if needed) would be to mitigate geohazard risk to the camp in its current location that is currently being evaluated by BGC. The planned location (Map 5) is shown as a 20 hectare (ha) polygon. The extent of the 20 ha area is not intended to be occupied by infrastructure; rather, the larger area provides flexibility to field-fit the exact location of the camp, depending on geohazard evaluation results, and depending on the conditions and environmental constraints at the site. The new camp location would be within the proposed Access Development Corridor (Map 3, above).

2.3.3. Varying Camp Capacity

EAC approved camps are summarized above in Table 1 and include:

- **Sas Camp** (previously called “Filter Plant Camp”; ~km 2.8);
- **Ch’iyōne Camp** (previously called “More Creek Camp”; ~km 37.5);
- **Khoh Camp** (previously called “West More” and “Round Lake Camp”; ~km 75);
- **Isbā Camp** (previously called “Sphaler Camp”; ~km 90);
- **Dech’uwe Camp** (previously called “Porcupine/Aerodrome Camp”; ~km 116);
- **South Portal Camp** (subsidiary of Dech’uwe Camp; ~km 125.3); and
- **Uhtlān Camp** (previously called “Mine Site Camp”; ~km 150).

Total approved camp capacity for the Project is up to 1,640 beds during construction.

Consistent with a commitment in the EAC, GCMC proposes to clarify through this Amendment Application that camp capacity is authorized to be variable at approved camps, including the newly proposed Isbā Camp location, while maintaining the overall site maximum capacity of 1,640 beds. The proposed change would facilitate contraction and expansion of camps (but not above the total of capacity of 1,640) as construction efforts advance westward. This would reduce reliance on helicopters, improving personnel safety and simplifying the logistics required to transport workers to site.

The EAC for the Project does not prescribe specific camp footprint sizes; however, site-specific mitigation measures related to the camps, including their detailed layouts, will be determined during the permitting process (i.e., through amendment to the existing SUPs). The SUP permits, which cover the construction of the road, borrow and laydown areas, and camps, will include the necessary requirements for building these components. Appropriate mitigation measures at the site-specific scale will be confirmed through the permitting processes.

2.4. Anticipated Permits, Licences, and Approvals

While GCMC holds Special Use Permits (SUP; S24766 and S24637), an Occupant Licence to Cut (OLTC; L47464) and a Mines Act Permit (M-230), GCMC will be seeking additional amendments and new regulatory approvals to support the resumption of Access Development.

A summary of anticipated licences, permits, and regulatory approvals associated with Access Development is provided in Table 3.

Table 3. Anticipated Regulatory Approvals.

Permit, Licence, or Approval	Applicable Act	Regulatory Agency
Explosives Transportation Permit Explosives User Magazine License	<i>Explosives Act</i>	Natural Resources Canada
Approval Notice of Works	<i>Canadian Navigable Waters Act</i>	Transport Canada
Application for authorization under paragraphs 34.4(2)(b) and 35(2)(b) of the Fisheries Act	<i>Fisheries Act</i>	Fisheries and Oceans Canada
Scientific Collection Permit	<i>Fisheries Act</i>	Fisheries and Oceans Canada
Radio License	<i>Radio Communication Act</i>	Innovation, Science and Economic Development Canada.
Permit or Agreement (if required)	<i>Species at Risk Act (SARA)</i>	Environment and Climate Change Canada (terrestrial species) and/or Fisheries and Oceans Canada (aquatic species)
Commercial Transport Regulations Permit	<i>Commercial Transport Act</i>	BC Ministry of Transportation and Infrastructure
Mines Act Permit	<i>Mines Act</i>	BC Ministry of Energy, Mines and Low Carbon Innovation
Explosives Magazine Storage and Use Permit	<i>Mines Act</i>	BC Ministry of Energy, Mines and Low Carbon Innovation
Fuel Storage Registration	<i>Environmental Management Act</i>	BC Ministry of Environment and Climate Change Strategy
Waste Discharge Permit - Air Emissions	<i>Environmental Management Act</i>	BC Ministry of Environment and Climate Change Strategy
Waste Discharge Permit - Effluent	<i>Environmental Management Act</i>	BC Ministry of Environment and Climate Change Strategy
Waste Discharge Permit – Municipal Wastewater	<i>Environmental Management Act</i>	BC Ministry of Environment and Climate Change Strategy
Hazardous Waste Registration	<i>Hazardous Waste Regulation</i>	BC Ministry of Environment and Climate Change Strategy
Registration under Code of Practice for the Concrete and Concrete Products Industry (Batch Plants)	Waste Discharge Regulation	BC Ministry of Environment and Climate Change Strategy
Heritage Investigation Permits	<i>Heritage Conservation Act</i>	BC Ministry of Forests – Archaeology Branch
Site Alteration Permits	<i>Heritage Conservation Act</i>	BC Ministry of Forests – Archaeology Branch
Water Licenses (Long-term use of water)	<i>Water Sustainability Act</i>	BC Ministry of Forests
Water Use Approvals (Short term use of Water up to 24 month)	<i>Water Sustainability Act</i>	BC Ministry of Forests
Section 11 Notifications (Authorized Changes in or about a Stream)	<i>Water Sustainability Act</i>	BC Ministry of Forests
Section 11 Approvals (Complex Changes in or about a Stream)	<i>Water Sustainability Act</i>	BC Ministry of Forests
General Wildlife Permit (for salvage etc.)	<i>BC Wildlife Act</i>	BC Ministry of Forests
Scientific Fish Collection Permit (for salvage etc.)	<i>BC Wildlife Act</i>	BC Ministry of Forests
Occupant License to Cut	<i>Forest and Range Practices Act</i>	BC Ministry of Forests
Special Use Permit	<i>Forest and Range Practices Act</i>	BC Ministry of Forests
Road Use Permit	<i>Forest and Range Practices Act</i>	BC Ministry of Forests
Permits for Regulated Activities (food service, sewerage system, industrial camps, etc.)	<i>Public Health Act</i>	Northern Health Authority
Water System Construction Permit	<i>Drinking Water Protection Act</i>	Northern Health Authority
Water System Operation Permit	<i>Drinking Water Protection Act</i>	Northern Health Authority

2.5. List of Relevant Studies

A list of relevant studies to the proposed Project changes is presented in Appendix B and includes studies completed in support of the original EAC Application, as well as ongoing work referenced throughout this Application to support Project advancement.

2.6. Benefits of the Amendment

The Project changes and partial EAC modernization proposed in this Amendment Application are focussed on advancing Access Development beginning as early as 2024. Since the EAC was issued, road design plans have continued to be refined to improve safety, environmental performance, and engineering feasibility. Completion of the Access Road, including the proposed changes, will reduce reliance on helicopters to access the site, thereby improving safety for all personnel, as well and provides the primary means to supply materials required to build other Project infrastructure.

Above and beyond the economic and employment benefits of the Project contemplated in the original EAC Application, advancing the Galore Creek Project would be tangible progress towards the Canadian Critical Minerals Strategy, which has the following aim:

“The Canadian Critical Minerals Strategy will increase the supply of responsibly sourced critical minerals and support the development of domestic and global value chains for the green and digital economy.” (NRC 2022).

3. CONSULTATION AND ENGAGEMENT

Information to be included in an Environmental Assessment (EA) Amendment submitted under BC EAA (2018) should include details of Indigenous nation, Stakeholders, public and agency engagement respecting the proposed amendment.

3.1. Tahltan Consultation and Engagement

GCMC has been meeting with Tahltan Central Government (TCG) regularly to discuss the Project and planned resumption of Access Development. Additionally, materials related to partial EAC modernization were shared to seek early feedback ahead of submission of the Amendment Application. Table 4 provides a summary of key consultation and engagement activities with Tahltan Central Government on resumption of Access Development and matters related to this Amendment Application.

Table 4. Summary of Engagement with Tahltan.

Communication Type and Date	Participants	Topics
Technical Working Session on March 11, 2022	TCG: Nalaine Morin, Shawn Ducharme	This working session included the discussion of the GCMC regulatory process and regulatory pathway, Access Development and infrastructure
Technical Working Session on May 10, 2022	TCG: Nalaine Morin, Shawn Ducharme	This working session included the discussion of access infrastructure, Project construction, Access Development and transmission line, Tahltan Knowledge
Technical Working Session on October 5, 2022	TCG: Connor Pritty, THREAT: Norm Maclean	This working session was a collaborative work planning meeting in which GCMC also provided a project update, and authorizations and regulatory update including Access Development
Tahltan Leadership Meeting on January 24, 2023	TCG, Tahltan Band leadership, Iskut Band leadership	This Tahltan Leadership Meeting and Presentation provided a project update, regulatory process overview including Access Development and Tahltan engagement overview
Technical Working Session on April 4, 2023	TCG: Connor Pritty, Shawn Ducharme	This working session was a project update meeting that included a regulatory update, including topics related to Access Development
Email on April 10, 2023	TCG: Connor Pritty, Shawn Ducharme	Email to Tahltan to share information on GCMC approach the EAC amendment to support Access Development.
Technical Working Session on May 29, 2023	TCG: Connor Pritty, Maureen Garrity	This working session included a project update and overview and included discussion on the regulatory process and Access Development
Email on June 5, 2023	TCG: Connor Pritty, Maureen Garrity, Shawn Ducharme	Email to Tahltan to share information on a meeting with regulators that covered the regulatory process related to the Mines Act permit and Access Development.
Email on July 4, 2023	TCG: Connor Pritty, Maureen Garrity, Shawn Ducharme	Email to Tahltan to share information related to the Access Development regulatory process, including providing sections of the EAC application.

NOTES:¹ TCG = Tahltan Central Government**3.2. Consultation with Government Agencies**

The GCMC has held bi-weekly pre-application meetings with BC EAO and has shared advance materials on the resumptions of Access Development and partial EAC modernization, to seek early feedback ahead of submission of this initial Amendment Application.

Additionally, GCMC has met with other government agencies to discuss amendments and new regulatory authorizations needed to support the resumption of Access Development.

Table 5 provides a summary of key consultation activities with government agencies on resumption of Access Development and matters related to this Amendment Application.

Table 5. Summary of Consultation Activities with Government Agencies.

Communication Type and Date	Participants	Topics
Meeting on April 11, 2022	BC EAO: Tracey Janes, Tracy James	Met with BC EAO to discuss the status and stage of the Project, regulatory process, Project footprint, the EAC amendment application and strategy including Access Development.
Meeting on May 12, 2022	EMLI (Major Mines Office): Sean Shaw	Met with EMLI to provide a Project update, discuss the M-230 MX permit, and access development.
Meeting on May 31, 2022	EMLI, EAO, ENV: Sean Shaw, Neil Bailey, Tracy James, Jen Stuart	Met with BC regulators to discuss the GCMC regulatory process, substitution strategy and amendment. M-permit related to Access Development, management plans, and access and tunnel development
Meeting on August 19, 2022	IAAC: Lisa Poier, Rob Hajdu, Andrea Raska	Met with IAAC to discuss GCMC regulatory process and strategy, including access construction and development
Meeting on September 26, 2022	ENV, EMLI, EAO: Chris Trumpy, Peter Robb, Laurel Nash, Tracy James	Met with BC Assistant Deputy Ministers - including ENV, EMLI, EAO - to provide a Project update, discuss regulatory status, approvals, and strategy to resume access development
Meeting on October 12, 2022	BC EAO: Tracy James, Tracey Janes	Met with BC EAO to discuss ongoing TCG engagement, and regulatory strategy including Access Development and access construction.
Meeting on November 10, 2022	BC EAO: Greg Wittig, Tracey Janes	Met with BC EAO to discuss the Access Development regulatory process, and to explore potential regulatory strategies to support construction.
Meeting on January 9, 2023	BC EAO, EMLI: Peter Robb, Chris Trumpy	Met with regulators to provide a Project update, discuss regulatory process and EAC amendment, including the resumption of access development, tunnel update
Meeting on January 25, 2023	BC EAO: Chris Trumpy, David Grace, Danielle Smyth	Met with BC EAO to provide a Project and regulatory update, discuss access development, Tahltan engagement and consent strategy
Meeting on February 16, 2023	BC EAO: David Grace, Tracey Janes, Greg Wittig	Met with BC EAO to discuss the EAC and the access development regulatory process.
Email on February 16, 2023	BC EAO: David Grace, Tracey Janes	Emailed BC EAO to suggest further meetings to discuss regulatory process, resuming access construction, and EAC modernization strategy.
Meeting on April 6, 2023	BC EAO: David Grace, Tracey Janes, Greg Wittig	Met with BC EAO to provide a Project update, discuss access development, and Tahltan engagement progress
Email on April 10, 2023	BC EAO: Tracey Janes, Greg Wittig	Email to BC EAO to share information on GCMC approach the EAC amendment to support access development.
Meeting on April 27, 2023	BC EAO: Tracey Janes, Greg Wittig	Met with BC EAO to discuss EAC categorization approach, and Access Development regulatory process.
Meeting on May 2, 2023	BC EAO: Tracey Janes	Met with BC EAO to discuss Access Development, and EAC amendment modernization strategy
Meeting on June 1, 2023	BC EAO: Tracey Janes, Greg Wittig	Met with BC EAO to discuss GCMC drafting of EAC application, coordinated consultation across the EAC, SUP and Mines Act amendment Access Development, and Tahltan engagement

NOTES:
¹ EMLI = Ministry of Energy, Mines and Low Carbon Innovation; ENV = Ministry of Environment and Climate Change Strategy; IAAC = Impact Assessment Agency of Canada; MOF = Ministry of Forest.

4. ASSESSMENT METHODS

This Amendment Application assesses the potential adverse effects of the proposed Project changes on VECs considered in the Project's 2006 EAC Application (NovaGold 2006), required assessment matters set out in Section 25(2) of the BC *Environmental Assessment Act* (2018) (referred to as "Section 25 Matters" hereafter), and Indigenous Interests (Section 7).

The objective of the assessment is to consider whether the potential effects of the proposed Project changes would alter the conclusions in the Project's EAC Application. If alterations to the conclusions are anticipated, following the application of previously approved (proposed to be modernized) mitigation measures, this assessment provides an opportunity to propose new mitigation. The following subsections outline the assessment methods, with the results presented in Sections 5, 6, and 7.

4.1. Identification of Potential Interactions with Proposed Project Changes

The first step of the assessment was to identify which VECs and Section 25 Matters have the potential to interact with the proposed Project changes. This initial step was done by ranking the anticipated interactions according to the following criteria:

- ◇ = **an interaction is not expected, and no further assessment is warranted.**
- ◆ = **an interaction is expected, but no further assessment is warranted** because its potential effects are similar in nature, with equal or lesser potential to cause adverse effects compared to those already assessed in the EAC Application. The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process are considered sufficient to prevent or minimize residual effects and the conclusions presented in the EAC Application remain unchanged. This rank was also assigned to new types of interactions that were considered to have negligible potential for significant adverse effects.
- ◆ = **an interaction is expected, and further assessment is warranted** because there is greater potential for adverse effects compared to what was considered in the EAC Application, or because new interactions with a non-negligible potential for adverse effects were identified.

Where interactions are expected and have a greater, or different and non-negligible potential for adverse effects, the corresponding VEC or Section 25 Matter was carried forward for further assessment (i.e., ranked as "◆"). Where interactions were not expected (i.e., ranked as "◇") or when they would result in an equal or lesser potential for adverse effects (i.e., ranked as "◆"), the corresponding VEC or Section 25 Matter was not carried forward for further assessment.

Due to new requirements under the 2018 BC *Environmental Assessment Act* (BC EAA), some of the required assessment matters listed in Section 25 of BC EAA (2018) were not explicitly assessed in the Project's original EAC Application. That said, in cases where the EAC Application did contemplate relevant topics, the information was reviewed, and the specific matter ranked and rationalized.

4.2. Effects Assessment

The VECs and Section 25 Matters identified as warranting further assessment, were evaluated using the following steps:

- **Step 1: Assessment of Potential Effects and Mitigation Measures—** The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process, as well as the potential need for new mitigation by design, were considered in the context of the proposed Project changes, as appropriate for each VEC or Section 25 Matter.

- **Step 2: Assessment of Residual Effect**—The assessment of residual effects on VECs and Section 25 Matters from the proposed Project changes were evaluated to determine whether they would alter the characterization of residual effects presented in the EAC Application, aligning this step with the guidance provided in the BC EAO's *Effects Assessment Policy* (BC EAO 2020c). Residual effects were evaluated after considering the application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process and any important contextual factors to predict if, and to what degree, the residual effects characterization (e.g., magnitude, geographic extent, and duration) might be altered, and how any changes would affect the conclusions presented in the EAC Application.
- **Step 3: Assessment of Cumulative Effects**—If the proposed Project changes altered the conclusions presented in the EAC Application, then the Project's contribution to cumulative effects was also re-assessed.

5. IDENTIFICATION OF POTENTIAL INTERACTIONS WITH PROPOSED PROJECT CHANGES

5.1. Summary of Potential Interactions

Table 6 lists the assigned interaction rankings for each VEC or Section 25 Matter, with the corresponding rationale provided in the subsections that follow. No issues were identified as warranting further assessment in Section 6.

Table 6. Potential interactions between Valued Ecosystem Components, Section 25 Matters, and the proposed Project changes.

Valued Component		EAC Application Chapter ²	South West More Bypass	Isbā Camp Relocation	Varying Camp Capacity	Further is Assessment Warranted
Physical Environment	Climate	7.2	◊	◊	◊	No
	Air Quality	7.3	◊	◊	◊	No
	Noise	7.4	◊	◊	◊	No
	Surface Water	7.5, 7.6	◊	◊	◊	No
	Groundwater	7.7	◊	◊	◊	No
	Sediment	7.8	◊	◊	◊	No
Biological Environment	Aquatic Resources	7.9	◊	◊	◊	No
	Fish and Fish Habitat	7.10	◊	◊	◊	No
	Wetlands	7.11	◊	◊	◊	No
	Terrestrial Ecosystems, Vegetation, and Soil Landscape	7.12	◊	◊	◊	No
	Wildlife and Wildlife Habitat	7.13	◊	◊	◊	No
Cultural, Social, and Socio-Economic	Archaeology	7.14	◊	◊	◊	No
	Socio-Economic	7.15	◊	◊	◊	No
	Country Foods	4.17	◊	◊	◊	No
	Visual and Aesthetics Resources	7.16	◊	◊	◊	No
	Navigable Waters	7.18	◊	◊	◊	No
Section 25 Matters ¹	a) positive and negative direct and indirect effects of the reviewable project, including environmental, economic, social, cultural and health effects and adverse cumulative effects	1.5, 3.1.4, 7, 9	Considered in this table during ranking of potential interactions and Sections 5.2 and 5.3 where the ranking rationale is explained. Also considered in Section 7.			No
	b) risks and uncertainties associated with those effects, including the results of any interaction between effects	7 to 9	Considered in this table during ranking of potential interactions and Sections 5.2 and 5.3 where the ranking rationale is explained. Also considered in Section 7.			No
	c) risks of malfunctions or accidents	13	◊	◊	◊	No
	d) disproportionate effects on distinct human populations, including populations identified by gender	7.15	◊	◊	◊	No
	e) effects on biophysical factors that support ecosystem function	7.2 to 7.13	Considered in this table during ranking of potential interactions and Sections 5.2.1 through 5.2.16.			No
	f) effects on current and future generations	1.3.9.4, 1.3.9.5, 1.5.4, 2.5, 6.15, 7.15	◊	◊	◊	No
	g) consistency with any land-use plan of the government or an Indigenous nation if the plan is relevant to the assessment and to any assessment conducted under section 35 or 73	2.5, 6.15	◊	◊	◊	No
	h) greenhouse gas emissions, including the potential effects on the province being able to meet its targets under the Greenhouse Gas Reduction Targets Act	7.2	◊	◊	◊	No
	i) alternative means of carrying out the project that are technically and economically feasible, including through the use of the best available technologies, and the potential effects, risks and uncertainties of those alternatives	11	◊	◊	◊	No
	j) potential changes to the reviewable project that may be caused by the environment	12	◊	◊	◊	No

NOTES:

n/a = Not applicable.

◊ = an interaction is not expected, and no further assessment is warranted.

◊ = an interaction is expected, but no further assessment is warranted because its potential effects are similar in nature, with equal or lesser potential to cause adverse effects compared to those already assessed in the EAC Application. Modernized mitigation measures will be sufficient to prevent or minimize residual effects and that the conclusions presented in the EAC Application remain unchanged. This rank was also assigned to new interactions that have negligible potential for significant adverse effects.

◆ = an interaction is expected, and further assessment is warranted because there is greater potential for adverse effects compared to what was considered in the EAC Application.

SOURCE:

¹ The BC EAA (2018) is available at the following link: <https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/18051#section25>.

² The Project's EAC Application is available at the following link: <https://projects.eao.gov.bc.ca/p/588510c6aaecd9001b8157d0/application>.

5.2. Interaction Ranking Rationale for Valued Ecosystem Components

The following sections provide the reasoning behind the interaction rankings assigned in Table 6.

5.2.1. Climate

The EAC Application assessed changes to greenhouse gas emissions and carbon sinks from approved Project activities (Section 7.2 of the EAC Application). For this amendment, the following proposed Project changes were assessed to have an interaction that does not warrant further assessment: the SWMB (◆), relocation of Isbā Camp (◆), and varying camp capacity (◆)

The proposed re-alignment of the Access Road will result in greenhouse gas emissions during construction, operation, and decommissioning phases due to the combustion of fuels associated with the use of vehicles and industrial equipment. The amended EAC will include an Access Development Corridor within which the road will be constructed subject to permitting requirements. While the specific alignment within the Access Development Corridor will be determined in permitting, the preliminary SWMB will be ~5.6 km longer than the section of road it would replace (noting that the approved Access Road is ~130 km long). Compared to the projected greenhouse gas emissions considered in the EAC application, increases in greenhouse gas emissions from the proposed SWMB are expected to be negligible during all Project phases. Similarly, there would be a slight incremental reduction in the capacity of carbon sinks to sequester carbon dioxide from the atmosphere due to additional clearing of vegetation within the road right-of-way required to build a longer road.

The relocation of Isbā Camp and varying camp capacities may result in a small incremental increase in greenhouse gas emissions above those previously considered (Section 7.2.2 of the EAC Application) related to the use of diesel-powered equipment but are not anticipated to affect carbon sinks.

The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to climate are considered sufficient to address effects arising from the proposed Project changes. Key mitigation measures considered in this analysis include those identified in Table 7, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

Overall, the potential interactions and associated adverse effects are anticipated to be analogous to those previously considered in the Project's EAC Application. Consequently, the proposed Project changes are not anticipated to change the EAC Application's characterization of residual effects in a way that would change the significance determinations. Accordingly, **no further assessment** of the Project's effects on the Climate VEC is warranted.

Table 7. Modernized Mitigation Measures for Effects on Climate

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
25	Will develop and implement an Air Emissions and Fugitive Dust Management Plan	3	Air quality monitoring and mitigation measures to be addressed by permitting	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
33	Will implement a recycling program to reduce the amount of incinerated wastes and hence CO2 emissions.	4	Waste management will be addressed as a component of the CEMP	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
129	Will develop environmental management plans for construction of the access road and transmission line.	1	Condition to require development and implementation of management plans	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
446	Segregate waste prior to incineration to minimize toxic air emissions	4	Waste management will be addressed as a component of the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	15.6
754	GHG emission audits to be conducted annually as required by regulation.	3	GHG emission reporting and auditing will be managed in consultation with regulatory agencies under the Greenhouse Gas Industrial Reporting and Control Act.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
765	Use vehicle fleet with low nitrogen oxides and hydrocarbon emissions.	4	Energy and fuel efficiency measures will be included in management plans	Chap 15 - Summary of Corporate Commitments	Table 15.1-2

5.2.2. Air Quality

The EAC Application assessed changes to criteria air contaminants including particulate matter, gaseous contaminants, and dustfall and acid deposition from approved Project activities (Section 7.3 of the EAC Application). For this amendment, the following proposed Project changes were assessed to have an interaction that does not warrant further assessment: the SWMB (◆), relocation of Isbā Camp (◆), and varying camp capacity (◆).

The proposed SWMB re-alignment of the Access Road within an Access Development Corridor could result in additional air emissions during construction, operation, and decommissioning phases due to mobile and stationary equipment and blasting. These sources would result in emissions of fugitive dust, vehicle and equipment exhaust and gasses from blasting; however, the potential increase in Project-related air emissions associated with the proposed SWMB are expected to be negligible during all Project phases (for the same reasons described in Section 5.2.1) Project air emissions are expected to remain below historical ambient air quality objectives (Table 7.3-5 of the EAC Application). As a result of clearing vegetation along a longer road right-of-way (e.g., ~5.6 additional km within the Access Development Corridor), there could also be a potential negligible increase in acid deposition due to the release of SO₂ and NO_x from diesel trucks travelling the longer route.

The relocation of Isbā Camp and varying camp capacities could result in a small incremental increase in air emissions above those previously considered (Section 7.3.2 of the EAC Application) due to the use of diesel-powered equipment, contributing to an increase in emissions of criteria air contaminants, dustfall, and acid deposition.

The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to air quality are considered sufficient to address effects arising from the proposed Project changes. Key mitigation measures considered in this analysis include those identified in Table 8, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

Overall, the potential interactions and associated adverse effects are anticipated to be analogous to those previously considered in the Project's EAC Application. Consequently, the proposed Project changes are not anticipated to change the EAC Application's characterization of residual effects in a way that would change the significance determination. Accordingly, **no further assessment** of the Project's effects on the Air Quality VEC is warranted.

Table 8. Modernized Mitigation Measures for Effects on Air Quality.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
25	Will develop and implement an Air Emissions and Fugitive Dust Management Plan	3	Air quality monitoring and mitigation measures to be addressed by permitting	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
38	Will inform employees, contractors and subcontractors about policies for managing air quality (e.g., trucking contractors will be informed of the requirements for speed limits and no idling).	4	Road dust abatement measures will be addressed as a component of the CEMP	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
129	Will develop environmental management plans for construction of the access road and transmission line.	1	Condition to require development and implementation of management plans	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
363	Roadbed watering trucks will be employed as required to reduce dusting from all road excavation and roadbed surfaces.	4	Dust management will be addressed in the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309	8.15.3
825	Access Road Environmental Management Plan [will be developed]	4	Environmental management measures for access road construction will be implemented throughout management plans.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments	Table 15.1-2

5.2.3. Noise

The EAC Application assessed changes to noise levels from approved Project activities (Section 7.4 of the EAC Application). For this amendment, the following proposed Project changes were assessed to have an interaction that does not warrant further assessment: the SWMB (◆), relocation of Isbā Camp (◆), and varying camp capacity (◆).

The proposed SWMB re-alignment of the Access Road within an Access Development Corridor would alter the location of Project-generated noise during construction, operation, and decommissioning phases due to the location of blasting, equipment operation, and traffic, as compared to the noise modelling results considered in the EAC Application; however, Project-related noise levels along the proposed SWMB are expected to remain unchanged from those predicted in the EAC Application and are not anticipated to exceed previously defined noise objectives (Section 7.4.2.1 of the EAC Application). Similarly, relocation of Isbā Camp will contribute to Project-generated noise levels, but overall noise levels are not anticipated to exceed any thresholds previously established (Section 7.4.2 of the EAC Application).

The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to noise mitigation in the EAC are considered sufficient to address effects arising from the proposed Project changes. Key mitigation measures considered in this analysis include those identified in Table 9, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

Overall, the potential interactions and associated adverse effects are anticipated to be analogous to those previously considered in the Project's EAC Application. Consequently, the proposed Project changes are not anticipated to change the EAC Application's characterization of residual effects in a way that would change the significance determination. Accordingly, **no further assessment** of the Project's effects on the Noise VEC is warranted.

Table 9. Modernized Mitigation Measures for Effects on Noise.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
129	Will develop environmental management plans for construction of the access road and transmission line.	1	Condition to require development and implementation of management plans	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
137	Will include pertinent noise monitoring as part of the Wildlife Mitigation and Monitoring Plan.	4	Noise monitoring and mitigation in relation to wildlife will be included in management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
456	Several mitigation measures are planned to control blast noise. The sequential delay systems subdivide the overall blast into many smaller blasts, each separated by sequential time delays ranging from 10 to 100 milliseconds. Stemming of the blast holes will also reduce the noise. When and where possible, blasting will be conducted at the same time every day to allow wildlife and personnel to habituate. Visual and audible warning signals (e.g., flashing lights and a siren) will be issued prior to a blast. These give animals a cue, which is critical to conditioning and habituation. Many species of wildlife learn to ignore explosive noises if stimuli are repeated often enough.	4	Explosives management will be included within a management plan.	Vol 2 – Ch 7 – Environment & Socio-Economic Effects Assessment – Pg 131-169	7.4.3
795	Monitor workplace noise (indoor); where necessary prescribe hearing protection based on recommendations in the Health, Safety and Reclamation Code for Mines in B.C.	3	Noise monitoring and mitigation measures in relation to human health/safety will be addressed by permitting.	Chap 15 – Summary of Corporate Commitments	Table 15.1-2
797	Monitor mountain goat population in the Galore Creek Valley with respect to their response to industrial, blasting and avalanche control noise; when necessary apply adaptive management measures.	4	Mountain goat and habitat monitoring and mitigation will be included within a management plan.	Chap 15 – Summary of Corporate Commitments	Table 15.1-2
798	Monitor grizzly bears feeding on spawning salmon in the Porcupine River Valley (near the aerodrome, August to early November) for their response to noise, when necessary apply adaptive management measures.	4	Mountain goat and habitat monitoring and mitigation will be included within a management plan.	Chap 15 – Summary of Corporate Commitments	Table 15.1-2

5.2.4. Surface Water

The EAC Application assessed changes to surface water quantity and quality from approved Project activities (Sections 7.5 and 7.6 in the EAC Application). For this amendment, the following proposed Project changes were assessed to have an interaction that does not warrant further assessment: the SWMB (◆), relocation of Isbā Camp (◆), and varying camp capacity (◆).

The proposed Project changes have the potential to interact with the five surface water quantity indicators, which are: 1) Flow paths and drainage areas, 2) Annual flow volumes, 3) Seasonal distribution of flow, 4) High flow conditions, and 5) Low flows (as outlined in Section 7.5.3 of the EAC Application that pertains to effects associated with the construction, operation, and decommissioning of the Project's Access Road).

Similarly, the proposed Project changes have the potential to interact with surface water quality via: 1) contaminant loading, 2) discharge, and 3) surface runoff, siltation and associated water chemistry effects, (discussed in Sections 7.6.3, 7.6.4, and 7.6.5 of the EAC Application, respectively).

Key pathways of effects related to surface water quantity, as noted in Section 7.5.3 in the EAC Application, include:

- Bridge and stream crossings can obstruct flood flows;
- Road construction can disrupt surface and sub-surface flow pathways; and
- Forest clearance for road construction and increased runoff from compacted road surfaces can affect the hydrological response of a watershed.

Key pathways of effects related to surface water quality, as noted in Sections 7.6.3 to 7.6.5, in the EAC Application, include:

- Metal leaching and acid rock drainage (ML/ARD);
- Leaching of nitrogen residues generated from blasting;
- Atmospheric deposition of dust/particulates;
- Sewage from operations and construction camps
- Spills of various substances, i.e., fuel, reagents, slurry, concentrate; and,
- Surface runoff, siltation and associated water chemistry effects

No new pathways of effect concerning surface water quantity or quality are anticipated from the proposed Project changes.

Accordingly, the application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to surface water are considered sufficient to address effects associated with these pathways of effect arising from the proposed Project changes. Key mitigation measures considered in this analysis include those identified in Table 10, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

Overall, the potential interactions, characterization of residual effects, and significance determination for surface water are anticipated to remain unchanged from those considered in the Project's EAC Application. Accordingly, **no further assessment** of the Project's effects on surface water quantity or quality is warranted.

Table 10. Modernized Mitigation Measures for Effects on Surface Water.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
25	Will develop and implement an Air Emissions and Fugitive Dust Management Plan	3	Air quality monitoring and mitigation measures to be addressed by permitting	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
38	Will inform employees, contractors and subcontractors about policies for managing air quality (e.g., trucking contractors will be informed of the requirements for speed limits and no idling).	4	Road dust abatement measures will be addressed as a component of the CEMP	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
62	Will employ and train environmental monitors to monitor construction of the access road, mine site facilities and transmission line.	4	The environmental monitoring program will be defined within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
78	Will use emulsion explosives as required to minimize ammonia and nitrate losses and contamination [to manage surface water and groundwater quality and quantity, and sediment].	4	Explosives management will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
97	Will develop and implement Sediment and Erosion Control Plans and will monitor sediment transport in Galore Creek during construction and operations.	1	Condition to require development and implementation of erosion and sediment control mitigation (in CEMP)	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
129	Will develop environmental management plans for construction of the access road and transmission line.	1	Condition to require development and implementation of management plans	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
209	Rehabilitation and revegetation of areas such as roadside cut-and-fill slopes, soil stockpile slopes and other disturbed areas will be undertaken as quickly as possible to reduce the risk of erosion and transport of sediment from these sites.	4	Disturbed surface restoration will be included within a management plan.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.10.1
212	The selected [erosion and sediment control] measures to be installed will be based on site-specific conditions and as prescribed by the supervising professional or Environmental Monitor during construction and the Environmental Coordinator during operations.	4	Erosion and Sediment Control will be included within the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
278	NovaGold will prepare a Spill Contingency and Emergency Response Plan for the project that satisfies the requirements of an Environmental Emergency Plan during permitting for the project, prior to any construction activities.	1	Condition to require development and implementation of spill contingency measures (in CEMP). Emergency response to be addressed by permitting.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.11.2
364	Road construction methodologies will be consistent with those described in the British Columbia Ministry of Forest and Range publication, Forest Road Engineering (MOFR 2002b). In addition, special attention will be paid to potential for metal leaching and acid rock drainage (ML/ARD) as detailed in Section 8.8, Access Corridor Preliminary ARD Management.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.15.3
849	Sewage treatment facility, including tile field and settling pond, located at least 100 m away from waterbodies. Any groundwater transport would lead to tailings pond.	3	Sewage management associated will be managed in consultation with regulatory agencies under the <i>Environmental Management Act</i> and <i>Mines Act</i> .	Chap 15 – Summary of Corporate Commitments	Table 15.1-2
932	10.6.1 Hydrology [a component of the Aquatic Effects Monitoring Program] The objectives of the surface flow monitoring program will be to determine project-related effects to water quantity, to assist in the implementation and evaluation of mitigation measures associated with water management, and to provide data for the water quality and aquatic effects monitoring programs. Based on the surface hydrology effects assessment, the project components that require monitoring are those with the greatest potential for impacts on water quantity; • the mine site and facilities in Galore Creek (open pits, tailings facility, diversion channels, etc.); and • the Access Corridor. A summary of the data collected in the monitoring programs outlined in section 10.6.1 to 10.6.6 will be included in an annual [AEMP] report.	4	Surface water quantity/quality monitoring for the access road to be addressed in management plan.	Environmental Effects Monitoring and Follow-Up Program	10.6.1

Table 10. Continued.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
933	10.6.2 Surface Water Quality [a component of the Aquatic Effects Monitoring Program] Surface water quality will be monitored at exposure sites associated with the Mine Area, Access Route, Filter Plant and Aerodrome to ensure that discharge limits are met and to monitor for effects in the receiving environment. [SOME TEXT REMOVED UNRELATED TO ACCESS DEVELOPMENT] Three sites will be monitored to assess the impact of the Access Corridor on stream water quality. All water samples will be analyzed for general physico-chemical variables, anions, nutrients, total cyanide, total organic carbon (TOC), and total and dissolved metals, and will therefore replicate the analyses conducted for the baseline monitoring program (Aquatics, 2004, 2005).	4	Surface water quantity/quality monitoring for the access road to be addressed in management plan.	Vol 3 – (FR) – Chap 10 – Environment Effects Monitoring & Follow-up Program	10.6.2
1070	5.11 Waste Management All mine waste produced at the Galore Creek Project will be stored in the Galore Creek Valley, with the exception of various industrial and domestic waste streams that will require backhauling to a licensed waste disposal or recycling facility. The waste streams that will be produced at the Galore Creek Project include the following: [SOME TEXT REMOVED UNRELATED TO ACCESS DEVELOPMENT] • domestic and industrial wastes with hazardous and non-hazardous substances; and • sewage effluent and sludges.	4	Waste management will be addressed as a component of the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.11
1167	All bridges and culverts will be constructed to DFO's and MOE's best management practices for stream crossings, as outlined in the guidelines.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 150-309	NovaGold 2006

5.2.5. Groundwater

The EAC Application assessed changes to groundwater quality and quantity from approved Project activities. For this amendment, the following proposed Project changes were assessed to either cause no interaction, or cause an interaction that does not warrant further assessment: the SWMB (◇), relocation of Isbā Camp (◇), and varying camp capacity (◇) (Section 7.7 of the EAC Application).

Potential effects to groundwater quantity (e.g., groundwater level, aquifer storage, and groundwater flow patterns; Table 7.7-6 in the EAC Application) or quality (e.g., contaminant loading and fluid/effluent release; Table 7.7-8 in the EAC Application) from construction camps, including ancillary facilities, were not assessed further based on negligible potential for significant adverse effects. Considering that total camp capacity (across all approved camps) and associated water use demand will remain unchanged, with a total of up to 1,640 beds (Section 1.3.3), the potential for effects to groundwater quantity remain unchanged and **no further assessment** is warranted.

Similarly, given that the concentrate slurry and diesel pipelines are not included in the proposed scope of work, and in consideration of the minimal potential for adverse effects to surface water quality (Section 5.2.4; which then becomes the primary pathway of effect, i.e., surface-groundwater interactions), the potential for effects to groundwater quality remain unchanged. The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process are considered sufficient to address effects associated with these pathways of effect arising from the proposed Project changes.

Overall, the potential interactions, characterization of residual effects, and significance determination for groundwater are anticipated to remain unchanged from those considered in the Project's EAC Application. Accordingly, **no further assessment** of the Project's effects on groundwater quantity or quality is warranted.

5.2.6. Sediment

The EAC Application assessed changes to aquatic sediment quality, with a focus on changes to nutrient concentrations, total suspended solids (i.e., siltation), and anion and metal concentrations, from approved Project activities (Section 7.8 of the EAC Application). For this amendment, the following proposed Project changes were assessed to either have no interaction, or cause an interaction that does not warrant further assessment: the SWMB (◇), relocation of Isbā Camp (◇), and varying camp capacity (◇).

Construction and decommissioning of the SWMB has the potential to affect sediment quality via adverse effects from siltation (Section 7.8.3 in the EAC Application). Similarly, varying camp capacities has the potential to affect sediment quality due to discharge of treated wastewater to ground (i.e., temporarily increased contaminant or sediment concentrations), which could potentially then flow to surface waters; however, since overall camp capacity and associated wastewater remains unchanged from EAC Application, no further assessment is warranted.

No interaction with sediment from the relocation of Isbā Camp relocation was identified since the new camp will not be located near any watercourses.

The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to sediment are considered sufficient to address effects arising from the proposed Project changes. Key mitigation measures considered in this analysis include those identified in Table 11, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

Overall, the potential interactions, characterization of residual effects, and significance determinations for aquatic sediment quality are anticipated to remain unchanged from those previously considered in the Project's EAC Application. Accordingly, **no further assessment** of the Project's effects on aquatic sediment quality is warranted.

Table 11. Modernized Mitigation Measures for Effects on Sediment and Aquatic Resources.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
62	Will employ and train environmental monitors to monitor construction of the access road, mine site facilities and transmission line.	4	The environmental monitoring program will be defined within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
78	Will use emulsion explosives as required to minimize ammonia and nitrate losses and contamination [to manage surface water and groundwater quality and quantity, and sediment].	4	Explosives management will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
97	Will develop and implement Sediment and Erosion Control Plans and will monitor sediment transport in Galore Creek during construction and operations.	1	Condition to require development and implementation of erosion and sediment control mitigation (in CEMP)	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
129	Will develop environmental management plans for construction of the access road and transmission line.	1	Condition to require development and implementation of management plans	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
209	Rehabilitation and revegetation of areas such as roadside cut-and-fill slopes, soil stockpile slopes and other disturbed areas will be undertaken as quickly as possible to reduce the risk of erosion and transport of sediment from these sites.	4	Disturbed surface restoration will be included within a management plan.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.10.1
212	The selected [erosion and sediment control] measures to be installed will be based on site-specific conditions and as prescribed by the supervising professional or Environmental Monitor during construction and the Environmental Coordinator during operations.	4	Erosion and Sediment Control will be included within the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
278	NovaGold will prepare a Spill Contingency and Emergency Response Plan for the project that satisfies the requirements of an Environmental Emergency Plan during permitting for the project, prior to any construction activities.	1	Condition to require development and implementation of spill contingency measures (in CEMP). Emergency response to be addressed by permitting.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.11.2
364	Road construction methodologies will be consistent with those described in the British Columbia Ministry of Forest and Range publication, Forest Road Engineering (MOFR 2002b). In addition, special attention will be paid to potential for metal leaching and acid rock drainage (ML/ARD) as detailed in Section 8.8, Access Corridor Preliminary ARD Management.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.15.3
932	10.6.1 Hydrology [a component of the Aquatic Effects Monitoring Program] The objectives of the surface flow monitoring program will be to determine project-related effects to water quantity, to assist in the implementation and evaluation of mitigation measures associated with water management, and to provide data for the water quality and aquatic effects monitoring programs. Based on the surface hydrology effects assessment, the project components that require monitoring are those with the greatest potential for impacts on water quantity; • the mine site and facilities in Galore Creek (open pits, tailings facility, diversion channels, etc.); and • the Access Corridor. A summary of the data collected in the monitoring programs outlined in section 10.6.1 to 10.6.6 will be included in an annual [AEMP] report.	4	Surface water quantity/quality monitoring for the access road to be addressed in management plan.	Environmental Effects Monitoring and Follow-Up Program	10.6.1
933	10.6.2 Surface Water Quality [a component of the Aquatic Effects Monitoring Program] Surface water quality will be monitored at exposure sites associated with the Mine Area, Access Route, Filter Plant and Aerodrome to ensure that discharge limits are met and to monitor for effects in the receiving environment. [SOME TEXT REMOVED UNRELATED TO ACCESS DEVELOPMENT] Three sites will be monitored to assess the impact of the Access Corridor on stream water quality. All water samples will be analyzed for general physico-chemical variables, anions, nutrients, total cyanide, total organic carbon (TOC), and total and dissolved metals, and will therefore replicate the analyses conducted for the baseline monitoring program (Aquatics, 2004, 2005).	4	Surface water quantity/quality monitoring for the access road to be addressed in management plan.	Vol 3 – (FR) – Chap 10 – Environment Effects Monitoring & Follow-up Program	10.6.2

Table 11. Continued.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
1070	5.11 Waste Management All mine waste produced at the Galore Creek Project will be stored in the Galore Creek Valley, with the exception of various industrial and domestic waste streams that will require backhauling to a licensed waste disposal or recycling facility. The waste streams that will be produced at the Galore Creek Project include the following: [SOME TEXT REMOVED UNRELATED TO ACCESS DEVELOPMENT] • domestic and industrial wastes with hazardous and non-hazardous substances; and • sewage effluent and sludges.	4	Waste management will be addressed as a component of the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.11
1167	All bridges and culverts will be constructed to DFO's and MOE's best management practices for stream crossings, as outlined in the guidelines.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 150-309	NovaGold 2006

5.2.7. Aquatic Resources

The EAC Application assessed changes to aquatic resources, with a focus on benthic invertebrates, from approved Project activities (Section 7.9 of the EAC Application). For this amendment, the following proposed Project changes were assessed to either cause no interaction, or cause an interaction that does not warrant further assessment: the SWMB (◆), relocation of Isbā Camp (◆), and varying camp capacity (◆).

Construction and decommissioning of the SWMB has the potential to affect benthic invertebrates through direct effects to instream habitat (e.g., loss of habitat at the footprints of pilings, streambanks where rip-rap is used for stabilizing banks and minimizing erosion, as well as removal of riparian vegetation and coarse woody debris and siltation during construction of stream crossings).

The proposed varying camp capacities has the potential to affect benthic invertebrates via indirect effects from the discharge of treated wastewater to ground (e.g., due to increased contaminant concentrations, which may then flow to surface waters). However, since overall camp capacity and associated wastewater remains unchanged from that previously considered in the EAC Application, no further assessment is warranted.

No interaction with the Isbā Camp relocation was identified as overall camp capacity remains unchanged.

The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to aquatic resources are considered sufficient to address effects arising from the proposed Project changes. Key mitigation measures considered in this analysis include those identified in Table 11 above, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

Overall, the potential interactions, characterization of residual effects, and significance determinations for aquatic resources are anticipated to remain unchanged from those previously considered in the Project's EAC Application. Accordingly, **no further assessment** of aquatic resources is warranted.

5.2.8. Fish and Fish Habitat

The EAC Application assessed effects to Fish and Fish Habitat VECs from approved Project activities (Section 7.10 of the EAC Application). For this amendment, the following proposed Project changes were assessed to have interactions that do not warrant further assessment: the SWMB (◆), relocation of Isbā Camp (◆), and varying camp capacity (◆).

Of the five previously assessed fisheries VECs (Table 4.11-1 in the EAC Application), only Dolly Varden (*Salvelinus malma*) and Bull Trout (*Salvelinus confluentus*) have the potential to interact with the proposed Project changes—namely the construction of the SWMB—because these species are present in More Creek, which is hydraulically connected to the tributaries located along the SWMB. No interactions between the proposed SWMB are anticipated for the other Fish and Fish Habitat VECs (e.g., Pacific Salmon (*Oncorhynchus spp.*) because the nearest connected waterbody with anadromous species is approximately 65 km downstream below the Iskut River canyon), Other Fish Species, and the Stikine River) as they do not spatially overlap with the proposed SWMB or no meaningful indirect effects are anticipated. Negligible interactions are anticipated from relocating Isbā Camp because the best available information indicates that Sphaler Creek is non-fish-bearing and indirect effects are anticipated to be negligible. No interactions are anticipated from varying camp capacities, meaning that only Dolly Varden and Bull Trout are discussed further, and in relation to the SWMB.

Among the four indicators assessed for each fisheries VEC, the proposed Project changes could cause the (1) loss or alteration of fish habitat (e.g., construction of watercourse crossings) (Section 7.10.3), (2) cause sublethal effects (e.g., sedimentation or acid rock drainage) (Section 7.10.5), and (3) cause direct and

indirect mortality (e.g., crushing injuries, including those inflicted if slope failure⁷ occurred (Section 7.10.4). Negligible interactions are anticipated with productive capacity of habitat (Section 7.10.2) given the small scope of proposed Project changes. As a result, the assessment below focuses on evaluating the potential for the SWMB to affect Dolly Varden and Bull Trout in ways related to three indicators (e.g., habitat loss, sedimentation and slope failure, and acid rock drainage), noting that the EAC Application concluded that all residual adverse effects were non-significant because of the low magnitude and limited geographic extent of the effects (Table 7.10-12 in the EAC Application).

The proposed SWMB within the Access Development Corridor is not anticipated to alter the characterization of residual effects in a way that would change the conclusions presented in the EAC Application because streams located along the SWMB are non-fish-bearing (due to a number of natural and confirmed barriers to fish; Ecofish 2023 *in press*), meaning that only indirect effects need to be mitigated.

The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to fish and fish habitat are considered sufficient to address effects arising from the proposed Project changes. Key mitigation measures considered in this analysis include those identified in Table 12, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

Overall, the potential interactions and associated adverse effects for fish and fish habitat VECs are anticipated to be analogous to the those previously considered in the Project's EAC Application. Accordingly, **no further assessment** of the Project's effects on Fish and Fish Habitat VECs is warranted.

⁷ BGC is investigating geohazards along the proposed SWMB, preliminary results indicate that landslide risk in the new section of road will be rated with a risk of either rare or remote and categorized the landslides to have either slight or minor environmental consequence. As contemplated in EAC Application, additional mitigation measures to address geohazard risks may be developed and implemented as needed, and engineering best practices will be implemented to reduce the risk of slope failure.

Table 12. Modernized Mitigation Measures for Effects on Fish and Fish Habitat.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
62	Will employ and train environmental monitors to monitor construction of the access road, mine site facilities and transmission line.	4	The environmental monitoring program will be defined within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
78	Will use emulsion explosives as required to minimize ammonia and nitrate losses and contamination [to manage surface water and groundwater quality and quantity, and sediment].	4	Explosives management will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
97	Will develop and implement Sediment and Erosion Control Plans and will monitor sediment transport in Galore Creek during construction and operations.	1	Condition to require development and implementation of erosion and sediment control mitigation (in CEMP)	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
128	Will develop comprehensive fish and fish habitat compensation plans in cooperation with the Ministry of Environment, Fisheries and Oceans Canada and the Tahltan Central Council.	1	Condition to require development of fish and fish habitat compensation plans in consultation with Tahltan and other parties	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
129	Will develop environmental management plans for construction of the access road and transmission line.	1	Condition to require development and implementation of management plans	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
130	Will design access road stream crossings to not encroach upon the bankfull width of fish bearing streams where possible.	3	Encroachment on fish-bearing streams will be managed through DFO & MoF within the permitting program under FRPA, WSA, and FA.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
209	Rehabilitation and revegetation of areas such as roadside cut-and-fill slopes, soil stockpile slopes and other disturbed areas will be undertaken as quickly as possible to reduce the risk of erosion and transport of sediment from these sites.	4	Disturbed surface restoration will be included within a management plan.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.10.1
212	The selected [erosion and sediment control] measures to be installed will be based on site-specific conditions and as prescribed by the supervising professional or Environmental Monitor during construction and the Environmental Coordinator during operations.	4	Erosion and Sediment Control will be included within the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
278	NovaGold will prepare a Spill Contingency and Emergency Response Plan for the project that satisfies the requirements of an Environmental Emergency Plan during permitting for the project, prior to any construction activities.	1	Condition to require development and implementation of spill contingency measures (in CEMP). Emergency response to be addressed by permitting.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.11.2
287	Prior to construction activities for the access road, mine, pipelines, aerodrome and related facilities, the following planning and implementation measures will be initiated: • fish salvages at any crossing site on a fish-bearing stream where it may be necessary to divert or temporarily dewater a section of creek (e.g., lower More Creek). Where there are fish in such locations, fish salvages will be completed. All fish in the affected section will be captured and live-transported to another, unaffected part of the river or creek. As presently planned, fish salvages may be necessary at the Muskwie and lower More Creek crossings, and within temporarily enclosed areas in the Iskut and Porcupine river crossings. Pre-planning of such sites will allow for the orderly processing of fish salvage permits from DFO and MOE; and	4	Fish salvaging and protection will be included within management plans.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.12.3
291	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • restrictions on construction timing windows to comply with the periods of least risk to fisheries resources (fish stocks and habitat) in the affected areas. Table 8.12-1 shows the currently established and accepted low-risk periods for each of the salmonid fish species in the region. Overlapping periods of least sensitivity may mean even shorter timing windows for construction, depending on locations. Due to the magnitude of the project and construction schedules, NovaGold will negotiate construction windows with the appropriate regulatory agencies;	4	Adherence to least-risk work windows, where feasible based on species occurrence and regional requirements, will be defined within management plans.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.12.3
333	Riparian fish habitat totalling approximately 9,000 m2 will be lost in one wetland at kilometre 35 of the road (lower More Creek watershed) due to construction of the access corridor (Figure 8.12-2).	3	Instream construction and construction within wetlands will be managed in consultation with regulatory agencies under FRPA and WSA.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.12.4
364	Road construction methodologies will be consistent with those described in the British Columbia Ministry of Forest and Range publication, Forest Road Engineering (MOFR 2002b). In addition, special attention will be paid to potential for metal leaching and acid rock drainage (ML/ARD) as detailed in Section 8.8, Access Corridor Preliminary ARD Management.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.15.3

Table 12. Continued.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
503	All work in and about fish bearing streams will be undertaken during specified fisheries windows or, where alternative timing is required, with the specific approval of the Ministry of Environment and the Department of Fisheries and Oceans.	3	Encroachment on fish-bearing streams will be managed through DFO & MoF within the permitting program under FRPA, WSA, and FA.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.12.1.8
539	In addition to requirements to be stipulated under the Galore Mine road access Special Use Permit, a number of aspects of the federal Fisheries Act are relevant to the access road and any stream crossings. It includes the following components: • obstructions of fish migration (Section 22 and 26) • destruction of fish (Section 32) • harmful alteration, disruption, or destruction (HADD) to fish habitat (Section 35) unless authorized • depositing of substances deleterious to fish in waters frequented by fish (Section 37).	3	It is an existing requirement to comply with relevant legislation, regulation and permits	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 150-309	8.15.1.1
547	The following design criteria were established for the design of stream crossings: • Fish-bearing streams will be bridged or have open-bottom arches installed to protect the stream channel.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 150-309	8.15.2.2
704	Enforcement of no-fishing and no-hunting policy for employees and contractors along access road and filter plant area except for exemption provided in NovaGold-Tahtlan Nation Participation Agreement.	1	Condition about no-hunting/no-fishing	Vol 3 – (FR) – Chap 15 – Summary of Corporate Commitments	Table 15.1-2
824	Fish and Fish Habitat Management Plan [will be developed].	1	Condition to require development and implementation of fish and fish habitat mitigation (in CEMP)	Vol 3 – (FR) – Chap 15 – Summary of Corporate Commitments	Table 15.1-2
826	Fish habitat compensation in wetlands [will be developed].	1	Condition to require development of fish habitat compensation in wetlands	Chap 15 – Summary of Corporate Commitments	Table 15.1-2
874	Where possible, maintain coarse woody debris and riparian habitats along the access corridor.	4	Protection of riparian vegetation (and other vegetation) will be included within management plans.	Chap 15 – Summary of Corporate Commitments	Table 15.1-2
932	10.6.1 Hydrology [a component of the Aquatic Effects Monitoring Program] The objectives of the surface flow monitoring program will be to determine project-related effects to water quantity, to assist in the implementation and evaluation of mitigation measures associated with water management, and to provide data for the water quality and aquatic effects monitoring programs. Based on the surface hydrology effects assessment, the project components that require monitoring are those with the greatest potential for impacts on water quantity; • the mine site and facilities in Galore Creek (open pits, tailings facility, diversion channels, etc.); and • the Access Corridor. A summary of the data collected in the monitoring programs outlined in section 10.6.1 to 10.6.6 will be included in an annual [AEMP] report.	4	Surface water quantity/quality monitoring for the access road to be addressed in management plan.	Environmental Effects Monitoring and Follow-Up Program	10.6.1
933	10.6.2 Surface Water Quality [a component of the Aquatic Effects Monitoring Program] Surface water quality will be monitored at exposure sites associated with the Mine Area, Access Route, Filter Plant and Aerodrome to ensure that discharge limits are met and to monitor for effects in the receiving environment. [SOME TEXT REMOVED UNRELATED TO ACCESS DEVELOPMENT] Three sites will be monitored to assess the impact of the Access Corridor on stream water quality. All water samples will be analyzed for general physico-chemical variables, anions, nutrients, total cyanide, total organic carbon (TOC), and total and dissolved metals, and will therefore replicate the analyses conducted for the baseline monitoring program (Aquatics, 2004, 2005).	4	Surface water quantity/quality monitoring for the access road to be addressed in management plan.	Vol 3 – (FR) – Chap 10 – Environment Effects Monitoring & Follow-up Program	10.6.2

Table 12. Continued.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
1070	5.11 Waste Management All mine waste produced at the Galore Creek Project will be stored in the Galore Creek Valley, with the exception of various industrial and domestic waste streams that will require backhauling to a licensed waste disposal or recycling facility. The waste streams that will be produced at the Galore Creek Project include the following: [SOME TEXT REMOVED UNRELATED TO ACCESS DEVELOPMENT] • domestic and industrial wastes with hazardous and non-hazardous substances; and • sewage effluent and sludges.	4	Waste management will be addressed as a component of the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.11
1167	All bridges and culverts will be constructed to DFO's and MOE's best management practices for stream crossings, as outlined in the guidelines.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 150-309	NovaGold 2006

5.2.9. Wetlands

The EAC Application assessed changes to wetland habitat and its functions from approved Project activities. For this amendment, the following proposed Project changes have been assessed to have an interaction that does not warrant further assessment: the SWMB (◆), relocation of Isbā Camp (◇), and varying camp capacity (◇) (Section 7.11 of the EAC Application).

No wetland ecosystems are known to occur within the newly proposed site for Isbā Camp, and no interactions are anticipated with wetlands in relation to the proposed varying camp capacity. However, a number of wetland complexes exist where the SWMB is proposed, indicating there is potential for adverse effects to wetlands and that further discussion is warranted.

The four previously assessed indicators: (1) biodiversity function, (2) hydrologic function, (3) water quality function, and (4) carbon sequestration function (Table 7.11-1 in the EAC Application) are relevant given the proposed Project changes, noting that the areal extent of impacted habitat was used as the single surrogate metric to evaluate all four indicators. In other words, if no wetland habitat is lost or degraded, then no adverse effects to the four indicators is expected.

The EAC Application concluded that no significant adverse residual effects would occur to the Wetland VEC, assuming that any lost habitat (e.g., fish habitat) would be offset (Table 7.11-2 and Section 7.11.3 of the EAC Application). The proposed Project changes will not alter this conclusion based on a commitment to adhere to the federal wetland mitigation process during construction, operation, and closure phases of the Project (Section 7.11 in the EAC Application).

The federal wetland mitigation process involves the following three steps (Government of Canada 1991; Lynch-Stewart *et al.* 1996):

1. Avoidance of wetlands;
2. Minimization of the potential effects of development on wetland functions;
3. Compensation for loss of wetland functions.

In addition, “due to the complexities of wetland ecosystems, monitoring during all project phases will be needed to determine the success of the project design in achieving no significant loss of wetland functions.” (Section 7.11.3 in the EAC Application).

The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to wetlands are considered sufficient to address effects arising from the proposed Project changes. Key mitigation measures considered in this analysis include those identified in Table 13, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

Overall, the potential interactions and associated adverse effects are analogous to those considered in the Project's EAC Application. Moreover, GCMC are committed to avoiding wetlands, wherever practicable, to minimize environmental effects, reduce costs, and improve engineering feasibility. Consequently, the proposed Project changes are not anticipated to change the EAC Application's characterization of residual effects in a way that would change the significance determination. Accordingly, **no further assessment** of the Project's effects on the Wetland VEC is warranted.

Table 13. Modernized Mitigation Measures for Effects on Wetlands.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
571	Wetland soils will also be considered for recovery where feasible.	4	Soil and material management, including use of wetland soils for recovery, will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.15.3
826	Fish habitat compensation in wetlands [will be developed].	1	Condition to require development of fish habitat compensation in wetlands	Chap 15 – Summary of Corporate Commitments	Table 15.1-2

5.2.10. Terrestrial Ecosystems, Vegetation, and Soil Landscape

The EAC Application assessed direct and indirect effects on ecosystems, vegetation, and soils, including ecosystem alteration, effects on plant species of conservation concern (both in terms of habitat alteration and plant mortality), and potential introduction of invasive species (Table 7.12-2 of the EAC Application). For this amendment, the following proposed Project changes were assessed to have an interaction that does not warrant further assessment: the SWMB (◆), relocation of Isbā Camp (◆), and varying camp capacity (◆).

The SWMB within the Access Development Corridor will be ~5.6 km longer than the section of road it would replace (noting that the approved Access Road is ~130 km long) and would result in additional impacts on ecosystems, vegetation, and soils due to ground disturbance during construction to decommissioning. Compared to the direct and indirect effects considered in the EAC Application, incremental increases in Project-related impacts on ecosystems, vegetation, and soils from the proposed SWMB are expected to be negligible during all Project phases because:

- Additional vegetation clearing required to build the slightly longer (~5.6 km) SWMB is negligible compared to the amount of clearing previously approved (“Approximately 1,810 ha will be disturbed overall”; Section 7.12.2.1 in the EAC Application).
- No at-risk plant species or ecological communities have been identified within the proposed SWMB.
- Modernized mitigation measures be implemented to address the potential for, and direct remedial action should invasive plant species crop up.

Similarly, the relocation of Isbā Camp would not result in additional, permanent effects beyond those previously considered (Section 7.12 of the EAC Application). While moving the camp would create additional disturbance where older forest is cleared to prepare the new camp location, the old camp location will be reclaimed and revegetated as soon as practicable, noting that the old camp was located in lower quality area consisting of sparsely vegetated floodplain. No plant species or ecological communities at-risk have been identified within the proposed camp relocation area.

The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to terrestrial ecosystems, vegetation and soil landscape are considered sufficient to address effects arising from the proposed Project changes. Key mitigation measures considered in this analysis include those identified in Table 14, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

Overall, the potential interactions, associated adverse effects and significance determinations are analogous to those considered in the Project’s EAC Application Accordingly, **no further assessment** of the Project’s effects on the Terrestrial Ecosystems, Vegetation, and Soil Landscape VEC is warranted.

Table 14. Modernized Mitigation Measures for Effects on Terrestrial Ecosystems, Vegetation and Soil Landscape.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
129	Will develop environmental management plans for construction of the access road and transmission line.	1	Condition to require development and implementation of management plans	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
154	Will develop a plan to control and manage invasive and noxious plant species.	1	Condition to require development and implementation of invasive and noxious plant mitigation in the CEMP	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
366	All excavated surface soils, organic matter and woody debris [from access road construction] will be retained for reclamation purposes. Wetland soils will also be considered for recovery where feasible.	4	Soil and woody debris management will be included within management plans.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309_RC	8.15.3
374	Salvageable soils from the development of the borrow sources and quarries will be set aside for later use.	4	Clearing, grubbing and topsoil management activities will be included within management plans.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309_RC	8.15.3
375	Where possible and practical, organic and fine-textured soils will be stockpiled for subsequent placement over closed borrow and waste areas to facilitate revegetation.	4	Clearing, grubbing and topsoil management activities will be included within management plans.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309_RC	8.15.3
405	Topsoil will be salvaged as a separate lift during surface pre-stripping, typically over the footprint of pit areas, dams, plant site, linear infrastructure (roads, diversion channels, buried pipelines), overburden storage area(s) and waste rock dumps outside the flooded area. No salvage is anticipated in areas to be flooded for tailings or underwater waste rock placement, unless soil balance requirements (salvage : replacement) show a need for additional salvage volume from these areas.	4	Clearing, grubbing and topsoil management activities will be included within management plans.	Vol 1 – (FR) – Chap 5 – Project Description – Pg 144-235_RC	5.5.7
707	Minimize clear-cutting wherever possible.	4	Clearing, grubbing and topsoil management activities will be included within management plans.	Chap 15 – Summary of Corporate Commitments	Table 15.1-2
858	Ensure rapid revegetation of exposed soil (e.g., road cuts, recently disturbed areas) to minimize establishment of invasive plant species.	4	Invasive plant species management will be included within a management plan.	Vol 3 – (FR) – Chap 15 – Summary of Corporate Commitments_RC	Table 15.1-2
927	10.5.4.7 Invasive Species [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Exotic plant invasions potentially facilitated by project associated activities (i.e., the clearing of access corridors and increase transport traffic to site) are an ongoing concern because they can alter native habitat. Invasive plants which become established in the access corridors or at the mine sites will be identified through an annual monitoring program conducted by environmental staff. Monitoring will identify invasive species that have become established in the project area. This will allow the development of adaptive management activities aimed at eliminating invaders and controlling the risk of future invasions. A summary of the data collected in the monitoring programs outlined in Section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report.	4	Invasive plant species management will be included within a management plan.	Environmental Effects Monitoring and Follow-Up Program	10.5.4.7
1011	Topsoil will be stockpiled separately from other materials. It will be stored in stable areas and will not be disturbed until the soil material is required for replacement, for reclamation purposes, on the final (post-mine) recontoured surfaces. Topsoil may be windrowed adjacent to areas of linear development. Direct replacement (salvage and concurrent replacement) will be employed where permitted by scheduling. Direct replacement is anticipated to be a small portion of the total volume of soil handled as few surfaces will be available for reclamation in the early stages of development.	4	Clearing, grubbing and topsoil management activities will be included within management plans.	Vol 1 – (FR) – Chap 5 – Project Description – Pg 1-143_RC	5.5.7

5.2.11. Wildlife and Wildlife Habitat

The EAC Application assessed the effects of approved Project activities on Wildlife and Wildlife Habitat VECs. For this amendment, the following proposed Project changes have been assessed to have an interaction that does not warrant further assessment: the SWMB (◆), relocation of Isbā Camp (◆), and varying camp capacity (◆) (Section 7.13 of the EAC Application).

The proposed Project changes are not anticipated to cause adverse effects to most Wildlife and Wildlife Habitat VECs (Table 7.13-1 in the EAC Application), including Grizzly Bear (*Ursus arctos*), American Marten (*Martes americana*), bats (Order Chiroptera), and all birds (which include: waterfowl, Harlequin Duck (*Histrionicus histrionicus*), raptors, songbirds, and the Trumpeter Swan (*Cygnus buccinator*)) for one or more of the following reasons:

- The proposed Project changes primarily overlaps non-suitable habitat for these wildlife VECs;
- The proposed Project changes do not overlap with any established animal movement corridors;
- Potential interactions with the proposed Project changes are analogous to those previously assessed (e.g., sensory disturbance effects from the road will be similar regardless of the precise alignment);
- Implementation of modernized mitigation measures are sufficient to uphold the significance determinations presented in Section 7.13 of the EAC Application.

The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to Wildlife and Wildlife Habitat are considered sufficient to address effects arising from the proposed Project changes. Key mitigation measures considered in this analysis include those identified in Table 15, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

As a result, further explanation is only provided for the remaining four VECs since the potential for interactions and residual effects is more complex, and thus warrants further explanation. The remaining VECs include: Mountain Goat (*Oreamnos americanus*) (Section 5.2.11.1), Moose (*Alces alces*) (Section 5.2.11.2), Hoary Marmot (*Marmota caligata*) (Section 5.2.11.3), and Western Toad (*Anaxyrus boreas*) (Section 5.2.11.4), noting that none of these VECs were carried forward for further assessment in Section 6.

Overall, the potential interactions, characterization of residual effects, and significance determinations for wildlife VECs are anticipated to remain unchanged compared to those presented in the Project's EAC Application because the nature of anticipated interactions are analogous to those already assessed, meaning that modernized mitigation measures will be sufficient to address similar effects that might arise. Accordingly, **no further assessment** of the Project's effects on Wildlife and Wildlife Habitat is warranted.

Table 15. Modernized Mitigation Measures for Effects on Wildlife and Wildlife Habitat

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
129	Will develop environmental management plans for construction of the access road and transmission line.	1	Condition to require development and implementation of management plans	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
133	Will develop and implement a Wildlife Mitigation and Monitoring Plan.	1	Condition to require development and implementation of a Wildlife Mitigation and Monitoring Plan	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
137	Will include pertinent noise monitoring as part of the Wildlife Mitigation and Monitoring Plan.	4	Noise monitoring and mitigation in relation to wildlife will be included in management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
138	Will install electric fencing around residential and cooking/dining facilities at permanent camps and the aerodrome to minimize wildlife interactions.	4	human-wildlife conflict prevention measures, including fencing, will be included in a management plan	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
329	Road Construction Camps acting as a Wildlife Attractant Wastes from temporary construction camps will be managed according to the Waste Management Plan, including the use of wildlife-proof containers and the incineration of all kitchen wastes (Section 8.14). All temporary construction camps will be fenced to exclude wildlife.	4	Waste management, human wildlife conflict and electric fencing will be included as part of a management plan.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.13.4
343	A Bear Response Plan will be educated to all mine employees and contractors. This plan will outline step by step procedures to avoid and mitigate potentially dangerous encounters with bears and other wildlife.	4	Wildlife awareness training will be included as part of a management plan	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.13.6
346	Two sensitive periods for mountain goats have been identified by the B.C. Ministry of Water, Land and Air Protection (BC MWLAP, 2002): the November to April wintering period; and April 15 to June 15 spring kidding season. During these critical periods and when flying near winter and natal habitats, adherence to the guidelines outlined below will be particularly important. In accordance with the CIS LRMP (Wildlife – Strategy 6.3) repeated flights in or near natal areas for mountain goats should be avoided during the kidding season. This may require special flight paths and no fly zones to be applied during these periods.	4	mitigation measures with regards to wildlife will be included within management plans.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.13.6
347	Helicopter Operating Procedures around Wildlife To minimize the potential for disturbance to wildlife from helicopter activities the following guidelines will be adhered to by helicopter pilots: • avoid flying directly towards wildlife; and • avoid hovering close to, or flying low over, wildlife.	4	mitigation measures with regards to wildlife will be included within management plans.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.13.6
348	To minimize the level of disturbance to mountain goat, pre-determined helicopter flight paths will be developed to provide buffer distances between helicopter flight paths and habitats occupied by mountain goats. Where safety permits, helicopter flight paths will not come within 2,000 m horizontal or vertical distance of identified mountain goat habitat unless goats are separated by a physical barrier such as a mountain ridge. Where terrain and safety considerations require flight within 2,000 m of goat habitat, helicopters will remain as far from goats as practically possible. Pilots and project aerodrome and environmental staff will inform each other of goat incidental sightings and plan flights to avoid these areas.	4	mitigation measures with regards to wildlife will be included within management plans.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.13.6
349	To avoid disturbance to grizzly bears during critical seasonal habitat, helicopter flight paths will avoid flying or hovering over the specific salmon spawning areas of the Porcupine River (Figure 6.13-18) during the salmon spawning period of August to mid-November. This will also reduce the potential for disturbance to bald eagles feeding on salmon.	4	mitigation measures with regards to wildlife will be included within management plans.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 151-309	8.13.6
361	Electric fencing will be used to deter bears from entering waste disposal facilities (i.e., incinerator).	4	human-wildlife conflict prevention measures, including fencing, will be included in a management plan	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.14.1
394	Helicopter flight paths will be designed to minimize disturbance during specific seasons of wildlife concern as outlined in the Wildlife Management Plan.	4	Helicopter operation mitigation measures with regards to wildlife, including least-risk operational windows, will be included within management plans.	Vol 3 – (FR) – Chap 8 – Environment Mgmt & Mitigation Measures – Pg 310-351	8.16.4.5
435	All camp facilities will be fenced to prevent wildlife interactions.	4	human-wildlife conflict prevention measures, including fencing, will be included in a management plan	Vol 1 – (FR) – Chap 5 – Project Description – Pg 236-286	5.13.4.1
449	Conduct pre-construction surveys to identify any important migration corridors for western toads along the access road; install dryland crossings of appropriate size at identified critical sections of the access road	4	Pre-construction survey requirements for wildlife of interest will be included within management plans.	Vol 3 – (FR) – Chap 15 – Summary of Corporate Commitments	15.6

Table 15. Continued.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
709	Adjust outside lighting appropriately to reflect natural habitat.	4	If there are any needs for ambient lighting restrictions for wildlife purposes, these would be reflected in a management plan	Chap 15 – Summary of Corporate Commitments	Table 15.1-2
793	Maintain as much vegetation as possible along the access road and around the mine footprint to provide noise attenuation.	4	Noise monitoring and mitigation in relation to wildlife will be included in management plans.	Vol 3 – (FR) – Chap 15 – Summary of Corporate Commitments	Table 15.1-2
909	10.5.1 Introduction and Objectives [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] As part of the environmental monitoring program for the Galore Creek project, a Wildlife Effects Monitoring Program (WEMP) will be implemented to document changes in wildlife abundance, behaviour, health, and habitat resulting from project development, operation and closure. Changes to wildlife will be documented to: • assess the success of mitigation measures proposed in the Wildlife Management Plan (Section 8.13); • identify opportunities for adaptive management; and • enable the actual wildlife effects. The WEMP will assess mine related effects through formal and informal monitoring programs that focus on wildlife behaviour, mortality, population dynamics, distribution and habitat loss. The effects of project activities on wildlife will be assessed by incidental observations of wildlife injury, mortality or abnormal behaviour associated with mine components (e.g., access roads, waste management, etc.). Long-term monitoring will be conducted on selected focal species (e.g., species of particular value or indicators of broader ecosystem health) to assess impacts at broader temporal scales. Habitat loss, change, and reclamation will be monitored and documented as the mine footprint is expanded and subsequently reclaimed post- operation.	4	Long-term wildlife and wildlife habitat monitoring and management will be included within management plans.	Vol 3 – (FR) – Chap 10 – Environment Effects Monitoring & Follow-up Program	10.5.1
915	10.5.2.5 Waste and Wildlife Attractant Management [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Waste products and project facilities can attract wildlife and bring them into conflict with human activity. A key component of both the Waste Management Plan (Section 8.14) and Wildlife Management Plan (Section 8.13) is to minimise this potential through the careful control of waste in the project area. The effectiveness of the management measures The program will include the following measures [see Section 10.5.2.5]: Wildlife Observations Landfill Waste Misdirection Wildlife-Attracting Wastes Access Road Tunnel Monitoring and Adaptive Management.	4	Waste management and Long-term wildlife and wildlife habitat monitoring will be included within management plans.	Vol 3 – (FR) – Chap 10 – Environment Effects Monitoring & Follow-up Program	10.5.2.5

5.2.11.1. Mountain Goat

Among the indicators assessed, the proposed Project changes could result in (1) habitat alteration, (2) disruption, blockage, and impediment to movements, (3) sensory disturbance (through noise and light), and (4) disturbance of feeding, breeding, and denning habitats, or behaviours of Mountain Goat during construction and operation phases due to blasting, equipment operation, and traffic along a slightly longer Access Road. Negligible interactions are anticipated from relocating Isbā Camp or varying camp capacities, and no meaningful interactions with the SWMB that would (5) reduce reproductive productivity, (6) act as an attractant, (7) create chemical hazards, (8) or cause direct and indirect mortality are anticipated (Table 7.13-3 in the EAC Application). The significance of residual adverse effects were previously assessed as uncertain, largely due to the inability to predict how Mountain Goats will react to increased human disturbances (Table 7.13-25 in the EAC Application). That noted, the proposed Project changes are not anticipated to change this determination because high-value habitat will not be impacted, key migrations corridors will not be impacted, and modernized mitigation measures will be implemented (Section 5.2.11).

The proposed SWMB within the Access Development Corridor intersects very low and nil-rated summer and winter habitat, resulting in a slight net decrease in documented habitat effects compared to the existing Access Road. That said, these changes are considered negligible when considered in terms of the entire Access Road (which is ~130 km long). Habitat on the north side of the valley provides a larger amount of suitable summer and winter habitat due to favorable south-facing slopes, snow conditions, and vegetation growth. Sightings near the SWMB have been limited, with mostly solitary individuals observed within 5 km, along with two adult Mountain Goats and two kids on the south side of the valley. Kids have been observed southwest and south of the SWMB. The SWMB is located in a survey unit with the second lowest density (0.10 goats/km²) compared to other surveyed units in 2022. The kids per 100 adults ratio aligns with the overall average of 21.2 for other survey units in July 2022 (Leigh-Spencer and Smith 2023).

Mountain Goat movements within the area proposed of the SWMB are considered infrequent to rare due to the relatively low use of habitat south of the SWMB and the absence of detections during multiple surveys north of the SWMB. Therefore, an impediment of movement due to this proposed Project change is considered unlikely, and the conclusions of the EAC Application remain unchanged.

Effects resulting from sensory disturbance associated with noise caused by avalanche control and blasting has considerable potential for adverse effects, per Table 7.13-18 in the EAC Application. Construction and operation of the SWMB is not expected to alter the extent, timing, or duration of avalanche control; however, it would alter its location, shifting it from the north side of the More Creek valley to the south side. All told, this change is not expected to alter the conclusions of the EAC, especially since Mountain Goat densities near the SWMB are relatively low compared to many other areas of the Project (Leigh-Spencer and Smith 2023).

Overall, the potential interactions and associated adverse effects to Mountain Goats are anticipated to be analogous and/or potentially improved to the those previously considered in the Project's EAC Application. Modernized mitigation measures are sufficient to address potential effects. Accordingly, **no further assessment** of the Project's effects on the Mountain Goat VEC is warranted.

5.2.11.2. Moose

Among the indicators assessed, the proposed Project changes could result in (1) habitat alteration, and (2) disruption, blockage, and impediment to movements of Moose during construction and operation phases due to blasting, equipment operation, and traffic along a slightly longer Access Road. Negligible interactions are anticipated from relocating Isbā Camp or varying camp capacities, and no meaningful interactions with the SWMB that would (3) cause sensory disturbances (through noise and light), (4) disturb

feeding, breeding, and denning habitats, or behaviours (5) reduce reproductive productivity, (6) act as an attractant, (7) create chemical hazards, (8) or cause direct and indirect mortality are anticipated (Table 7.13-4 in the EAC Application). The EAC Application (Section 7.13.10) concluded that the Project would not cause significant adverse effects to Moose (Section 7.13.10 of the EAC Application). Similarly, no significant residual adverse effects to Moose are anticipated from the proposed Project changes because highly suitable habitat will not be impacted, key migrations corridors will not be impacted, and modernized mitigation measures will be implemented (Section 5.2.11).

The proposed SWMB is entirely located in very low and nil-rated winter habitat, noting that summer habitat was not modelled because it is not limiting (Rescan 2006a). Nonetheless, field work in 2022 confirmed the occurrence of well-used summer habitat adjacent to wetlands located at the northeast end of the proposed SWMB (Lischka *et al.* 2023; In Preparation). Disruption of Moose may occur, potentially reducing their use of this habitat, but over time Moose are expected to habituate to the road.

According to wildlife habitat suitability modeling completed in 2006 (Rescan 2006a), the proposed Isbā Camp relocation site is entirely located in very low and nil-rated Moose winter habitat, implying negligible potential for adverse effects. In terms of animal movement, while the valley bottom is relatively constrained near the Isbā Camp relocation site (due to steep mountains and the river), there appears to be ample opportunities for wildlife to travel around the new camp location (not unlike the situation at the current camp site). Moreover, camera trap data suggests that moose density in this area is relatively low (Lischka *et al.* 2023; In Preparation), suggesting there is limited potential for effects to travel corridors from relocating the camp.

Overall, the potential interactions and associated effects to Moose are anticipated to be analogous to the those previously considered in the Project's EAC Application, indicating that modernized mitigation measures will be sufficient to address similar effects that might arise. Accordingly, **no further assessment** of the Project's effects on the Moose VEC is warranted.

5.2.11.3. Hoary Marmot

Among the indicators assessed, the proposed Project changes could result in (1) habitat alteration, and (2) disturbance of feeding, breeding, and denning habitats, or behaviours of the Hoary Marmot during construction and operation phases due to blasting, equipment operation, and traffic along a slightly longer Access Road (Table 7.13-1 in the EAC Application). Negligible interactions are anticipated from relocating Isbā Camp or varying camp capacities, and no meaningful interactions with the SWMB that would (3) cause sensory disturbances (through noise and light), (4) disturb feeding, breeding, and denning habitats, or behaviours (5) reduce reproductive productivity, (6) act as an attractant, (7) create chemical hazards, (8) or cause direct and indirect mortality are anticipated (Table 7.13-6 in the EAC Application). The EAC Application (Section 7.13.10) concluded that the Project would not cause significant adverse effects to Hoary Marmots. Similarly, no significant adverse effects to Hoary Marmots are anticipated from the proposed Project changes because only 1% (0.4 ha) of the SWMB footprint overlaps with moderately suitable habitat and modernized mitigation measures will be implemented (Section 5.2.11).

According to the wildlife habitat suitability modelling completed in 2006 and presented in the EAC Application, ~94.5% of the SWMB footprint (i.e., length of road multiplied by a 35 m ROW) overlaps with habitat rated as low or nil-rated suitability (including areas below the elevational cutoff of the habitat suitability model) for Hoary Marmots. Only 1% (0.4 ha) of the new road footprint overlaps with moderately suitable habitat and none overlaps with highly suitable habitat. This implies there is negligible potential for residual effects stemming from habitat alteration, including disturbance of feeding, breeding, and denning habitats. While overall confidence in this assessment is high, it must be noted that ~4.7% (2.4 ha) of the

SWMB footprint was not modelled (because it lies outside of the area modelled), meaning there could be additional effects. That said, even if the entirety of the 2.4 ha was deemed to be suitable Hoary Marmot habitat, the characterization of residual effects would not change in a manner that would alter the significance determination. Lastly, the proposed Isbā Camp relocation is located entirely within habitat rated as having very low to nil suitability, confirming there is negligible potential for adverse effects.

Overall, the potential interactions and associated adverse effects to Hoary Marmots are anticipated to be analogous to the those previously considered in the Project's EAC Application. Modernized mitigation measures will be sufficient to address any effects that might arise from the proposed Project changes. Accordingly, **no further assessment** of the Project's effects on the Hoary Marmot VEC is warranted.

5.2.11.4. Western Toad

Among the indicators assessed, the proposed Project changes could result in (1) habitat alteration, and (2) disruption, blockage, and impediment to movements of the Western Toad during construction and operation phases due to blasting, equipment operation, and traffic along a slightly longer Access Road (Table 7.13-8 in the EAC Application). Negligible interactions are anticipated from relocating Isbā Camp or varying camp capacities, and no meaningful interactions with the SWMB that would (3) cause sensory disturbances (through noise and light), (4) disturb feeding, breeding, and denning habitats, or behaviours (5) reduce reproductive productivity, (6) act as an attractant, (7) create chemical hazards, (8) or cause direct and indirect mortality are anticipated (Table 7.13-8 in the EAC Application). The EAC Application (Section 7.13.10) concluded that the Project would not cause significant adverse effects to Western Toads. Similarly, no significant adverse effects to Western Toads are anticipated from the proposed Project changes because the none of the SWMB footprint overlaps with suitable toad breeding habitat and modernized mitigation measures will be implemented (Section 5.2.11).

In terms of habitat availability across the landscape, wetland and pond breeding habitat is considered limiting (Rescan 2006b) (see Section 5.2.9 for the assessment of the Wetland VEC). The proposed Isbā Camp relocation site is not located within, or adjacent to, any wetland or pond habitat that could provide suitable breeding habitat for Western Toads, negating the potential for residual adverse effects. In contrast, the SWMB could interact with a number of wetlands, implying there is potential for effects to Western Toad habitat. However, the habitat quality of these wetlands is rated as low or nil suitability for Western Toad breeding, indicating that minor disturbances are not likely to cause adverse effects that affect the population. Similarly, while the road may disrupt toad movement, effects would be limited to a few individuals and is not anticipated to affect the broader population.

Overall, the potential interactions and associated adverse effects for Western Toad are anticipated to be analogous to the those previously considered in the Project's EAC Application, indicating that modernized mitigation measures will be sufficient to address effects that might arise from the proposed Project changes. Accordingly, **no further assessment** of the Project's effects on the Western Toad VEC is warranted.

5.2.12. Archaeological and Heritage Resources

The EAC Application assessed direct (e.g., ground disturbance) and indirect (e.g., road maintenance activities and increased human activity) effects to archaeological and heritage resources from approved Project activities (Section 7.14 of the EAC Application). For this amendment, the following proposed Project changes were assessed to have either no interaction or an interaction that does not warrant further assessment: the SWMB (◆), relocation of Isbā Camp (◆), and varying camp capacity (◇)).

The proposed Project changes have the potential to interact with archaeological and heritage resources, including direct effects from ground disturbance during the construction phase, indirect effects from increased human activity during the operations phase, and no potential effects during the decommissioning

phase, assuming no new area of ground disturbance occurs. Therefore, mitigating potential direct effects from ground disturbance remains a primary concern, as described in the EAC Application:

“Once a site is disturbed or destroyed, cultural information is lost. However, because archaeological sites are of limited spatial extent, they can often be readily avoided, once the locations are known. For these reasons, it is crucial to conduct inventory surveys to identify site locations. It should be noted that despite the consequences of site disturbances, potential development in this part of B.C. is leading to the discovery, recording and investigation of many sites, thus contributing to the scientific and cultural knowledge of the region.” (Section 7.14.4 of the EAC Application, page 7-627).

The likelihood of interactions occurring during construction is low because there are no known archaeological or heritage sites identified along the SWMB (based on preliminary assessments carried out in 2022; Haugrud and Jollymore, *in press*), with much of the SWMB passing through areas of lower archaeological potential compared to the approved alignment depicted in the EA. The EA alignment passes through several areas of high archaeological potential (Jollymore and Walker 2019).

There are no known sites within the areas proposed for the relocation of Isbā Camp, and no interaction with archaeological and heritage resources associated with varying camp capacities, assuming camp footprints remain unchanged. Any revisions to the camp footprints would be subject to archaeological surveys planned for 2023.

Nonetheless, if archaeological and heritage resources are encountered, the application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to archaeological and heritage resources are considered sufficient to address effects arising from the proposed Project changes. Key mitigation measures considered in this analysis include those identified in Table 16, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

These protocols will be refined as appropriate through all phases of the project. In addition, guidelines outlined in the “*Tahltan Archaeological Standards*” (Tahltan Heritage Resources Environmental Assessment Team 2022) will be considered.

Overall, the potential interactions and associated adverse effects are identical to those considered in the Project’s EAC Application. Accordingly, **no further assessment** of the Project’s effects on the Archaeological and Heritage Resources VEC is warranted.

Table 16. Modernized Mitigation Measures for Effects on Archaeological and Heritage Resources.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
129	Will develop environmental management plans for construction of the access road and transmission line.	1	Condition to require development and implementation of management plans	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
133	Will develop and implement a Wildlife Mitigation and Monitoring Plan.	1	Condition to require development and implementation of a Wildlife Mitigation and Monitoring Plan	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
137	Will include pertinent noise monitoring as part of the Wildlife Mitigation and Monitoring Plan.	4	Noise monitoring and mitigation in relation to wildlife will be included in management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
138	Will install electric fencing around residential and cooking/dining facilities at permanent camps and the aerodrome to minimize wildlife interactions.	4	human-wildlife conflict prevention measures, including fencing, will be included in a management plan	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
329	Road Construction Camps acting as a Wildlife Attractant Wastes from temporary construction camps will be managed according to the Waste Management Plan, including the use of wildlife-proof containers and the incineration of all kitchen wastes (Section 8.14). All temporary construction camps will be fenced to exclude wildlife.	4	Waste management, human wildlife conflict and electric fencing will be included as part of a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309	8.13.4
343	A Bear Response Plan will be educated to all mine employees and contractors. This plan will outline step by step procedures to avoid and mitigate potentially dangerous encounters with bears and other wildlife.	4	Wildlife awareness training will be included as part of a management plan	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309	8.13.6
346	Two sensitive periods for mountain goats have been identified by the B.C. Ministry of Water, Land and Air Protection (BC MWLAP, 2002): the November to April wintering period; and April 15 to June 15 spring kidding season. During these critical periods and when flying near winter and natal habitats, adherence to the guidelines outlined below will be particularly important. In accordance with the CIS LRMP (Wildlife – Strategy 6.3) repeated flights in or near natal areas for mountain goats should be avoided during the kidding season. This may require special flight paths and no fly zones to be applied during these periods.	4	mitigation measures with regards to wildlife will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309	8.13.6
347	Helicopter Operating Procedures around Wildlife To minimize the potential for disturbance to wildlife from helicopter activities the following guidelines will be adhered to by helicopter pilots: • avoid flying directly towards wildlife; and • avoid hovering close to, or flying low over, wildlife.	4	mitigation measures with regards to wildlife will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309	8.13.6
348	To minimize the level of disturbance to mountain goat, pre-determined helicopter flight paths will be developed to provide buffer distances between helicopter flight paths and habitats occupied by mountain goats. Where safety permits, helicopter flight paths will not come within 2,000 m horizontal or vertical distance of identified mountain goat habitat unless goats are separated by a physical barrier such as a mountain ridge. Where terrain and safety considerations require flight within 2,000 m of goat habitat, helicopters will remain as far from goats as practically possible. Pilots and project aerodrome and environmental staff will inform each other of goat incidental sightings and plan flights to avoid these areas.	4	mitigation measures with regards to wildlife will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.6
349	To avoid disturbance to grizzly bears during critical seasonal habitat, helicopter flight paths will avoid flying or hovering over the specific salmon spawning areas of the Porcupine River (Figure 6.13-18) during the salmon spawning period of August to mid-November. This will also reduce the potential for disturbance to bald eagles feeding on salmon.	4	mitigation measures with regards to wildlife will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309	8.13.6
361	Electric fencing will be used to deter bears from entering waste disposal facilities (i.e., incinerator).	4	human-wildlife conflict prevention measures, including fencing, will be included in a management plan	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.14.1
394	Helicopter flight paths will be designed to minimize disturbance during specific seasons of wildlife concern as outlined in the Wildlife Management Plan.	4	Helicopter operation mitigation measures with regards to wildlife, including least-risk operational windows, will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351	8.16.4.5
435	All camp facilities will be fenced to prevent wildlife interactions.	4	human-wildlife conflict prevention measures, including fencing, will be included in a management plan	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.4.1
449	Conduct pre-construction surveys to identify any important migration corridors for western toads along the access road; install dryland crossings of appropriate size at identified critical sections of the access road	4	Pre-construction survey requirements for wildlife of interest will be included within management plans.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments	15.6

Table 16. Continued.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
709	Adjust outside lighting appropriately to reflect natural habitat.	4	If there are any needs for ambient lighting restrictions for wildlife purposes, these would be reflected in a management plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
793	Maintain as much vegetation as possible along the access road and around the mine footprint to provide noise attenuation.	4	Noise monitoring and mitigation in relation to wildlife will be included in management plans.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments	Table 15.1-2
909	10.5.1 Introduction and Objectives [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] As part of the environmental monitoring program for the Galore Creek project, a Wildlife Effects Monitoring Program (WEMP) will be implemented to document changes in wildlife abundance, behaviour, health, and habitat resulting from project development, operation and closure. Changes to wildlife will be documented to: • assess the success of mitigation measures proposed in the Wildlife Management Plan (Section 8.13); • identify opportunities for adaptive management; and • enable the actual wildlife effects. The WEMP will assess mine related effects through formal and informal monitoring programs that focus on wildlife behaviour, mortality, population dynamics, distribution and habitat loss. The effects of project activities on wildlife will be assessed by incidental observations of wildlife injury, mortality or abnormal behaviour associated with mine components (e.g., access roads, waste management, etc.). Long-term monitoring will be conducted on selected focal species (e.g., species of particular value or indicators of broader ecosystem health) to assess impacts at broader temporal scales. Habitat loss, change, and reclamation will be monitored and documented as the mine footprint is expanded and subsequently reclaimed post- operation.	4	Long-term wildlife and wildlife habitat monitoring and management will be included within management plans.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.5.1
915	10.5.2.5 Waste and Wildlife Attractant Management [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Waste products and project facilities can attract wildlife and bring them into conflict with human activity. A key component of both the Waste Management Plan (Section 8.14) and Wildlife Management Plan (Section 8.13) is to minimise this potential through the careful control of waste in the project area. The effectiveness of the management measures The program will include the following measures [see Section 10.5.2.5]: Wildlife Observations Landfill Waste Misdirection Wildlife-Attracting Wastes Access Road Tunnel Monitoring and Adaptive Management.	4	Waste management and Long-term wildlife and wildlife habitat monitoring will be included within management plans.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.5.2.5

5.2.13. Socio-Economic

The EAC Application assessed effects on socio-economics from approved Project activities (Section 7.15 of the EAC Application). For this amendment, the following proposed Project changes were assessed to have no interaction, the SWMB (◇), relocation of Isbā Camp (◇), and varying camp capacity (◇).

Interactions with socio-economic VECs would stem from changes in workforce size; however, proposed Project changes do not alter the construction workforce from the 1,640 persons contemplated in EAC Application to support Access Development activities. As such, there are no interactions with socio-economic VECs associated with proposed Project changes. Accordingly, **no further assessment** of socio-economic VECs is warranted.

5.2.14. Country Foods

In the EAC Application, naturally occurring tissue metal concentrations (i.e., existing conditions) were established for six country food indicators— cariboo weed (*Artemesia* spp.), blueberries (*Vaccinium* spp.), moose (*Alces alces*), marmot (*Marmota* spp.), grouse (Subfamily *Phasianidae*), (Table 4.17-1 in the EAC Application)—but Project effects were not assessed (Appendix 6-T, Galore Creek Country Foods Baseline Assessment). However, it should be noted that further assessment of this topic, including Human Health, will be provided as part of the major amendment planned for 2024.

The rationale for not assessing Country Food at the time the EAC Application was submitted, was that:

“Until the project is in operation, it is not feasible to predict potential future increases in metal concentrations in water that may affect soil, water or vegetation with any certainty; therefore, it is not possible to predict potential effects of project activities on country foods. Because of this, an environmental assessment on country foods has not been conducted at this stage.” (Section 4.17 in the EAC Application).

However, current environmental and toxicological risk assessment guidance (Health Canada 2010, 2018, 2019; BC MOH 2022) requires the assessment of Project effects on the Human Health VEC, with country foods quality being one component contributing to human health (noting that human health was not a VEC considered in the EAC Application). As such, the following text provides a cursory assessment of the country foods quality component in relation to the Human Health VEC, had both been considered in the EAC Application, noting that overall, no changes to the Country Foods VEC are anticipated from the proposed Project changes: SWMB (◇), the proposed relocation of Isbā Camp (◇), and the proposed varying camp capacity (◇).

Country foods are subsistence foods that are gathered, hunted, or fished, with the quality of country foods characterized by the metal composition within their tissues (e.g., meat, berries). Interactions from Project components with country foods quality are based on the potential for release of contaminants in air and water emissions from Project components and activities during construction, operation, and decommissioning. As such, interactions require transport pathways that link Project source(s) of contaminants to country foods quality. Relevant transport pathways to country foods quality include:

- Release and dispersion of fine particulate matter and gaseous air contaminants (diesel emissions), criteria air contaminants (CACs), fugitive dust;
- Surface runoff, siltation, and associated water chemistry effects;
- blasting residue leaching; and
- sewage discharge (e.g., at camps).

Thus, there is potential for interactions of country foods quality with the proposed Project changes. However, had the quality of country foods been assessed previously, the interactions and changes to country foods quality with the proposed Project changes would be similar. This is because:

- 1) the same transport pathways with similar magnitudes for contaminants would exist regardless of location of the SWMB and Isbā Camp and activities anticipated during all Project phases;
- 2) the application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to country foods are considered sufficient to address effects arising from the proposed Project. Key mitigation measures considered in this analysis include those identified in Table 17, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

Overall, while the quality of Country Foods was not assessed in the EAC Application, the potential interactions and associated adverse environmental effects would have been similar given the small scope of the proposed Project changes. Modernized mitigation measures will be sufficient to address potential effects should they arise. Accordingly, **no further assessment** of the Project's effects on Country Foods is warranted.

Table 17. Modernized Mitigation Measures for Effects on Country Foods.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
4	Will finalize the various management plans identified in Volume III, Section 10 of NovaGold Canada Inc.'s Application for an environmental assessment certificate.	1	condition to require development and implementation of management plans	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
10	Will consult with the Tahltan Central Council on all draft permits and management plans, consistent with the conditions of the Participation Agreement.	1	Condition requiring a consultation plan	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
821	Erosion and Sediment Control Plan [will be developed].	1	Condition to require development and implementation of erosion and sediment control mitigation (in CEMP)	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
824	Fish and Fish Habitat Management Plan [will be developed].	1	Condition to require development and implementation of fish and fish habitat mitigation (in CEMP)	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments	Table 15.1-2
832	Spill Contingency and Emergency Response Plan [will be developed].	1	Condition to require development and implementation of spill contingency measures (in CEMP). Emergency response to be addressed by permitting.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments	Table 15.1-2
848	Waste Management Plan [will be developed and implemented].	1	Condition to require development and implementation of waste management mitigation (in CEMP)	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments	Table 15.1-2

5.2.15. Visual and Aesthetic Resources

The EAC Application assessed changes to scenic viewsheds, open vistas, and attractive human-made settings from approved Project activities (Section 7.16 of the EAC Application). For this amendment, the following proposed Project changes were assessed to have no interaction: the SWMB (◇), relocation of Isbā Camp (◇), and varying camp capacity (◇)

Construction, operation, and decommissioning of the proposed Project changes are not anticipated to interact with this VEC because, to date, no scenic areas have been formally established in the Project area, thereby precluding an interaction (noting that the Iskut and Stikine river valleys were identified as potential scenic areas in the CIS-LRMP, but they have not yet been designated as such under the Forest Practices Code (Figure 7.16-1 in the EAC Application).

Overall, the proposed Project changes are not expected to interact with scenic viewsheds, much less alter the EAC Application's characterization of residual effects in a way that would change the significance determination. Accordingly, **no further assessment** of the Project's effects on the Visual and Aesthetic Resources VEC is warranted.

5.2.16. Navigable Waters

The EAC Application assessed interference with navigable waters from approved Project activities. For this amendment, the following proposed Project changes have been assessed to either have no interaction, or have an interaction that does not warrant further assessment: the SWMB (◇), relocation of Isbā Camp (◇), and varying camp capacity (◇) (Section 7.18 of the EAC Application).

The *Canadian Navigable Waters Act* (1985) is a federal law that regulates the use and development of navigable waters in Canada. The Act establishes a list, known as the "Schedule," of all navigable waters under federal jurisdiction. If a watercourse is listed in the Schedule or meets the definition of "navigable waters", it must be managed accordingly. Per the *Canadian Navigable Waters Act* (CNWA) (1985), "navigable water" is defined as:

"a body of water, including a canal or any other body of water created or altered as a result of the construction of any work, that is used or where there is a reasonable likelihood that it will be used by vessels, in full or in part, for any part of the year as a means of transport or travel for commercial or recreational purposes, or as a means of transport or travel for Indigenous peoples of Canada exercising rights recognized and affirmed by section 35 of the Constitution Act, 1982, and

- a) there is public access, by land or by water;
- b) there is no such public access but there are two or more riparian owners; or
- c) Her Majesty in right of Canada or a province is the only riparian owner."

Construction, operation, and decommissioning of the SWMB within the Access Development Corridor has the potential to interact with navigable waters because the route requires a number of watercourse crossings to be built, which, if built incorrectly, could interfere with the public's ability to navigate. However,

"within the study area there is limited human use of surface water as a resource or for navigation. The Scud, Iskut, Porcupine and Stikine rivers are used to varying extents for navigation, but Galore Creek, More Creek and Sphaler Creek are steep-sided mountain streams with limited access for river craft. Furthermore, there are natural barriers to movement on Sphaler Creek, at the mouth of More Creek, and at More Canyon." (Section 7.18 in the EAC Application).

Therefore, there is a low likelihood that navigable waters will be encountered along the proposed SWMB, precluding interaction with this VEC. Nonetheless, if navigable waters are encountered, the application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process related to navigable waters are considered sufficient to address effects arising from the proposed Project changes. Key mitigation measures considered in this analysis include those identified

in Table 17, which identifies the current EAC commitments and how they are proposed to be addressed via the modernization.

Overall, the potential interactions and associated adverse effects remain unchanged from those considered in the Project's EAC Application. Consequently, the proposed Project changes are not anticipated to change the EAC Application's characterization of residual effects in a way that would change the significance determination. Accordingly, **no further assessment** of the Project's effects on the Navigable Waters VEC is warranted.

Table 18. Modernized Mitigation Measures for Effects on Navigable Waters.

cDB #	Current Commitment Text	Category	Category Rationale	Source Document Name	Section
87	Will design the watercourses and the diffuser to accommodate navigable water requirements.	3	Construction in proximity to navigable waters, if any, will be managed in consultation with regulatory agencies under CNWA.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
1087	5.12.1.9 Navigable Water Crossings The Galore Creek mine access road will cross several significant rivers and streams. Although NovaGold has been unable to establish a history of navigation on these watercourses, the proposed bridges will accommodate potential water-borne traffic. Bridge designs allow a minimum of 1.5 m between the lowest elevation of the bridge deck structure and the projected elevation of the 200 year flood, unless geotechnical issues required additional clearance. Several bridges will require multiple spans. Bridge in-stream piers will be placed in areas of contemporary gravel bars or similar flow interruptions to minimize impacts to water-borne traffic. General arrangement drawings for all bridges will be provided for project permitting.	3	Construction in proximity to navigable waters, if any, will be managed in consultation with regulatory agencies under CNWA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.9

5.3. Ranking Rationale for Section 25 Matters

The following subsections provide the rationale for the interaction rankings assigned in Table 6 for Section 25 Matters.

5.3.1. a) Positive and Negative Effects of the Project

Positive and negative direct and indirect effects of the proposed Project changes, including environmental, economic, social, cultural, and health effects and adverse cumulative effects have been considered as part of the identification of potential interactions (Table 6) and throughout Sections 5.2 and 5.3 where the interaction ranking rationale is provided, as well as in Section 7 of this Amendment Application. An explanation of potential positive effects from the proposed Project changes was only provided for individual VECs if the benefits were considered non-negligible, whereas general benefits of this Amendment Application are described in Section 2.6.

5.3.2. b) Risks and Uncertainties

Risks and uncertainties associated with the assessment of potential effects of the proposed Project changes, including the results of any interaction between effects, was considered as part of the identification of potential interactions (Table 6) and throughout Sections 5.2 and 5.3 where the interaction ranking rationale is explained, as well as in Section and 7. Risks and uncertainties were also considered if further assessment was provided (e.g., Sections 6 and 7, as appropriate).

5.3.3. c) Accidents and Malfunctions

The EAC Application evaluated the probability, potential magnitude, and likelihood of accidents and malfunctions from approved Project activities (Section 13 in the EAC Application). Risks associated with the newly proposed re-alignment of the Access Road now include the SWMB (◆), relocation of Isbā Camp (◆), or varying camp capacity (◆)

While construction, operation, and decommissioning of the proposed Project changes have the potential for unplanned accidents and malfunctions to occur, none of the evaluations completed in the EAC Application would be altered, negating the need for further assessment.

More specifically, a risk evaluation, led by Hatch Associates, during the EA included the identification of conceivable technical, environmental, health and safety, costs, schedule, legal and regulatory and corporate reputation issues. Given that the proposed changes involve analogous activities (e.g., road building, use of industrial equipment, and installation of infrastructure; see Section 13.2.2.4 in the EAC Application for a list of areas included in the risk evaluation, and Table 13.2-5 for the completed risk worksheet), previous risk evaluations and the associated mitigation measures are still valid and applicable today.

Overall, the nature and scope of the proposed Project changes do not warrant updating the risk assessment conducted as part of the EA process. Accordingly, **no further assessment** of the Project's potential for Accidents and Malfunctions is warranted.

5.3.4. d) Distinct Populations

The EAC Application assessed effects on socio-economic VECs from approved Project activities. The EAC Application provides a disaggregated assessment of socio-economic effects (Section 7.15 of the EAC Application) on Tahltan members across nine socio-economic VECs⁸ and substantially meets Section 25(2)(d) assessment requirements. However, the EAC Application does not contemplate disproportionate effects on gender diverse populations, as this is a recent addition to the scope of Environmental Assessments in BC.

⁸ Economic Development, Employment Opportunities, Employment Incomes, Business Opportunities, Community Health, Education, Cultural Strengthening/Tahltan Culture, Communications, and Traffic.

For this amendment, the following proposed Project changes were assessed to have no interaction, the SWMB (◇), relocation of Isbā Camp (◇), or varying camp capacity (◇), because interactions with socio-economic VECs would stem from changes in workforce size; however, proposed Project changes do not alter the construction workforce, as contemplated in EAC Application to support Access Development activities.

While the EAC Application does not assess disproportionate effects on gender diverse populations, it is known that a clear disparity in existing employment and education among genders is observed across communities affected by the Project (Statistics Canada 2022a), and the potential disproportionate realization of Project employment could perpetuate income inequalities across genders observed in the mining and construction sectors.

To increase the equitable distribution of Project benefits across genders, GCMC is committed to:

- Develop and implement gender equity and diversity policies that target the hiring and training of Tahltan Members and women to increase project employment among underrepresented populations. These policies will inform any new and existing human resource and employment mitigation measures under the Project Participation Agreement.

Given the lack of interaction with the proposed Project changes, and in consideration of the newly proposed mitigation measure concerning equitable distribution of Project benefits across genders, **no further assessment** of Section 25 Matter d)—distinct populations, is warranted.

5.3.5. e) Effects on Biophysical Factors Supporting Ecosystem Function

The EAC Application assessed individual VECs that contribute to ecosystem function; however, did not assess effects on biophysical factors that support ecosystem function as a standalone topic. The assessment of ecosystem function (i.e., how different physical, chemical, and biological VECs or common processes might interact with each other) is a recent addition to the scope of EAs in BC (BC EAO 2021c), and was not required at the time the Project's EAC Application was submitted in 2006.

In terms of this amendment, the proposed Project changes are small relative to the overall assessment of any single VEC, noting that no VEC was ranked as warranting further assessment.

Despite the absence of a prior assessment of ecosystem function, the application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process at the VEC level will aid in minimizing adverse effects to ecosystem function. To address the current regulatory guidelines, further assessment of ecosystem function will be provided as part of a major amendment planned for 2024. This major amendment is projected to require further assessment of VECs, and thereby a more practical time to apply a fulsome analysis of ecosystem function.

5.3.6. f) Current and Future Generations

The EAC Application considered various topics related to current and future generations; however, did not explicitly address effects to current and future generations as a standalone matter, as this is a recent addition to the scope of Environmental Assessments in BC. That said, consideration of Project effects on current and future generations was provided in combination through Sections 1.3.9.4 (Sustainability Principles – Social), 1.3.9.5 (Sustainability Principles – Economic), 1.5.4 (Project Rationale – Implications for Regional, Provincial and National Economies), 2.5 (Regional Land Use Planning Process), 6.15 (Traditional Land Use), and 7.15 (Socio-Economic Effects Assessment). When considered collectively, these sections meet the assessment criteria for Section 25 Matter (f) with respect to current and future generations (BC EAO 2020c).

For this amendment, social and economic benefits of the Project on the Tahltan, neighboring communities, and regional, provincial, and national economies as described in Sections 1.3.9.4, 1.3.9.5, and 1.5.4 of the

EAC Application remain unchanged as a result of proposed Project changes as benefits stem from overall expenditures, labour demand, and operation of the Project; and with total road construction workforce not to exceed the approved total capacity of 1,640 persons. Overall, Project employment is unchanged.

Similarly, given potential interactions of proposed Project changes on socio-economic VECs (Section 5.2.13), and Section 25 Matters (d) (Section 5.3.7) and (g) (Section 5.3.3), EAC Application conclusions presented in Sections 2.5 and 7.15 remain unchanged. As such, interactions between proposed Project changes and current and future generations are considered analogous to those evaluated in the EAC Application and **no further assessment** of Section 25 Matter f)—current and future generations, is warranted.

5.3.7. g) Consistency with Land Use Plans

The EAC Application considered consistency of the Project with existing land use plans, per Section 2.5—Regional Land Use Planning Process. For this amendment, proposed Project changes do not alter the physical activities contemplated in the EAC Application and do not change the land use classification of the Project (i.e., mine and supporting infrastructure). Accordingly, **no further assessment** of Section 25 Matter g)—consistency with land use plans, is warranted.

Consistency of the proposed Project changes with Indigenous Nation land use plan is discussed in Section 7 of this Amendment Application, as appropriate.

5.3.8. h) Greenhouse Gas Emissions

As outlined in Section 5.2.1, the EAC Application assessed changes to climate and greenhouse gas emissions from the proposed Project changes. The small incremental increase in emissions represent a small fraction of the total facility-level emissions and would therefore have a negligible effect on the province being able to meet its targets under the *Greenhouse Gas Reduction Targets Act* (2007).

Overall, the potential interactions and associated adverse effects are either identical or closely resemble those considered in the Project's EAC Application. The application of modernized mitigation measures proposed to be in the EAC, management plans and permitting via the modernization process including the comprehensive range of management plans, are sufficient to address potential effects arising from the proposed Project changes. Consequently, the proposed Project changes are not anticipated to change the EAC Application's characterization of residual effects in a way that would change the significance determinations, nor meaningfully affect the Province's ability to meet its emission targets. Accordingly, **no further assessment** of Section 25 Matter h)—the Project's contribution to greenhouse gas emissions, is warranted.

5.3.9. i) Alternative Means of Carrying Out the Project

Alternative means of carrying out the Project were previously assessed in Section 11 of the EAC Application. The proposed Project changes do not interact with alternative means of carrying out the Project, including: mining methods, mineral processing, tailing storage and management alternatives, waste rock storage alternatives, effluent discharge alternatives, water supply alternatives, concentrate management and transportation alternatives, Employee transportation and accommodation alternatives, and so on. However, the proposed Project changes do relate to the Access Road alternatives and the location of infrastructure (sections 11.1 and 11.2, respectively of the EAC Application) but are not of sufficient magnitude to warrant further assessment. Overall, previous analyses concerning Section 25 matter d)—alternative means to carry out the Project, remain unchanged and valid, indicating that **no further assessment** is warranted.

5.3.10. j) Effect of the Environment on the Project

The EAC Application considered the effects of the environment on the Project in Section 12. For this amendment, the proposed Project changes do not alter how the environment may affect the Project. For

instance, the proposed Project changes are not expected to modify how droughts, storms, extreme temperatures, forest fires, climate change, and seismic and volcanic activity (Section 12 in the EAC Application) could influence the Access Road or camps. The fundamental nature of these Project components remains the same as was assessed in the EAC Application (granted, relocating Isbā Camp and inclusion of the SWMB may reduce the risk from some environmental impacts, including rock and snow avalanches). As a result, previous analyses concerning Section 25 matter j)—the effects of the environment on the Project, remain unchanged and valid, indicating that **no further assessment** is warranted.

6. EFFECTS ASSESSMENT

Based on the interaction ranking rationales provided in Section 5, no further assessment of the proposed Project changes on VECs or Section 25 Matters is warranted.

7. INDIGENOUS INTERESTS

The following sections pertain to Indigenous Interests, specifically the interests of the Tahltan Nation, as related to the Access Development for the Galore Creek Project. The proposed Project and Access Road is located entirely within Tahltan Territory and does not overlap with the territories of any other Indigenous Nations.

7.1. Tahltan Interests

GCMC engages regularly with the Tahltan Central Government (TCG), which is the central administrative body for the Iskut and Tahltan Bands and represents the Tahltan Nation regarding the Project. The Project underwent assessment an environmental assessment under BC EAA (2002) and the Canadian Environmental Assessment Act (1992), which resulted in an EAC issued in 2007 and the Federal Decision Statement issued in 2007. The Government of Canada documented its assessment in the “*Comprehensive Study Report With Respect to The Requirements of a Comprehensive Study Pursuant to the Canadian Environmental Assessment Act*, S.C 1992, c. 37 (2007)” where potential effects of the Access Road were previously assessed.

Within the Comprehensive Study Report (2007), the following Tahltan comments were noted:

“During the review of the Application (for Environmental Assessment Certificate), the Tahltan Central Council [now TCG] noted consultations with the Crown were not up to the standard because the environmental assessment process did not adequately address Tahltan concerns related to the assessment of social and cultural impacts.

“To respond to the Tahltan’s concerns about socio/cultural effects assessment, EAO is participating on (sic) a Socio/Cultural Working Group established as part of the Tahltan-B.C. reconciliation table to: discuss existing processes for addressing potential socio-cultural effects of proposed resource developments within the Tahltan traditional territory [now referenced as Tahltan Territory], and identify the Tahltan’s interests in socio-cultural effects assessment in environmental assessment reviews. EAO anticipates these discussions will lead to improvements in social cultural effects assessments for reviews of other proposed projects in the Tahltan traditional territory.”

The importance of engagement with TCG to understand and manage impacts was noted clearly in comments from Tahltan in 2007. Since 2007, TCG has provided guidance on its expectations regarding the assessment of social and cultural impacts, and for other impacts caused by resource development projects in Tahltan Territory, including those described in the following documents and during various engagements:

- Tahltan-Galore Creek Participation Agreement (2006; confidential), which supports the Tahltan Nation’s principles of environmental stewardship, economic sustainability, and self-determination, and commits the parties to working collaboratively through EA review and permitting processes for Galore Creek.

- Tahltan Impact Assessment Policy (2021), which was shared with GCMC in the context of Project-related engagement in 2022. The Impact Assessment Policy (2021) describes (among other things) Tahltan Values as they relate to assessment of proposed projects in Tahltan Territory.
- The Declaration Act Consent Decision-Making Agreement for Eskay Creek Project (2022), which describes the decision-making process to be shared by Tahltan and the Province of British Columbia for assessing impacts of the Eskay Creek Revitalization Project in Tahltan Territory. This agreement, the first of its kind in British Columbia, is understood to lay out Tahltan expectations for assessing impacts for other projects in Tahltan Territory, such as the Galore Creek Project.
- The Hybrid Application Information Requirements for the Eskay Creek Revitalization Project (2023), which (among other things) provide more extensive information on Tahltan Values than is contained in the Tahltan Impact Assessment Policy (2021), and as such may supplement or even supersede the Tahltan Impact Assessment Policy (2021).
- Ongoing engagement between TCG and GCMC over the period 2007-2023, during which time TCG shared its views on the Project, Tahltan Values, and assessment of impacts of projects in Tahltan Territory.
- Results of Socio/Cultural Working Group meetings between TGC and BC EAO, as directed by TCG and BC EAO.
- Other documents, as directed by TCG.

In regard to this proposed EAC amendment, as described above Sections 5.2 and 5.3, the potential interactions and associated adverse effects of the proposed Project changes are analogous to those considered in the Project's EAC Application--the modernized mitigation measures are sufficient to address effects. The proposed Project changes are not anticipated to alter the EAC Application's characterization of residual effects in a way that would change the significance determinations. Further Project changes are not anticipated to result in material adverse impacts on the Tahltan Nation, or the Tahltan Territory from those predicted in the EAC Application.

To continually inform GCMC's understanding of Tahltan Indigenous Interests as the Project advances, GCMC is committed to ongoing collaboration and meaningful engagement with TCG.

8. CONCLUSION

This EAC Amendment Application supports GCMC's planned Access Development construction by modernizing the Access Development components of the approved EAC to develop a shared interpretation of the Project's EAC requirements. This Application assesses three proposed Project changes: the South West More Bypass, relocation of Isbā Camp, and variable camp capacities, not exceeding the total approved camp capacity for the Project (i.e., 1,640 beds) at any given time. As described in this Application, the proposed Project changes are not anticipated to alter the significance determinations presented in the EAC Application. The anticipated effects are analogous to those previously assessed such that modernized mitigation measures will be sufficient to address potential residual effects.

8.1. Partial EAC Modernization

Given the challenges of interpreting and complying with an 'old style' EAC, this Amendment Application seeks to modernize the Access Development related commitments within the EAC. While the remainder of the EAC will continue to remain in effect as written until a full modernization as part of a future amendment, the Access Development commitments would be modernized through the development of an updated TOC, new CPD and consideration during the permitting and management planning processes. The intent is to develop a common understanding and interpretation of Access Development related EAC requirements.

8.2. Valued Ecosystem Components

This Application considers three proposed Project changes and the potential effects on the same VECs assessed in the original EAC Application (NovaGold 2006). These VECs include:

- Climate;
- Air quality;
- Noise;
- Surface water;
- Groundwater;
- Sediment;
- Aquatic resources;
- Fish and fish habitat;
- Wetlands;
- Terrestrial Ecosystems, Vegetation, and Soil Landscape;
- Wildlife and Wildlife Habitat;
- Archaeology;
- Socio-Economic;
- Country Foods;
- Visual and Aesthetic Resources; and
- Navigable waters.

Through this assessment, it was determined that the proposed Project changes will not alter the determinations of significance presented in the EAC Application.

8.3. Section 25 Matters

Since the original EAC Application, the *Environmental Assessment Act* has been updated, including the addition of Section 25 Matters. While some of these matters were not explicitly assessed in the Project's EAC Application, in some cases the EAC Application contemplated these or similar topics. Given the anticipated effects are analogous to those assessed in the EAC Application, following application of the modernized mitigation, no Section 25 matters were identified as requiring further assessment nor are anticipated to alter the conclusions of the EAC Application.

8.4. Indigenous Interests

Project changes will not alter the determinations of significance presented in the EAC Application and are not anticipated to result in material adverse impacts on the Tahltan Nation, or the Tahltan Territory from those predicted in the EAC Application.

GCMC is committed to ongoing collaboration and meaningful engagement with TCG.

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APPENDICES

Appendix A. Categorized Access-Development EAC Application Commitments

Table A1. List of Documents Reviewed in Search of Access-Development EAC Application Commitments

Table A2. Categorized Access-Development EAC Application Commitments

Table A3. EAC Application Commitments not Relevant to Access-Development

Appendix A. Galore Creek Project - Access Development EAC Modernization - Commitment Categorization

Date: July 21, 2023

Purpose:

GCMC will be seeking an EAC amendment to support access development, including partial modernization of the EAC. The overall intent is to provide clarity for all parties regarding access development requirements, and to be consistent with EAO's current drafting approach of a table of conditions and a certified project description supported by management plans. This spreadsheet includes access development commitments from the EAC which GCMC is seeking to modernize as a component of the Access Development Amendment. It includes a proposed set of categories (see below) and rationale to support the BC EAO's and Tahltan's review of the proposed modernization process.

Methods:

GCMC is in progress of categorizing the access development commitments, and has proposed categories similar to what was contemplated in the procedures issued by EAO for the modernization of the Kitimat LNG project (e.g., columns named "Category" and "Category Rationale"). Example commitments (n = 39) categorized using this approach was provided to the EAO on April 10, 2023. A meeting was held with the EAO on April 20, 2023 to seek feedback on categorization, and in response to comments received, the following columns were added: "Project Component (i.e., Topic)", "Priority", and "Disclaimer Commitments". The current file has 687 commitments in it ("Categorized Access-Development EAC Application Commitments").

Table A1: List of Document Reviewed

Table A1 identifies the 2007 EAC documents that were reviewed to prepare the commitments database.

Table A2: Categorized Access-Development EAC Application Commitments

The Categorized Access-Development EAC Application Commitments includes the full list of categorized commitments that are considered relevant to Access Development. Note that commitments considered not relevant to Access Development are shown on Table A3 "EAC Application Commitments not Relevant to Access-Development." (an explanation is provided below, after columns are described).

Column named: "Commitment Database Number"

Unique identifier for each commitment entered into the commitments database.

Column named: "Project Component" (i.e., Topic)

EAO Comment: On April 20, 2023, BC EAO requested commitments be categorized by topic.

GCMC Response: The "Full List of Commitments" tab includes "Column- B - Project Component". For this column, we are currently working with 14 categories, as follows:

- Air Quality
- Freshwater Fish
- General
- Groundwater
- Housing and Accommodation
- Human Health
- Indigenous Nation Identified Valued Components
- Infrastructure and Services
- Land and Resource Use
- Soil
- Surface Water
- Transportation Infrastructure
- Vegetation
- Wildlife

Additionally, topic-specific tabs are included in an excel file provided sepearate from this Amendment Application. These were populated using a keyword search of Table A2 "Categorized Access-Development EAC Application Commitments"

Column named: "Commitment Text"

Commitment text copied from the documents attached to the EAC.

Column named: "Category"

Categories assigned include the following:

- Category 1: Inclusion in the amended EAC as a new condition;
Category 2: Inclusion in the amended EAC as a component of a Certified Project Description;
Category 3: Referred to permitting agencies for potential consideration in their regulatory process(es)*;
Category 4: Inclusion in a management plan to be required by the amended EAC; or
Category 5: Not relevant/applicable.

* These categories are consistent with the EAO issued procedures for modernizing the Kitimat LNG EAC, with the addition of the proposed category relating to permitting. GCMC understands that permitting authorities need to be unfettered in their consideration of relevant matters in statutory decisions, so the purpose of this category is to indicate that this is a theme/topic typically addressed by other

Column named: "Category Rationale"

Brief explanation for selected category

Column named: "Source Document File Name"

EAC document from which commitment text was copied.

Column named: "Section"

EAC document section from which commitment text was copied.

Column named: "Applicability to Access Development"

This column indicates whether the commitment is relevant to this initial partial modernization for access development, or both partial modernization and the future major amendment, as follows:

- IM: Initial Modernization only
IM/MAM: both Initial Modernization and Major Amendment Modernization

Commitments identified as MAM only, are shown on Table A3 "EAC Application Commitments not Relevant to Access-Development".

Column named: "Disclaimer"

EAO Comment: On April 20, 2023, BC EAO requested GCMC identify commitments with a disclaimer.

GCMC Response: GCMC added a preliminary column ("Disclaimer") to identify commitments that constitute a caveat to what was contemplated in the EAC.
Column named "Priority" (with the priority level assigned based on source of the commitments (i.e., the "Source" column))

EAO Comment: On April 20, 2023, BC EAO requested GCMC consider the importance/prioritization of the conditions/commitments.

GCMC Response: The "Priority" column prioritizes commitments based on "Source" column, as follows:

- Priority 1: EAC condition
o These conditions would be critical to consider in the updated EAC/TOC, however there are none included in the database as they are all conditions that either are addressed by EAO's current EAC template OR that have been determined to no longer be appropriate/relevant to include in EACs.
Priority 2: Table of Commitments attached to EAC
o These commitments would be high priority to address in the TOC, CPD or management plans, unless clearly addressed by permitting or no longer applicable
Priority 3: EA Supplementary Information
o EA Supplementary Information includes information sources listed in Schedule A of the EAC. Many of the statements within these source documents were preliminary and intended to provide context for the assessment, and were not intended for enforcement.
Priority 4: EA Application
o Many of the statements within the Application were preliminarv and intended to provide context for the assessment. and were not intended for enforcement.

Column named "Comments for BC EAO"

Comments for BC EAO consideration

Tabs named : "Access Road", "Camps", "Crossings", "Tunnel", and "Staging, Borrow, Laydown" are provided as a separate excel file

EAO Comment: On April 20, 2023, BC EAO requested commitments be categorized by topic.

GCMC Response: Topic-specific tabs have been generated. Each tab was generated using a keyword search, often consisting of multiple words (i.e., a set of keywords) (see Table 1: Keyword Search, below) of the "Categorized Access-Development EAC Application Commitments" table. Where a commitment contains keywords used for multiple topics, it will appear on more than one tab. Where a commitment does not contain keywords, it will only be found within the "Categorized Access-Development EAC Application Commitments" table. Each tab includes the columns as described above for the "Categorized Access-Development EAC Application Commitments" table. These are provided in an excel file separate from the Amendment Application.

Table 1: Keyword Search

Topic/Tab	Keyword	Hits*
Access Road	access road	103
	road	216
	alignment	38
	corridor	37
	route	36
Camps	camp	69
	accommodation	5
Crossings	bridge	44
	span	11
	culvert	29
	crossing	62
Tunnel	tunnel	73
	portal	32
Staging, Borrow, and Laydown Areas	staging	10
	laydown	6
	pile	5
	stockpile	11
	gravel pit	4
	quarries	4
	Waste rock that cannot borrow	1
		10
NOTE: Multiple keyw ords may capture (i.e., "hit") the same commitment since keyw ord searches are independent of each other.		

Table A3 named: EAC Application Commitments not Relevant to Access-Development.

Table A3 "EAC Application Commitments not Relevant to Access-Development." includes commitments that are not considered relevant to Access Development. These commitments have not been categorized. Categorization of these commitments is planned for the Major Amendment Modernization.

Table A1. List of Documents Reviewed in Search of Access-Development EAC Application Commitments.*Table A1-1. Schedule A - Application and Supporting Documents.*

Number	Date	Document Title	Reviewed ¹
1	June 2006	Application for an Environmental Assessment Application for the Galore Creek Copper-Gold-Silver Project (Volumes 1 — 16) submitted by NovaGold Canada Inc.	Yes
2	July 31, 2006	Report from Iain G. Bruce (BGC Engineering Inc.) to Dean Lindsay (NovaGold Canada Inc.) entitled "Galore Creek Project Open Pit Slope Design - Feasibility Geotechnical Report"	
3	August 17, 2006	Email from Dianna Stoopnikoff (NovaGold Canada Inc.) to Nicole Vinette (Environmental Assessment Office) identifying change to the location of the filter plant.	
4	September 7, 2006	Report entitled "Water Quality Model Predictions Total and Dissolved Metals" submitted by NovaGold Canada Inc.	
5	September 7, 2006	Report entitled "Porcupine River Floodplain Delineation near the Proposed Aerodrome Facility" submitted by NovaGold Canada Inc.	
6	September 7, 2006	2006 Report entitled "Galore Creek Human Health Effects Assessment" submitted by NovaGold Canada Inc.	
7	September 22, 2006	Report from Iain G. Bruce (BGC Engineering Inc.) to Dean Lindsay entitled "Galore Creek Project Plant Site Design - Feasibility Geotechnical Report"	
8	September 26, 2006	Report entitled "Overland Pipelines Detailed Feasibility Study" by PSI submitted by NovaGold Canada Inc.	Yes
9	November 2006	Report entitled "Galore Creek Project: Post Closure Long-Term Water Quality Predictions (without mitigation)" submitted by NovaGold Canada Inc.	
10	November 1, 2006	Letter from Dianna Stoopnikoff (NovaGold Canada Inc.) to Anne Currie (Environmental Assessment Office) identifying changes to construction camps	Yes
		attachment: Figure 1.	Yes
11	November 14, 2006	Memo report entitled "Galore Creek Tailings Dam Geologic Condition" submitted by NovaGold Canada Inc.	
12	November 20, 2006	Report entitled "Revised Tunnel Alignment and Related Geotechnical Investigations" submitted by NovaGold Canada Inc.	Yes ²
13	December 6, 2006	Report entitled "Galore Creek Project Interior Grizzly Bear Cumulative Effects Assessment" submitted by NovaGold Canada Inc.	
14	December 13, 2006	Report "Installation of the Diffuser in the Iskut River for Discharge of Treated Concentrate Water" submitted by NovaGold Canada Inc.	
15	December 2006	Report entitled "Galore Creek Conceptual Fish Habitat Compensation Plan" submitted by NovaGold Canada Inc.	

NOTES:

¹ Blank cells indicate unreviewed documents.² The following sections were reviewed: 2.1, 2.6, 3.0, 9.1.2, 9.2.3.4, 9.2.4.3, 9.2.4.6, 10.1.

Table A1. List of Documents Reviewed in Search of Access-Development EAC Application Commitments.*Table A1-2. Environmental Assessment Application for the Galore Creek Project, 2006.*

Volume	Chapter and Title or Reference	Reviewed ¹
NA	NovaGold. 2006a. Environmental Assessment Certificate for the Galore Creek Copper-Gold-Silver Project (Volumes 1 - 16). June.	Yes ²
NA	Executive Summary - Application for an Environmental Assessment Certificate for the Galore Creek Project submitted by NovaGold Canada Inc to Anne Currie (EAO) June 2006.	
Volume 1		
Vol 1	Preface	
Vol 1	Table of Concordance	
Vol 1	Table of Contents	
Vol 1	Document Map	
Vol 1	Chap 1 - Introduction	
Vol 1	Chap 2 - Regulatory Framework	
Vol 1	Chap 3 - Consultation	
Vol 1	Chap 4 - Valued Ecosystem Components	
Vol 1	Chap 5 - Project Description - Pg 1-143	Yes
Vol 1	Chap 5 - Project Description - Pg 144-235	Yes
Vol 1	Chap 5 - Project Description - Pg 236-286	Yes
Vol 1	Chap 6 - Environmental & Socio-Economic Setting - Pg 1-37	
Vol 1	Chap 6 - Environmental & Socio-Economic Setting - Pg 38-115	
Vol 1	Chap 6 - Environmental & Socio-Economic Setting - Pg 116-173	
Vol 1	Chap 6 - Environmental & Socio-Economic Setting - Pg 174-211	
Vol 1	Chap 6 - Environmental & Socio-Economic Setting - Pg 212-265	
Vol 1	Chap 6 - Environmental & Socio-Economic Setting - Pg 266-274	
Vol 1	Appendix F – Summary of NovaGold Canada Inc.'s commitments for the galore creek copper-gold-silver project.	Yes
Volume 2		
Vol 2	Table of Contents	
Vol 2	Vol 2 - Ch 7 - Environment & Socio-Economic Effects Assessment - Pg 131-169	
Vol 2	Vol 2 - Ch 7 - Environment & Socio-Economic Effects Assessment - Pg 170-221	
Vol 2	Vol 2 - Ch 7 - Environment & Socio-Economic Effects Assessment - Pg 1-83	
Vol 2	Vol 2 - Ch 7 - Environment & Socio-Economic Effects Assessment - Pg 222-301	
Vol 2	Vol 2 - Ch 7 - Environment & Socio-Economic Effects Assessment - Pg 302-405	
Vol 2	Vol 2 - Ch 7 - Environment & Socio-Economic Effects Assessment - Pg 407-578	
Vol 2	Vol 2 - Ch 7 - Environment & Socio-Economic Effects Assessment - Pg 579-745	
Vol 2	Vol 2 - Ch 7 - Environment & Socio-Economic Effects Assessment - Pg 85-129	
Vol 2	Document Map	

NOTES:

¹ Blank cells indicate unreviewed documents.² Some documents have not been reviewed; but those considered high priority have been reviewed.

Table A1-2. Environmental Assessment Application for the Galore Creek Project, 2006.

Volume	Chapter and Title or Reference	Reviewed ¹
Volume 3		
Vol 3	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150	Yes
Vol 3	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309	Yes
Vol 3	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351	Yes
Vol 3	Vol 3 - (FR) - Chap 9 - Cumulative Effects Assessment - Pg 1-52	-
Vol 3	Vol 3 - (FR) - Chap 9 - Cumulative Effects Assessment - Pg 53-77	-
Vol 3	Chap 10 - Environment Effects Monitoring & Follow-up Program	Yes
Vol 3	Vol 3 - (FR) - Chap 11 - Analysis of Alternatives	-
Vol 3	Vol 3 - (FR) - Chap 12 - Effects of the Environment on the Project	-
Vol 3	Vol 3 - (FR) - Chap 13 - Accidents and Malfunctions - Pg 1-46	-
Vol 3	Vol 3 - (FR) - Chap 13 - Accidents and Malfunctions - Pg 47-60	-
Vol 3	Vol 3 - (FR) - Chap 13 - Accidents and Malfunctions - Pg 61-70	-
Vol 3	Vol 3 - (FR) - Chap 13 - Accidents and Malfunctions - Pg 71-76	-
Vol 3	Vol 3 - (FR) - Chap 14 - Mine Closure and Reclamation	-
Vol 3	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments	Yes ²
Vol 3	Vol 3 - (FR) - Chap 16 - Conclusions	-
Vol 3	Vol 3 - (FR) - Chap 17 - Glossary, Acronyms and Units of Measure	-
Vol 3	Vol 3 - (FR) - Chap 18 - References	-
Vol 3	Vol 3 - (FR) - Table of Contents	-
Vol 3	Vol 3 - Final Report (FR) - Document Map	-
Volume 4		
Vol 4	Vol 4 - Final Report (FR) - Appendices - App 3-A - Project Overview #1	Yes
Vol 4	Vol 4 - Final Report (FR) - Appendices - App 3-B - Project Overview #2	Yes
Vol 4	Vol 4 - Final Report (FR) - Appendices - App 3-C - Project Overview #3	Yes
Vol 4	Vol 4 - Final Report (FR) - Appendices - App 3-D - Project Overview #4	Yes
Vol 4	Vol 4 - Final Report (FR) - Appendices - App 3-E - Project Overview #5	Yes
Vol 4	Vol 4 - Final Report (FR) - Appendices - App 3-F - Project Overview #6	Yes
Vol 4	Vol 4 - Final Report (FR) - Appendices - App 5-A - ML/ARD Chara Rprt - Pt 1	-
Vol 4	Vol 4 - Final Report (FR) - Appendices - App 5-A - ML/ARD Chara Rprt - Pt 2	-
Vol 4	Vol 4 - Final Report (FR) - Appendices - App 5-A - ML/ARD Chara Rprt - Pt 3	-
Vol 4	Vol 4 - Final Report (FR) - Appendices - List of Appendices	-
Volume 5		
Vol 5	Vol 5 - Final Report (FR) - Appendices - App 5-A - ML/ARD Chara Rprt - Pt 4	-
Vol 5	Vol 5 - Final Report (FR) - Appendices - App 5-A - ML/ARD Chara Rprt - Pt 5	-
Vol 5	Vol 5 - Final Report (FR) - Appendices - App 5-A - ML/ARD Chara Rprt - Pt 6	-
Vol 5	Vol 5 - Final Report (FR) - Appendices - App 5-B - G-T Tables Resource Est	-
Vol 5	Vol 5 - Final Report (FR) - Appendices - App 5-C - G-T Tables R & IDSR Ests	-
Vol 5	Vol 5 - Final Report (FR) - Appendices - App 5-D - Lithologic Codes	-
Vol 5	Vol 5 - Final Report (FR) - Appendices - List of Appendices	-

NOTES:

¹ Blank cells indicate unreviewed documents.² Table 15.1-2 was deliberately omitted because its content had already been entered into the Commitment Database from other sources (e.g., EAC list of commitments).

Table A1-2. Environmental Assessment Application for the Galore Creek Project, 2006.

Volume	Chapter and Title or Reference	Reviewed ¹
Volume 6		
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-E - Drawings - Part 1	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-E - Drawings - Part 2	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-E - Drawings - Part 3	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-E - Drawings - Part 4	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-E - Drawings - Part 5	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-E - Drawings - Part 6	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-E - Feas/Geohaz Assess Rprt	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-F - Prelim Economic Assess	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-G - Pilot Plant Test - Pt 1	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-G - Pilot Plant Test - Pt 2	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-G - Pilot Plant Test - Pt 3	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-G - Pilot Plant Test - Pt 4	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-G - Pilot Plant Test - Pt 5	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-G - Pilot Plant Test - Pt 6	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-G - Pilot Plant Test - Pt 7	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-G - Pilot Plant Test - Pt 8	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - App 5-H - Conceptual Design	-
Vol 6	Vol 6 - Final Report (FR) - Appendices - List of Appendices	-
Volume 7		
Vol 7	Vol 7 - Final Report (FR) - Appendices - App 5-I - Waste&Water Mgmnt - Pt 1	-
Vol 7	Vol 7 - Final Report (FR) - Appendices - App 5-I - Waste&Water Mgmnt - Pt 2	-
Vol 7	Vol 7 - Final Report (FR) - Appendices - List of Appendices	-
Volume 8		
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 1	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 10	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 11	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 12	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 13	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 3	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 4	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 5	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 6	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 7	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 8	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 9	-
Vol 8	Vol 8 - Final Report (FR) - Appendices - List of Appendices	-

NOTES:

¹ Blank cells indicate unreviewed documents.

Table A1-2. Environmental Assessment Application for the Galore Creek Project, 2006.

Volume	Chapter and Title or Reference	Reviewed ¹
Volume 9		
Vol 9	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	Yes
Vol 9	Vol 9 - Final Report (FR) - Appendices - App 5-L - Pwr Supply Study - Pt 1	-
Vol 9	Vol 9 - Final Report (FR) - Appendices - App 5-L - Pwr Supply Study - Pt 2	-
Vol 9	Vol 9 - Final Report (FR) - Appendices - App 5-L - Pwr Supply Study - Pt 3	-
Vol 9	Vol 9 - Final Report (FR) - Appendices - App 6-A - Meteorology/AQ/NB - Pt 1	-
Vol 9	Vol 9 - Final Report (FR) - Appendices - App 6-A - Meteorology/AQ/NB - Pt 2	-
Vol 9	Vol 9 - Final Report (FR) - Appendices - App 6-B - Mountain Goat Baseline	-
Vol 9	Vol 9 - Final Report (FR) - Appendices - App 6-C - Surface Hydrology - Pt 1	-
Vol 9	Vol 9 - Final Report (FR) - Appendices - App 6-C - Surface Hydrology - Pt 3	-
Vol 9	Vol 9 - Final Report (FR) - Appendices - App 6-C - Surface Hydrology - Pt 4	-
Vol 9	Vol 9 - Final Report (FR) - Appendices - App 6-C - Surface Hydrology - Pt 5	-
Vol 9	Vol 9 - Final Report (FR) - Appendices - List of Appendices	-
Volume 10		
Vol 10	Appendices - A List of Appendices	-
Vol 10	Appendices - App 6-D - 04 Aquatic Study - Pt 1	-
Vol 10	Appendices - App 6-D - 04 Aquatic Study - Pt 2	-
Vol 10	Appendices - App 6-D - 04 Aquatic Study - Pt 3	-
Vol 10	Appendices - App 6-D - 04 Aquatic Study - Pt 4	-
Vol 10	Appendices - App 6-E - 05 Aquatic Study - Pt 1	-
Vol 10	Appendices - App 6-E - 05 Aquatic Study - Pt 2	-
Vol 10	Appendices - App 6-E - 05 Aquatic Study - Pt 3	-
Vol 10	Appendices - App 6-E - 05 Aquatic Study - Pt 4	-
Vol 10	Appendices - App 6-E - 05 Aquatic Study - Pt 5	-
Vol 10	Appendices - App 6-E - 05 Aquatic Study - Pt 6	-
Vol 10	Appendices - App 6-E - 05 Aquatic Study - Pt 7	-
Vol 10	Appendices - App 6-E - 05 Aquatic Study - Pt 8	-
Volume 11		
Vol 11	Appendices - A List of Appendices	-
Vol 11	Appendices - App 6-E - 05 Aquatic Study - App1	-
Vol 11	Appendices - App 6-E - 05 Aquatic Study - App2	-
Vol 11	Appendices - App 6-E - 05 Aquatic Study - App3	-
Vol 11	Appendices - App 6-E - 05 Aquatic Study - App4	-
Volume 12		
Vol 12	Appendices - A List of Appendices	-
Vol 12	Appendices - App 6-E - 05 Aquatic Study - App5	-
Vol 12	Appendices - App 6-E - 05 Aquatic Study - App6	-
Vol 12	Appendices - App 6-E - 05 Aquatic Study - App7	-
Vol 12	Appendices - App 6-E - 05 Aquatic Study - App8	-

NOTES:

¹ Blank cells indicate unreviewed documents.

Table A1-2. Environmental Assessment Application for the Galore Creek Project, 2006.

Volume	Chapter and Title or Reference	Reviewed ¹
Volume 13		
Vol 13	Appendices - App 6-F - Environ Overburden Rprt	-
Vol 13	Appendices - App 6-G - Groundwater 2005 - Pt 1	-
Vol 13	Appendices - App 6-G - Groundwater 2005 - Pt 2	-
Vol 13	Appendices - App 6-G - Groundwater 2005 - Pt 3	-
Vol 13	Appendices - App 6-H - Wetland Baseline 2005	-
Vol 13	Appendices - App 6-I - Access Corr ARD - Pt 1	-
Vol 13	Appendices - App 6-I - Access Corr ARD - Pt 2	-
Vol 13	Appendices - App 6-J - Ecosystem & Vegetation	-
Vol 13	Appendices - App 6-K - Soil Survey - Pt 1	-
Vol 13	Appendices - App 6-K - Soil Survey - Pt 2	-
Vol 13	Appendices - App 6-K - Soil Survey - Pt 3	-
Vol 13	Appendices - App 6-K- Soil Map Fig 3.4-1	-
Vol 13	Appendices - App 6-K- Soil Map Letter	-
Vol 13	Appendices - List of Appendices	-
Volume 14		
Vol 14	Appendices - 6-L - Moose Studies	-
Vol 14	Appendices - 6-M - Grizzly Bear Study - Pt 1	-
Vol 14	Appendices - 6-M - Grizzly Bear Study - Pt 2	-
Vol 14	Appendices - 6-N - SmMammals/Bats/Herpetiles	-
Vol 14	Appendices - 6-O - Bird Studies - Pt 1	-
Vol 14	Appendices - 6-O - Bird Studies - Pt 2	-
Vol 14	Appendices - 6-P - Harlequin Duck & Waterfowl	-
Vol 14	Appendices - 6-Q - Habitat 6 Species - Pt 1	-
Vol 14	Appendices - 6-Q - Habitat 6 Species - Pt 10	-
Vol 14	Appendices - 6-Q - Habitat 6 Species - Pt 11	-
Vol 14	Appendices - 6-Q - Habitat 6 Species - Pt 2	-
Vol 14	Appendices - 6-Q - Habitat 6 Species - Pt 3	-
Vol 14	Appendices - 6-Q - Habitat 6 Species - Pt 4	-
Vol 14	Appendices - 6-Q - Habitat 6 Species - Pt 5	-
Vol 14	Appendices - 6-Q - Habitat 6 Species - Pt 6	-
Vol 14	Appendices - 6-Q - Habitat 6 Species - Pt 7	-
Vol 14	Appendices - 6-Q - Habitat 6 Species - Pt 8	-
Vol 14	Appendices - 6-Q - Habitat 6 Species - Pt 9	-
Vol 14	Appendices - List of Appendices	-

NOTES:

¹ Blank cells indicate unreviewed documents.

Table A1-2. Environmental Assessment Application for the Galore Creek Project, 2006.

Volume	Chapter and Title or Reference	Reviewed ¹
Volume 15		
Vol 15	Appendices - App 6-S - Socio-Economic - Pt 1	-
Vol 15	Appendices - App 6-S - Socio-Economic - Pt 2	-
Vol 15	Appendices - App 6-T - Country Foods Baseline	-
Vol 15	Appendices - App 7-A - Model Plan & Correspond	-
Vol 15	Appendices - App 7-B - CALPUFF Assessment	-
Vol 15	Appendices - App 7-C - Noise Summary Report	-
Vol 15	Appendices - App 7-D - Water Quality Model	-
Vol 15	Appendices - App 7-E - UBC Watershed Modelling	-
Vol 15	Appendices - App 8-A - Terrain Maps	-
Vol 15	Appendices - List of Appendices	-
Volume 16		
Vol 16	Vol 16 - Final Report (FR) - Appendices - App 13-A - HATCH Risk Review	-
Vol 16	Vol 16 - Final Report (FR) - Appendices - App 13-B - Geotech FMEA Risk Eval	-
Vol 16	Vol 16 - Final Report (FR) - Appendices - App 13-C - Dam Failure Analysis	-
Vol 16	Vol 16 - Final Report (FR) - Appendices - App 14-A - Geo Site Report - Pt 1	-
Vol 16	Vol 16 - Final Report (FR) - Appendices - App 14-A - Geo Site Report - Pt 2	-
Vol 16	Vol 16 - Final Report (FR) - Appendices - App 14-A - Geo Site Report - Pt 3	-
Vol 16	Vol 16 - Final Report (FR) - Appendices - App 14-A - Geo Site Report - Pt 4	-
Vol 16	Vol 16 - Final Report (FR) - Appendices - App 14-A - Geo Site Report - Pt 5	-
Vol 16	Vol 16 - Final Report (FR) - Appendices - App 14-A - Geo Site Report - Pt 6	-
Vol 16	Vol 16 - Final Report (FR) - Appendices - App 14-A - Geo Site Report - Pt 7	-
Vol 16	Vol 16 - Final Report (FR) - Appendices - List of Appendix	-

NOTES:

¹ Blank cells indicate unreviewed documents.

Table A2. Categorized Access-Development EAC Application Commitments.

Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
2	General	Is committed to the concept of sustainable development, which requires balancing good environmental stewardship with economic growth and social well being.	5	This is general context rather than a specific commitment.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM		2	NA
3	General	Will use NovaGold's Environmental Policy to guide all phases of the Project.	4	Relevant environmental policies will be addressed in the management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
4	Management Plans	Will finalize the various management plans identified in Volume III, Section 10 of NovaGold Canada Inc.'s Application for an environmental assessment certificate.	1	condition to require development and implementation of management plans	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
5	General	Will develop, in collaboration with the Tahltan Central Council, local communities and Canadian and U.S. federal and B.C. and Alaska State government agencies, and implement monitoring that meet provincial and federal requirements.	1	condition to require development and implementation of monitoring plans in consultation with Tahltan and other parties	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
6	Indigenous Nation Identified Valued Component	Will build long-term relationships with the Tahltan Nation and local communities.	1	Condition requiring a consultation plan	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
7	Indigenous Nation Identified Valued Component	Will provide transcripts of the January 2005 Special Assembly if requested by the Tahltan Central Council.	5	No longer applicable as out of date.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM		2	NA
8	Indigenous Nation Identified Valued Component	Will report back to the Tahltan communities on how their input shaped project decisions.	1	Condition requiring a consultation plan	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
9	Indigenous Nation Identified Valued Component	Will maintain ongoing communications and consultation programs with the Tahltan communities during the life of the mine.	1	Condition requiring a consultation plan	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
10	Management Plans	Will consult with the Tahltan Central Council on all draft permits and management plans, consistent with the conditions of the Participation Agreement.	1	Condition requiring a consultation plan	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
11	General	Will hold information sessions in Telegraph Creek, Dease Lake, Iskut, Stewart, Terrace and Smithers to provide information on project planning, business, training and employment opportunities [see appendix 3-A and 3-B; open houses might have been held in June and Oct 2007, as per the open house poster found in the appendix].	1	Condition requiring a consultation plan	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
12	Socio-Economic	Will organize further discussions and/or meetings with potentially affected guide outfitters and trap line holders to discuss potential effects, mitigative measures and compensation.	1	Condition requiring a public engagement and socio-ec plan	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
13	Indigenous Nation Identified Valued Component	Will give hiring priority to Tahltan Nation people, residents of northwestern British Columbia residing in a primary community, and then to other Canadians.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
14	Indigenous Nation Identified Valued Component	Will develop a long-term recruitment, employment and training strategy, whose success depends upon cooperation and commitment of the Tahltan Central Council, local communities and provincial and federal governments.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
15	Socio-Economic	Will implement a hiring strategy that will include a workforce education and skill assessment, capacity survey of primary communities, mine employment orientation program, open pit mine heavy equipment training program, specific on-the-job training programs and apprenticeship programs.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA

Table A2. Categorized Access-Development EAC Application Commitments.

Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
16	Socio-Economic	Will ensure that all employees receive site-specific safety and environmental awareness training.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
17	Socio-Economic	Will develop a long-term business opportunities strategy involving structuring contacts so they can be accessed by a variety of different sized local businesses; publication of a Galore Creek business opportunities profile.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
18	Indigenous Nation Identified Valued Component	Will implement a business strategy that will require contractors to disclose their policies and practices for providing preferential opportunities to the Tahltan Nation and residents of northwestern British Columbia.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
19	Management Plans	Will develop a safety plan which will outline and describe appropriate procedures and protocols to effectively deal with hazards including hazard evaluation, appropriate control procedures and protocols, personal protective equipment to be used, air and water monitoring protocols and specifications, confined space entry procedures and detailed fire-fighting procedures.	3	Safety requirements are addressed by permitting	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
22	Health and Safety	Will use monitoring programs to ensure healthy work environments and protection of other biological receptors.	4	Environmental Monitoring will be included within management plans (safety in permitting)	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
23	Transportation Infrastructure	Will locate the explosives facilities and related access roads in safe sites relative to other mine facilities and geohazards.	4	Explosives management will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM	Y (locational changes allowed/required)	2	NA
25	Management Plans	Will develop and implement an Air Emissions and Fugitive Dust Management Plan.	3	Air quality monitoring and mitigation measures to be addressed by permitting	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
29	Transportation Infrastructure / Air Quality	Will use appropriate control methods such as road watering and vehicle speed regulations to minimize the generation of fugitive dust.	4	Dust management will be addressed in the CEMP	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA
30	Air Quality; Climate; Noise	Will use preventative maintenance to ensure optimum performance of light-duty vehicles, diesel mining equipment, aircraft and the incinerator.	4	Preventative maintenance will be included within management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
31	Air Quality; Climate	Will make reasonable efforts to use post-2005 diesel equipments to minimize air emissions.	3	Air quality monitoring and mitigation measures to be addressed by permitting	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM	Y (reasonable efforts)	2	NA
32	Air Quality; Climate	Will use the lowest sulphur-content fuel reasonably available on the market.	3	Air quality monitoring and mitigation measures to be addressed by permitting	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM	Y (reasonably available)	2	NA
33	Air Quality; Climate	Will implement a recycling program to reduce the amount of incinerated wastes and hence CO2 emissions.	4	Waste management will be addressed as a component of the CEMP	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
34	Air Quality; Climate	Will segregate waste prior to incineration to minimize toxic air emissions.	4	Waste management will be addressed as a component of the CEMP	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
38	Air Quality; Climate	Will inform employees, contractors and subcontractors about policies for managing air quality (e.g., trucking contractors will be informed of the requirements for speed limits and no idling).	4	Road dust abatement measures will be addressed as a component of CEMP	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM		2	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
39	Transportation Infrastructure / Air Quality	Will implement dust control at the intersection of the access road and Highway 37.	4	Road dust abatement measures will be addressed as a component of CEMP	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA
44	Air Quality	Will monitor workplace contaminants to ensure compliance with occupational health exposure limits pursuant to permitting requirements.	3	Safety requirements are addressed by permitting	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
45	Air Quality	Will abide by the British Columbia Open Burning Smoke Control Regulation.	3	It is an existing requirement to comply with relevant legislation, regulation and permits	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
48	Housing and Accommodation / Groundwater	Will install monitoring wells to monitor groundwater plume and assess potential impacts to drinking water in the event of a chemical spill near wells supplying drinking water to camps.	4	Groundwater quality monitoring and management will be included in management plans.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA
49	Indigenous Nation Identified Valued Component	Will continue to work with the Tahltan Central Council on the Traditional Knowledge studies and the continued application of Traditional Knowledge to the Project.	1	As a component of the proposed Indigenous consultation plan condition, include references to incorporating Traditional Knowledge into management and monitoring plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
50	Indigenous Nation Identified Valued Component	Will develop environmental monitoring programs that incorporate both Traditional Knowledge and science.	1	As a component of the proposed Indigenous consultation plan condition, include references to incorporating Traditional Knowledge into management and monitoring plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
53	Air Quality; Climate	Will continue to examine energy reduction programs to minimize CO2 emissions.	3	Air quality monitoring and mitigation measures to be addressed by permitting	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM	Y ('continue to examine')	2	NA
54	Air Quality; Climate	Will implement various methods of power reduction and energy conservation.	3	Air quality monitoring and mitigation measures to be addressed by permitting	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
55	Air Quality; Climate	Will consider energy efficiency when purchasing new and replacement equipment.	3	Air quality monitoring and mitigation measures to be addressed by permitting	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM	Y (consider)	2	NA
56	Air Quality; Climate	Will consider energy efficiency policies of outside service providers when acquiring services.	3	Air quality monitoring and mitigation measures to be addressed by permitting	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM	Y (consider)	2	NA
57	Air Quality; Climate	Will monitor fuel and electrical consumption.	3	Air quality monitoring and mitigation measures to be addressed by permitting	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
61	Surface Water; Groundwater; Aquatic Resources	Will establish and staff a field laboratory for the construction phase, capable of analysing paste and rinse pH, conductivity, total sulphur and carbon and modified neutralization potential.	4	Water quality monitoring to be addressed in management plans	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
62	Transportation Infrastructure	Will employ and train environmental monitors to monitor construction of the access road, mine site facilities and transmission line.	4	The environmental monitoring program will be defined within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA

Table A2. Categorized Access-Development EAC Application Commitments.

Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
63	Explosives / Acid Rock Drainage / Groundwater	Will treat initial waste rock blasts as potentially acid generating and test to evaluate the possible preferential enrichment of Sulphide minerals in the fine fraction of blasted rock. Whole rock and the -2 mm fraction will be analyzed to determine whether adjustment to the ICca,mg /AP is needed. An annual program will be designed to continually re-evaluate this distribution [to manage surface water and groundwater quality and quantity, and sediment].	4	ML/ARD testing and management will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
64	Surface Water; Groundwater; Aquatic Resources; Others	Will conduct additional comparative testing of not-potentially acid generating and acid base accounting to refine the not-potentially acid generating pH boundaries and ensure that there are no biases related to rock type and mineralogy.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	For discussion with EAO as example. When commitments are categorized for management plans (#4) the concept is that these commitments would be considered during the management plan development/consultation processes to determine if they are applicable, and if yes, how they should be worded. For example, there are technical details about ML/ARD throughout these commitments that are beyond that which would be typically included in an EAC management plan. As such, we are flagging commitments relating to ML/ARD as #4, however not all these details are anticipated to be within the associated management plan.
65	Surface Water; Groundwater; Aquatic Resources; Others	Will conduct additional testing prior to mining to refine the adjustment of neutralization potential to estimate ICca,mg, using the same methods used in the environmental assessment, which were Rietveld X-ray defraction, carbonate analyses and microprobe testing on mineral particles. This program will be repeated until the ICca,mg can be accurately estimated.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
66	Socio-Economic	Will maintain a database of analytical results, truck counts and disposal locations to provide an inventory of rock management.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
67	Surface Water; Groundwater; Aquatic Resources; Others	Will continue some of the humidity cell tests started during the environmental assessment review to monitor the progress of neutralization potential depletion, continue on-site barrel tests and bi-annual monitoring of toe seeps from upland dumps, maintain an overall up-to-date site water and load balance to compare predictions of metal loadings with actual conditions, and conduct annual audits of management potentially acid generating and non-potentially acid generating rock at the drill face in pit.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
68	Management Plans / Acid Rock Drainage / Metal Leaching / Groundwater	Will use a conservative neutralization potential ratio of 2 to segregate potentially acid generating from not-potentially acid generating waste rock for underwater disposal. Will continue to monitor to verify pre-mining conditions and update the operational management plan for waste rock, tailings, low grade ore and construction materials as more information is gained from the site. This document will be a living document with updates submitted to the Ministry of Energy, Mines and Petroleum Resources and the Ministry of Environment for review and approval whenever significant changes occur.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM	Y (living document)	2	NA
69	Surface Water; Groundwater; Aquatic Resources; Others	Will use construction material with an NP/AP>3 and paste pH>6 and metals <2 x crustal abundance and Cu/S<y (where y is still being determined by leach column tests), for the downstream dam fill and all other fill requirements located outside of the dam containment area.	4	Fill management and monitoring requirements will be included within a management plan.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
70	Surface Water; Groundwater; Aquatic Resources; Others	Will restrict the use of potentially acid generating rock for construction to areas that will be submerged behind the dam.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
71	Transportation Infrastructure / Acid Rock Drainage / Metal Leaching / Groundwater	Will assess acid rock drainage potential of excavated faces during access road and diversion channel construction, using an on-site laboratory, and develop appropriate mitigation, including mitigation for closure, for any acid rock drainage encountered.	4	ML/ARD testing and management will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
72	Acid Rock Drainage / Metal Leaching / Groundwater	Will stockpile excavated rock from tunnel construction and characterize excavated rock for metal leaching/acid rock drainage potential during construction. If the rock is potentially acid generating, it will be transported to the Galore Creek valley for proper disposal after tunnel construction is finished.	4	ML/ARD testing and management will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA
78	Explosives	Will use emulsion explosives as required to minimize ammonia and nitrate losses and contamination [to manage surface water and groundwater quality and quantity, and sediment].	4	Explosives management will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
79	Management Plans / Explosives / Groundwater	Will address potential for ammonia leakage from the explosives manufacturing and storage facility by using measures such as non-corrosive silos, an impermeable apron and a spill management plan.	4	Fuel and other stored chemicals, and spill management measures will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
86	Aerodrome / Housing and Accommodation / Groundwater	Will monitor groundwater levels and quality outside of the Galore Creek valley of wells at the Porcupine aerodrome camp site, Round Lake heliport camp site and the filter plant site.	4	Groundwater quality monitoring and management will be included in management plans.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
87	Navigable Waters	Will design the watercourses and the diffuser to accommodate navigable water requirements.	3	Construction in proximity to navigable waters, if any, will be managed in consultation with regulatory agencies under CNWA.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
94	Surface Water; Groundwater	Will continue to collect hydrological data within the study area throughout the life of the Project to update the water balance and hydrological model	4	Water quality monitoring to be addressed in management plans	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
95	Transportation Infrastructure	Will prepare and implement a Maintenance and Surveillance manual for all water management structures, diversion channels and stream crossings.	3	Water management for these structures will be managed in consultation with regulatory agencies under the Environmental Management Act and Mines Act.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
97	Management Plans	Will develop and implement Sediment and Erosion Control Plans and will monitor sediment transport in Galore Creek during construction and operations.	1	Condition to require development and implementation of erosion and sediment control mitigation (in CEMP)	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
98	Management Plans	Will establish Environmental Management Plans for all earth work Structures and stockpiles.	4	Environmental management measures related to earthwork structures and stockpiles will be included within management plans.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
100	General	Will apply best management practices throughout the construction, operation and closure of the Galore Creek mine.	5	General context	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM		2	While this is a generalized statement therefore has been categorized as #5, BMPs will also be addressed in various management plans.
111	Transportation Infrastructure	Will build sections of the access road located within floodplains atop a berm at least 1.2 metres in height to reduce the potential for road submergence.	3	Access road construction design requirements to be addressed by permitting.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA
112	Transportation Infrastructure	Will construct all culverts and bridges to a 100-year design flood, with major bridge crossings designed to the 200-year flood.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	GCMC proposes that for matters that are clearly addressed in permitting (e.g. design for stream crossings) are referred to permitting agencies for their potential consideration, recognizing that permitting authorities must determine what they consider relevant to consider in their statutory decision-making.
113	Transportation Infrastructure	Will place rip-rap at the inlet and outlet of the bridges and culverts to protect structures from erosion.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA
114	Transportation Infrastructure	Will incorporate at least 1.5 metres of clearance above the design flood elevation into bridge design to allow for debris passage and prevent bridge washout.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA
115	Infrastructure and Services	Will develop an Emergency Response and Spill Contingency Plans for all aspects of the Project, including the access road, tunnel, pipelines, processing plant and filter plant.	4	Spill Contingency Plans will be included within a management plan (and emergency response addressed by permitting).	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
116	Surface Water; Aquatic Resources; Fish and Fish Habitat; Wildlife and Wildlife Habitat	Will maintain intensive receiving environment, aquatic, fisheries and wildlife monitoring programs, throughout the life of the mine and developed in cooperation with university researchers, Canadian and U.S. federal, B.C. and Alaska State government, agencies and the Tahltan Central Council, to ensure water quality, aquatic, fisheries and wildlife resources are not impacted by the Project and are protected for future generations.	1	condition to require development and implementation of monitoring plans in consultation with Tahltan and other parties	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	Note aquatic and fisheries to be addressed in Major amendment. Draft TOC for initial modernization includes terrestrial ecosystems, wetlands, wildlife

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
117	Surface Water; Groundwater; Sediment; Fish and Fish Habitat	Will continue conducting environmental monitoring (collection and analysis of water, sediment, and biota, combined with chronic and acute toxicity testing of appropriate organisms in the receiving waters) throughout the life of the mine to ensure that downstream environments are not impacted by effluent discharged from the Project.	3	Discharge monitoring and testing will be managed in consultation with regulatory agencies under the Environmental Management Act and Mines Act.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
120	General	Will provide annual reports and raw data from monitoring to appropriate Canadian and U.S. federal, B.C. and Alaska State government agencies and the Tahltan Central Council.	4	Monitoring plans will include reporting requirements	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
121	General	Will provide raw data from baseline surveys to appropriate Canadian and U.S. federal, B.C. and Alaska State government agencies and the Tahltan Central Council.	4	Monitoring plans will include reporting requirements	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
122	General	Will establish criteria, in conjunction with appropriate Canadian and US. federal, B.C. and Alaska State government agencies and the Tahltan Central Council, for assessing potential significant biological effects to the receiving environment identified by the monitoring programs.	1	condition to require development and implementation of monitoring plans in consultation with Tahltan and other parties	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
124	General	Will incorporate information derived from monitoring in an ongoing process of adaptive management.	4	Adaptive management will be included within management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM	Y (adaptive management)	2	NA
128	Fish and Fish Habitat	Will develop comprehensive fish and fish habitat compensation plans in cooperation with the Ministry of Environment, Fisheries and Oceans Canada and the Tahltan Central Council.	1	Condition to require development of fish and fish habitat compensation plans in consultation with Tahltan and other parties	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
129	Transportation Infrastructure / Management Plans	Will develop environmental management plans for construction of the access road and transmission line.	1	condition to require development and implementation of management plans	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	Transmission line part of commitment to be deferred to major amendment
130	Transportation Infrastructure	Will design access road stream crossings to not encroach upon the bankfull width of fish bearing streams where possible.	3	Encroachment on fish-bearing streams will be managed through DFO & MoF within the permitting program under FRPA, WSA, and FA.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM	Y (where possible)	2	NA
132	Transportation Infrastructure	Will restrict use of the access road to persons on Galore Creek mine business, other legitimate tenure holders pursuant to an access agreement with the Tahltan Central Council and provincial permitting requirements.	4	Traffic management will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA
133	Wildlife and Wildlife Habitat	Will develop and implement a Wildlife Mitigation and Monitoring Plan.	1	Condition to require development and implementation of a Wildlife Mitigation and Monitoring Plan	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
134	Wildlife and Wildlife Habitat	Will, where reasonably possible, avoid wildlife sensitive periods for construction activities and, where avoidance is not reasonably possible, will minimize the adverse impacts of these activities.	4	Adherence to least-risk work windows, where feasible based on species occurrence and regional requirements, will be defined within management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM	Y (reasonably possible)	2	NA
136	Wildlife and Wildlife Habitat	Will follow the approach identified in NovaGold's application for an environmental assessment certificate for avoiding or minimizing disturbances to mountain goats by aircraft and helicopters, pursuant to Wildlife Mitigation and Monitoring Plan.	4	Mountain goat and habitat monitoring and mitigation will be included within a management plan.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
137	Wildlife and Wildlife Habitat; Acoustic	Will include pertinent noise monitoring as part of the Wildlife Mitigation and Monitoring Plan.	4	Noise monitoring and mitigation in relation to wildlife will be included in management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA

Table A2. Categorized Access-Development EAC Application Commitments.

Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
138	Aerodrome / Housing and Accommodation / Wildlife	Will install electric fencing around residential and cooking/dining facilities at permanent camps and the aerodrome to minimize wildlife interactions.	4	human-wildlife conflict prevention measures, including fencing, will be included in a management plan	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA
142	Transportation Infrastructure / Wildlife	Will endeavour to maintain a 100 metre buffer for Harlequin duck breeding habitat where it is feasible to do so, and will minimize potential impacts and prevent removal of woody debris and riparian vegetation in order to maintain a 50 metre buffer along the road right of way along identified breeding reaches where possible.	4	Harlequin duck mitigation and delineation of protection zones will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM	Y (feasible, endeavour and where possible)	2	NA
144	Soil	Will salvage and stockpile topsoil for use in reclamation and protect topsoil stockpiles through revegetation and other practices as described in the environmental assessment.	3	Reclamation and land replacement requirements will be addressed through permitting	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
150	Land and Resource Use	Will reclaim borrow and gravel pits to appropriate habitat when they are no longer required.	3	Reclamation and land replacement requirements will be addressed through permitting	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
153	Transportation Infrastructure	Will limit disturbance to the vegetation between the access road at the filter plant and the small (no name) lake.	4	Limiting disturbance of vegetation will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA
154	Terrestrial Ecosystems, Vegetation and Soil Landscape	Will develop a plan to control and manage invasive and noxious plant species.	1	Condition to require development and implementation of invasive and noxious plant mitigation in the CEMP	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
162	Tunnel Explosives	Will probe drill ahead of tunnel excavation to obtain information on rock geotechnical properties to allow use of appropriate ground support methods and to predict water inflows.	3	Water management associated with the tunnel will be managed in consultation with regulatory agencies under the Environmental Management Act and Mines Act.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA
163	Management Plans / Tunnel Explosives	Will implement a tunnel safety program including installation of lighting, fire extinguishers, telephones and refuge stations and a traffic management plan.	3	Tunnel safety is addressed by permitting.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA
171	Socio-Economic	Will provide for a vehicle pullout near the filter plant to maintain opportunities for the public to access Hot Springs Provincial Park.	2	This is a description	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM		2	NA
173	Transportation Infrastructure	Will design the water crossings and diffuser to accommodate navigable water requirements.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	Note that the diffuser is related to the filter plant discharge and no longer relevant to the project - therefore that element would be removed.
174	Accidents and Malfunctions	Will develop and implement an Operations and Maintenance manual that will include avalanche management and monitoring and mitigation for rock falls and debris flows for the mine site and access corridor.	3	Avalanche risk will be managed in consultation with regulatory agencies under FRPA and the Mines Act.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
175	Transportation Infrastructure	Will ensure that bridges constructed along the access road will have sufficient freeboard to pass anticipated debris flows.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM		2	NA

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176	Accidents and Malfunctions	Will implement the mitigation measures proposed to reduce geotechnical risks for the Project, as outlined in NovaGold Canada inc.'s Application for an environmental assessment certificate.	4	Geotechnical risk mitigation measures will be included within management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
177	Transportation Infrastructure	Will monitor geohazards at the mine site and along the access road pursuant to permitting requirements.	4	Geohazard monitoring requirements will be included within a management plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
178	Archaeology	Will, jointly with the Tahltan Central Council, develop an archaeological chance find procedure to protect archaeological sites and artifacts, and implement that procedure.	1	Condition to require development and implementation of an archaeological chance find procedure (in CEMP), in consultation with Tahltan and other parties	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
179	Archaeology	Will follow up with the Tahltan Central Council after the source(s) of obsidian has been confirmed to identify methods for identifying possible routes back to Raspberry Pass (Mount Edziza).	4	Archaeological and heritage site protection measures will be included within management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM		2	NA
180	Archaeological and Heritage Resources	Will include monitoring for the presence of cairns or rock piles in future archaeological assessments and will consider the sampling of tephra layers noted during excavations.	4	Archaeological and heritage site protection measures will be included within management plans.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
181	Archaeology	Will include ice patch archaeology where appropriate within the Project footprint.	4	Archaeological and heritage site protection measures will be included within management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM	Y (where appropriate)	2	NA
182	Archaeology	Will avoid all archaeological and heritage sites where possible.	4	Archaeological and heritage site protection measures will be included within management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM	Y (where possible)	2	NA
183	Archaeology	Will include a map of the study area plotted on a Tahltan Traditional Territory map in future archaeology study reports.	4	Archaeological and heritage site protection measures will be included within management plans.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM		2	NA
186	Climate; Air Quality	Will initiate a comprehensive recycling program for the Project to minimize the volume of material going to landfills.	4	Waste management will be addressed as a component of the CEMP	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
187	Climate; Air Quality	Will work with the Kitimat-Stikine Regional District to address concerns with the use of the Iskut landfill.	4	Waste management will be addressed as a component of the CEMP	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
188	Climate; Air Quality	Will develop and implement industrial and domestic waste management strategies.	1	Condition to require development and implementation of industrial and domestic waste management (in CEMP)	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
189	Fish and Fish Habitat	Will ensure that fuel containment areas are adequately protected from excessive precipitation and will design these structures to minimize the amount of snow/water removal required.	4	Fuel and other stored chemicals, and spill management measures will be included within a management plan.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM/MAM		2	NA
193	Socio-Economic	Will conduct an intersection study and produce design drawings to Ministry of Transport specifications.	3	Safety requirements are addressed by permitting	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments	IM		2	NA
194	Housing and Accommodation	Filter Plant Camp: The temporary construction camp proposed for the originally proposed site of the filter plant will be expanded to house up to 200 people. This temporary construction camp will be decommissioned once the construction is completed and a small (35 person) operations camp will be constructed at the new filter plant site at km 8.7.	2	This is a description	NovaGold_2006_campLetter_20061102.pdf	2006 Construction Camp Letter	IM		3	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
195	Housing and Accommodation	West More Camp: The temporary construction camp proposed for km 73.2 will be relocated to km 74.5 to avoid potential impacts to a recently identified archaeological site and the population will increase to up to 120 people. The new site has been assessed by an archaeologist and is deemed acceptable.	2	This is a description	NovaGold_2006_campLetter_20061102.pdf	2006 Construction Camp Letter	IM		3	NA
196	Housing and Accommodation	Porcupine Camp: The camp originally proposed for the Porcupine River area has been relocated to the north side of the river to permit construction of the camp prior to erection of the bridge over the Porcupine River to the aerodrome. The population of this temporary construction camp may increase to 70 people.	2	This is a description	NovaGold_2006_campLetter_20061102.pdf	2006 Construction Camp Letter	IM		3	NA
197	Housing and Accommodation	In addition to the originally proposed construction camps, road and tunnel contractors have indicated that new temporary construction camps will be required. These new camps will be located at: Km 36.5 on the south side of the access road, suitable for 100 people; Km 91 on the north side of the access road, suitable for 120 people; Km 125.3 on the south side of the access road, suitable for 50 people engaged in work at the south tunnel portal.	2	This is a description	NovaGold_2006_campLetter_20061102.pdf	2006 Construction Camp Letter	IM		3	NA
201	Transportation Infrastructure / Aerodrome	A temporary construction phase heavy lift heliport will be established at West More Camp east of Round Lake to support initial road construction.	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.2.2	IM		4	NA
202	Transportation Infrastructure	Construction of the road will take about 12 months.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.2.2	IM		4	NA
205	Management Plans	NovaGold is committed to developing and implementing an erosion and sediment management plan that is consistent with industry best management practices.	1	Condition to require development and implementation of erosion and sediment control mitigation (in CEMP)	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.1	IM		4	NA
208	Surface Water	All erosion control and sediment containment facilities will be subject to scheduled inspections and maintenance during their design life.	4	Erosion and Sediment Control will be included within the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.1	IM/MAM		4	NA
209	Transportation Infrastructure	Rehabilitation and revegetation of areas such as roadside cut-and-fill slopes, soil stockpile slopes and other disturbed areas will be undertaken as quickly as possible to reduce the risk of erosion and transport of sediment from these sites.	4	Disturbed surface restoration will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.10.1	IM		4	NA
210	Management Plans	Typical avalanche mitigation measures include: • avoidance of hazard areas • temporary shutdowns during periods of avalanche threat • construction of deflection barriers • case charging • helicopter bombing • military surplus artillery • remote systems such as Avalanche Guard or Gazex. Additional work will be required to detail specific mitigation measures in all identified areas. This will form the basis of an Avalanche Safety Protocol to be developed for the mine. This work will be undertaken during the project design and permitting stage.	3	Avalanche risk will be managed in consultation with regulatory agencies under FRPA and the Mines Act.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.10.1	IM/MAM	Y (additional work will be required to detail specific mitigation...)	4	NA
211	Surface Water	Best management practices (BMPs) will be employed as the basis for all work undertaken [that has the potential to affect sediment and erosion].	4	Erosion and Sediment Control will be included within the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2	IM/MAM		4	NA
212	Surface Water	The selected [erosion and sediment control] measures to be installed will be based on site-specific conditions and as prescribed by the supervising professional or Environmental Monitor during construction and the Environmental Coordinator during operations.	4	Erosion and Sediment Control will be included within the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2	IM/MAM		4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
225	Transportation Infrastructure	Access road sediment ponds that are no longer required after construction will be reclaimed and revegetated.	4	Disturbed surface restoration will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.10.2	IM		4	NA
226	Surface Water	Flocculant use will be regulated as part of construction and operations phase permit and will be non-toxic to the receiving aquatic environment.	3	Water and tailings management associated with the mine site will be managed in consultation with regulatory agencies under the Environmental Management Act and Mines Act.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2	IM/MAM		4	NA
255	Acid Rock Drainage / Metal Leaching / Groundwater	The [preliminary management] plan will be revised prior to construction to incorporate new information and concepts from the 2006 reconnaissance ARD potential field program. The plan is intended to allow adaptive management as knowledge of the occurrence and distribution of ARD generating rocks is gathered before and during the construction process.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.2	IM	Y (adaptive management based on ARD results, preliminary)	4	NA
256	Transportation Infrastructure / Acid Rock Drainage / Metal Leaching / Groundwater	Where significant ARD concerns are identified from the results of the 2006 reconnaissance field work or subsequent pre-construction follow-up assessment, McElhanney will investigate minor [road] alignment alternatives to reduce their effects and implement feasible alignments where the alternatives have less overall adverse effects. Once construction has commenced, only minor modifications to the overall alignment will be considered owing to the complexity of the required engineering in this rugged area with major geohazard and snow avalanche hazards.	2	This is a description	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.3	IM	Y (alignment alternatives)	4	NA
257	Acid Rock Drainage / Metal Leaching / Groundwater	Electrical conductivity (EC) measurements are a surrogate for total dissolved solids. Where pH values are inconclusive, higher EC values may be indicative of ARD. Criteria for use of EC values will be developed prior to commencement of construction and may be amended1 over time as experience is gained with ARD characterization methodologies.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.4	IM/MAM		4	NA
258	Acid Rock Drainage / Metal Leaching / Groundwater	Equipment operators will [during the construction phase] be responsible for inspecting rock after every blast in areas of low ARD potential to ensure that no new occurrences of iron oxides or sulphides have been exposed.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5	IM/MAM		4	NA
259	Wildlife and Wildlife Habitat; Terrestrial Ecosystems, Vegetation and Soil Landscape	The early stages of construction will include felling timber, clearing/grubbing stumps and debris and stripping organics and unsuitable materials before subgrade construction begins. The grubbing and stripping stages will require the use of heavy equipment and will provide an opportunity to access bedrock that may not have been accessible during the 2006 field season.	5	General context	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.8.5	IM		4	NA
260	Acid Rock Drainage / Metal Leaching / Groundwater	Stockpiles with a NP/AP ratio of less than 2 should have a paste pH test before being moved to determine whether the paste pH has changed during storage, and potential implications on subsequent management approaches should be assessed.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5	IM/MAM	Y (potential implications on subsequent management approaches should be assessed)	4	NA
262	Management Plans	The [materials management] plan will be expanded in detail as part of the detailed design work prior to bringing any materials to the site. The management plan will be implemented during project construction and commissioning.	4	Material management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.9.1	IM/MAM		4	NA
263	Transportation Infrastructure	Before the access road to the site is completed, all transportation of construction equipment and materials to the work areas west of the staging area near Highway 37 will be by air.	5	General context	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.9.3	IM		4	NA

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264	Transportation Infrastructure	Access to camps and materials staging areas for the road construction will be with rotary-winged aircraft until the Porcupine River Aerodrome is completed and fixed wing aircraft can deliver equipment and materials closer to the west end of the access road and the site. As sections of the road are completed and connected with other sections, less air transport will be required. Once the road is completed, major construction work for the project facilities will commence.	5	General context	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.9.3	IM		4	NA
266	Transportation Infrastructure	All drivers will be advised of NovaGold's rules of the road concerning safety and the environment before they will be permitted to travel the road beyond the gatehouse at the filter plant.	4	Traffic management and personnel environmental training requirements will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.9.3	IM		4	NA
267	Infrastructure and Services	Three un-heated, pre-engineered, fabric covered buildings will provide bulk, covered storage for winter operations (cold storage). These structures could also be utilized for maintenance and laydown of large components during winter operations.	2	This is a description	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.9.3	IM/MAM		4	NA
268	Accidents and Malfunctions	Before any chemical is brought on site (for full-scale use or for a first plant trial), the supplier or contractor will supply a Material Safety Data Sheet (MSDS) for the product.	4	Fuel and other stored chemicals, and spill management measures will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.9.4	IM/MAM		4	NA
269	Accidents and Malfunctions	Waste hazardous materials will be stored in appropriate containers within designated areas including a waste transfer building before being shipped off site to an authorized receiver.	4	Fuel and other stored chemicals, and spill management measures will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.9.4	IM/MAM		4	NA
270	Surface Water	The sediment ponds will be constructed prior to upslope disturbances so as to trap any sediment generated during construction works.	4	Erosion and Sediment Control will be included within the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.1	IM/MAM		4	NA
273	Housing and Accommodation	Construction will involve establishing an increasing number of footholds along the access road corridor to enable its construction. This will commence with the establishment of construction camps that will be used to enable construction of the Porcupine aerodrome and access road beginning adjacent to Highway 37. The construction camp east of Round Lake (West More Camp) and associated heliport will facilitate access road construction. With construction camps in place, all efforts will be focused on completing the road and tunnel to enable full access to the site.	5	General context	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.10.2	IM		4	NA
276	Surface Water	Ditches, channels and spillways associated with site water management will be cleaned during the early spring and early fall periods before peak snowmelt and fall rain. All areas with the potential to release water from disturbed areas will be inspected by a registered professional engineer as part of the regular monitoring program.	4	Erosion and Sediment Control will be included within the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.5	IM/MAM		4	NA
277	Management Plans	The Spill Contingency and Emergency Response Plan (SCERP) is intended to provide a conceptual spill prevention, spill mitigation and follow-up as well as emergency response plans for the Galore Creek Project. The plan outlined below provides the general approach to Spill Contingency and Emergency Response that will be expanded and refined as part of the permitting and associated adaptive management process. The plan will be refined in an updated plan prior to commencement of construction activities on the project.	4	Spill Contingency Plans will be included within a management plan (and emergency response addressed by permitting).	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.11.1	IM/MAM	Y (plan will be refined)	4	NA
278	Management Plans	NovaGold will prepare a Spill Contingency and Emergency Response Plan for the project that satisfies the requirements of an Environmental Emergency Plan during permitting for the project, prior to any construction activities.	1	Condition to require development and implementation of spill contingency measures (in CEMP). Emergency response to be addressed by permitting.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.11.2	IM/MAM		4	NA

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279	Accidents and Malfunctions	Due to the size and nature of the project, there are a number of materials that could be released in an uncontrolled event. A review of the possible events, their causes and best mitigation and management measures will be undertaken during a brainstorming session with company personnel as further details of the project are confirmed. The resultant prioritized action plan will be included in the final version of this [uncontrolled releases management] plan, which will be submitted for review prior to major construction commencement.	4	Spill prevention and environmental awareness component of site orientation requirements will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.11.4	IM/MAM		4	NA
281	Accidents and Malfunctions	Visitors – Spill prevention and environmental awareness component of site orientation provided to all site visitors prior to issuance of safety apparel and permission to proceed beyond site security shack and into site areas.	4	Spill prevention and environmental awareness component of site orientation requirements will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.11.6	IM/MAM		4	NA
282	Transportation Infrastructure	A site wide notification and alarm system will be established during permitting and prior to completion of the access road.	3	Mine site safety to be addressed by permitting.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.11.9	IM		4	While this is about a mine site alarm which would be addressed in permitting if determined to be needed by MEM, this is included in this initial modernization given the temporal reference to 'prior to completion of the access road'.
284	Surface Water	Prior to construction activities for the access road, mine, pipelines, aerodrome and related facilities, the following planning and implementation measures will be initiated: • detailed environmental protection protocols for any instream work and at each crossing site, including runoff and stormwater control measures to prevent any project-generated sediment from entering surface drainages. The plans will include ditching, sedimentation ponds, pumping systems, silt fencing, geotextile lining over disturbed ground and stockpiled soils;	4	Environmental protection protocols will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM/MAM		4	NA
285	Surface Water	Prior to construction activities for the access road, mine, pipelines, aerodrome and related facilities, the following planning and implementation measures will be initiated: • employment of an environmental monitor to detail the site-specific mitigation measures at each stream crossing or habitat encroachment site and monitor construction activities on-site. A qualified and experienced environmental monitor will supervise all nearstream and in-stream construction activities with respect to environmental protection. The monitor will direct and implement impact avoidance and mitigation measures on-site at each water crossing;	4	The environmental monitoring program will be defined within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM/MAM		4	NA
287	Freshwater Fish	Prior to construction activities for the access road, mine, pipelines, aerodrome and related facilities, the following planning and implementation measures will be initiated: • fish salvages at any crossing site on a fish-bearing stream where it may be necessary to divert or temporarily dewater a section of creek (e.g., lower More Creek). Where there are fish in such locations, fish salvages will be completed. All fish in the affected section will be captured and live-transported to another, unaffected part of the river or creek. As presently planned, fish salvages may be necessary at the Muskwie and lower More Creek crossings, and within temporarily enclosed areas in the Iskut and Porcupine river crossings. Pre-planning of such sites will allow for the orderly processing of fish salvage permits from DFO and MOE; and	4	Fish salvaging and protection will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM/MAM		4	NA

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288	Freshwater Fish	Prior to construction activities for the access road, mine, pipelines, aerodrome and related facilities, the following planning and implementation measures will be initiated: • The scheduling of instream works generally follows the recommended periods of least risk to the key regional fish species, as outlined in the Fish-Stream Crossing Guidebook (MOF, 2002), and shown for the Stikine area in Table 8.12-1. The optimum timing for any instream work is somewhat different for the Iskut River, where there are only resident fish species, and the Porcupine River, where there are both resident and anadromous salmon. Due to the magnitude of the project and construction schedule, NovaGold will negotiate construction windows with the appropriate regulatory agencies.	4	Adherence to least-risk work windows, where feasible based on species occurrence and regional requirements, will be defined within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM/MAM		4	NA
289	Transportation Infrastructure / Freshwater Fish	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • on-site education and environmental supervision of construction crews regarding the need to protect fisheries values and the means to accomplish that, including the measures outlined here applied to specific stream crossings and road sections, as well as at the mine and camp sites. The onsite environmental staff on the Galore Creek Project will be responsible for planning environmental protection measures for each stream crossing along the access road, and for monitoring construction at each crossing site to ensure the proper measures are being used. Each crossing of fish-bearing streams will be designed, including engineering drawings and specifications, to bear the intended loads, pass the 1-in-100 year flood, retain fish habitat quality and ensure continued fish passage. Environmental monitoring of stream crossings will also occur during and immediately after storm events or high runoff times, and construction may be halted temporarily by the environmental monitor if conditions so warrant;	4	Environmental awareness education and training will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM/MAM		4	NA
290	Transportation Infrastructure	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • posting of signs or flagging tape at all fish-bearing waterbodies that will be crossed by or lie near the road alignment, such that all contractors working on the road will be aware of which streams contain fish. This will occur before the road is cut and will be well established before the finished road is built. Fish-bearing streams will also be shown on project area maps used by construction crews, and will be included in any maps or GIS that may be developed for the project area. This information is known for all streams in the project area from extensive fieldwork completed in 2004 and 2005 (see Appendix 6- D and Appendix 6-E);	4	Delineation and marking of fish-bearing waterbodies, as well as mapping, will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM		4	while the header refers to matters other than the access road, the commitment itself pertains only to access road therefore this is tagged as Initial Modernization only
291	Transportation Infrastructure / Freshwater Fish	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • restrictions on construction timing windows to comply with the periods of least risk to fisheries resources (fish stocks and habitat) in the affected areas. Table 8.12-1 shows the currently established and accepted low-risk periods for each of the salmonid fish species in the region. Overlapping periods of least sensitivity may mean even shorter timing windows for construction, depending on locations. Due to the magnitude of the project and construction schedules, NovaGold will negotiate construction windows with the appropriate regulatory agencies;	4	Adherence to least-risk work windows, where feasible based on species occurrence and regional requirements, will be defined within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM/MAM	Y (negotiate)	4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
292	Transportation Infrastructure	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • minimizing the areas of disturbance at all crossing sites to that needed for the road and crossing structures, while leaving as much vegetation as possible in the riparian management zone above and below the crossing point. Terrestrial vegetation will be retained as much as possible along the roadsides and especially at stream crossings to minimize ground disturbance, erosion and sediment transport in general. Burying the pipelines under the road in a common alignment will minimize the right-of-way and construction zone width along the route. Wherever riparian shrub and ground cover can be left in place, especially on slopes and near watercourses, it will be retained;	4	Protection of riparian vegetation (and other vegetation) will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM/MAM	Y (possible)	4	NA
294	Transportation Infrastructure	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • special attention will be paid to cut and fill slopes at stream crossings and anywhere that erosion and sediment transport might potentially reach surface drainages. Seeding, including with stable mulching methods and materials would be used wherever needed to ensure soil stabilization and prevent erosion at source;	4	Erosion and Sediment Control will be included within the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM		4	while the header refers to matters other than the access road, the commitment itself pertains only to access road therefore this is tagged as Initial Modernization only
295	Transportation Infrastructure	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • effective and well-managed stormwater runoff and sediment control measures, including isolation of work areas from surface waters, the use of temporary diversion methods (lined ditches, flumes, dam-and-pump) for work in the dry, and proper use of sediment traps, geotextile cloth, silt fences, gravel berms and straw bales. Construction crews will be made aware of the need and general methods involved, and environmental technicians will ensure that the full and proper methods are used;	4	Erosion and Sediment Control will be included within the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM/MAM		4	NA
297	Transportation Infrastructure	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • isolation of construction activities from stream flows. For relatively small streams up to about 5 m wide (depending on flows), methods to dewater the construction area will be used. For larger crossings, such as the Iskut River, lower More Creek and Porcupine River, where larger bridges will be installed, work area isolation will be accomplished if required around the instream work areas. Sump pumps will also be used to extract sediment-laden water from the work area within the isolation enclosures and direct it to sump pits or to forested land away from the stream channels to allow the solids and any contaminants to settle and filter out;	4	Site isolation methods and requirements will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM		4	while the header refers to matters other than the access road, the commitment itself pertains only to access road therefore this is tagged as Initial Modernization only
298	Transportation Infrastructure	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • blasting near watercourses will be stringently supervised and monitored. The federal guidelines for the use of explosives in or near fisheries waters (Wright and Hopky, 1998) will be followed in blasting operations. Care will be taken in conducting the blasting work near fish-bearing streams;	4	Explosives management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM/MAM		4	NA

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300	Transportation Infrastructure	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • proper use of ditches, including along the road, as well as perimeter and cross-ditching to control surface runoff and sediment transport. In particular, the roadside ditches along the approaches to steam crossings will be armoured and diverted away from the watercourses into nearby forested areas to dissipate flow energy and keep sediments out of the streams. Ditch breaks (i.e., rock check dams) will be placed in ditches to moderate flows on steep slopes;	4	Erosion and Sediment Control will be included within the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM		4	while the header refers to matters other than the access road, the commitment itself pertains only to access road therefore this is tagged as Initial Modernization only
301	Transportation Infrastructure	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • the temporary heliport near Round Lake. Construction and use of the heliport, storage facilities and pumping station near Round Lake will entail some alienation of land in the upper More Creek drainage just below Round Lake and above the Roca Camp. No permanent streams cross the proposed area for the heliport and staging area compound, although upper More Creek, which is barren of fish in this area, is nearby. Site isolation techniques will be used to retain all site water in controlled sedimentation channels and ponds. As the site is on a large alluvial fan and glacial outwash plain the substrates are porous, facilitating rapid infiltration of water, especially on the upland area. The riparian zone and stream channel in upper More Creek will not be disturbed by the road or heliport development, except at specific, managed crossing sites. All staff and contractors will be expected to treat Round Lake and the creek system with care. While there are no fish in the lake or creek for many kilometres downstream, the setting is pristine and the drainage system feeds fish-bearing waters farther downstream;	4	Site isolation methods and requirements will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	NA	IM		4	NA
302	Transportation Infrastructure	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • isolation, containment and careful management of fuels, solvents and other chemicals used during construction. All fuel and oil storage tanks will be kept out of riparian management areas and floodplains. Large capacity storage tanks will be kept in upland areas and surrounded by a lined berm to contain all of the petroleum products and other reagents in the event of any tank spillage; and	4	Fuel and other stored chemicals, and spill management measures will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM/MAM		4	NA
303	Transportation Infrastructure	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • an established line of communications from the field to environmental managers for any incident or concern during the construction process. It will be possible and encouraged for workers to communicate by radiophone, cellphone or in person with environmental staff (supervisor or technicians) regarding any actual or potential environmental concern, including for erosion and sediment production, debris or snow jams at stream crossings, or contaminant releases. Environmental staff will also closely monitor stream crossing sites during and after road construction. Remedial actions, if needed, will be implemented immediately for any concern that had any potential to harm fishery resources.	4	The environmental monitoring and incident reporting protocols will be defined within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM/MAM		4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
304	Transportation Infrastructure	All fish-bearing watercourses will be crossed by bridges (major crossings) or open-bottom culverts (minor crossings).	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM		4	NA
305	Transportation Infrastructure	Most of the permanent stream crossing structures will be installed during the initial road-building phase, while others will be built during the subsequent upgrading and final preparation (e.g., Sphaler Creek and some minor streams, the latter where temporary flumes (steel pipes) may be used until final preparation and culvert installation). The pipelines will be buried under the road at least 1.5 m deep for most of their lengths. Considerable final grading, ground stabilization and riparian re-establishment in disturbed areas outside the necessary footprint for the road will also occur during the final stages of road construction.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM		4	NA
306	Transportation Infrastructure	All fish-bearing watercourses will be crossed by bridges (major crossings) or open-bottom culverts (minor crossings). The only instream structures required will be on the Iskut, Muskwie, Lower More and Porcupine crossings. All bridges and culverts will be constructed to DFO's and MOE's best management practices for stream crossings, as outlined in the guidelines.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3	IM		4	NA
318	Transportation Infrastructure / Wildlife	The proposed road design includes cross-drain culverts at regular intervals and these will provide some habitat connectivity along the access road for amphibians (BC WLAP, 2004b) and small mammals (Clevenger et al., 2001).	4	Amphibian and habitat protection will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.4	IM		4	NA
319	Wildlife	[Commitment from Section 8.13.4.2 Detailed Design and Pre-construction Phase] Based upon the results of these surveys, amphibian tunnels suitable for western toads will be installed at appropriate locations to facilitate the movement of toads between breeding and terrestrial habitats. Wherever possible, final tunnel design will follow guidelines established in the Best Management Practices for Amphibians and Reptiles in Urban and Rural Environments in British Columbia (BC WLAP, 2004b).	4	Amphibian and habitat protection will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.4	IM/MAM	Y (possible)	4	NA
320	Transportation Infrastructure / Wildlife	Earth berms are planned along sections of the road through lower More Creek for rockfall and avalanche control; berms will also provide some screening from the road for wildlife. However, these structures may act as barriers to escape for moose travelling along the road. To provide 'escape routes' for moose, earth berms will be positioned with gaps at regular distance intervals.	4	Wildlife management will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.4	IM		4	NA

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321	Wildlife and Wildlife Habitat	Of particular concern is the potential for disturbance of: • nesting birds including harlequin ducks • raptors; • grizzly bear denning habitats and behaviours; • mountain goat natal habitat and kidding periods; and, • western toad breeding habitat. Construction will be timed, where feasible, to avoid these critical habitats particularly during sensitive periods as outlined in the general management practices (Section 8.13.2.7). Where this is not possible construction will avoid and mitigate potential damage or disturbance to these critical habitats.	4	Wildlife management will be included within management plans.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.13.4	IM/MAM	Y (feasible and possible)	4	NA
322	Tunnel Explosives / Wildlife	During the construction phase and where required, an environmental monitor will be on site to identify sensitive wildlife habitats and implement appropriate procedures to minimize potential impacts to these areas. Additionally, a wildlife biologist will be on site when special structures (e.g., wildlife tunnels) are being installed.	4	The environmental monitoring program will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.4	IM/MAM		4	NA
323	Transportation Infrastructure / Wildlife	Nesting Birds Where possible, vegetation clearance will be scheduled outside of the general bird breeding season during the construction phase as described in Section 8.13.2.7. Clearance of forested areas will primarily occur during the winter months. Nesting sites will be avoided if encountered during construction. To minimize potential impacts, and to prevent the removal of riparian nesting habitat of harlequin ducks, woody debris and riparian vegetation will be maintained within a 50 m buffer of the road right-of-way along identified breeding reaches where possible.	4	Bird and bird nest mitigation will be included as part of a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.4	IM/MAM	Y (possible)	4	NA
324	Transportation Infrastructure / Wildlife	Raptors As construction progresses along the access road alignment, potential raptor nesting habitats and previously identified cliff nesting sites will be surveyed for raptor nesting activity ahead of construction activity. In the event that active nests are encountered the B.C. Ministry of Environment will be consulted for further guidance. In accordance with B.C.'s best management practices for raptors (BC WLAP, 2005), a buffer zone free of human disturbance of greater than 200 m may be established around occupied nests.	4	Raptor and raptor nest protection will be included as part of a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.4	IM		4	NA
325	Wildlife	Grizzly bear Grizzly bears often den at higher elevations near or above the treeline, usually entering their dens in November and emerging in April. Denning areas for grizzly bears were incidentally located within the More and Sphaler valleys, at elevations above the treeline and outside the 1 km access road buffer. However, given that all denning locations are not known with certainty, where possible the timing of initial construction in areas above tree line will be avoided until after bears have emerged from dens (April). This will avoid disruption or destruction of active dens within construction areas.	4	Grizzly bear mitigation will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.4	IM/MAM		4	NA
326	Explosives / Wildlife	Mountain goat Mountain goat natal habitat was identified in the area of the southern portal of the tunnel and along the access corridor close to Round Lake and west of More Creek (CIS LRMP). Where possible, tunnel construction and blasting within 2 km of natal habitat will be scheduled outside of the mountain goat kidding season (April 15 to June 15) to minimize impacts.	4	Mountain goat and habitat monitoring and mitigation will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.4	IM	Y (possible)	4	NA

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327	Wildlife and Wildlife Habitat; Terrestrial Ecosystems, Vegetation and Soil Landscape	Western toad To minimize potential disturbance to western toad breeding habitats and/or behaviours, a buffer zone of at least 30 m will be established between construction activities and identified breeding habitat where possible, in accordance with B.C.'s best management practices for amphibians (BC MWLAP, 2004b). Working areas, machinery yards and material storage areas will be located outside of the buffer zone and, where required, temporary fencing may be used to prevent access to critical toad habitats.	4	Amphibian and habitat protection will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.13.4	IM/MAM	Y (possible)	4	NA
328	Wildlife	Small Mammals and Herpetiles Where appropriate, piles of debris from timber clearing will be retained to provide marten denning habitat. Coarse woody debris also promotes small mammal production and provides terrestrial habitat for amphibians and reptiles (BC MWLAP, 2004a; 2004b). Some snags and stumps will also be retained to provide additional habitat for species that use tree crevices, for example long-eared myotis (Myotis evotis) roost in snags and stumps (Rancourt et al, 2005).	4	Procedures for retention of timber and other features for habitat purposes, wherever feasible and safe, will be defined within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.4	IM/MAM	Y (appropriate)	4	NA
329	Housing and Accommodation / Wildlife	Road Construction Camps acting as a Wildlife Attractant Wastes from temporary construction camps will be managed according to the Waste Management Plan, including the use of wildlife-proof containers and the incineration of all kitchen wastes (Section 8.14). All temporary construction camps will be fenced to exclude wildlife.	4	Waste management, human wildlife conflict and electric fencing will be included as part of a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.4	IM		4	NA
330	Housing and Accommodation / Wildlife	Direct Mortality All construction sites and camps will be designated a no-shooting/no-hunting zone and no personal firearms will be permitted, except weapons under control of authorized personnel that may be required for protection in the event of wildlife encounters in which human safety is compromised. A policy restricting the feeding of wild animals will be enforced at all mine camps and construction sites. If wildlife is present in the construction area it will be deterred or removed prior to commencement or continuation of activities.	1	Condition about no-hunting/no-fishing	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.4	IM		4	NA
332	Transportation Infrastructure / Vegetation	Construction of the road bed [in Wetland 3] will result in an approximately 300 m long and 30 m wide section being stripped of vegetation and filled with till to elevate the road bed.	3	Access road alignment will be managed in consultation with regulatory agencies under FRPA	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.4	IM		4	NA
333	Transportation Infrastructure / Vegetation	Riparian fish habitat totalling approximately 9,000 m2 will be lost in one wetland at kilometre 35 of the road (lower More Creek watershed) due to construction of the access corridor (Figure 8.12-2).	3	Instream construction and construction within wetlands will be managed in consultation with regulatory agencies under FRPA and WSA.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.4	IM		4	NA
338	Wildlife and Wildlife Habitat; Terrestrial Ecosystems, Vegetation and Soil Landscape	Disturbance of Wildlife Habitats or Behaviours Where possible, vegetation clearance will be scheduled outside of the general bird breeding season during the construction phase as described in Section 8.13.2.7. Clearance of forested areas will primarily occur during the winter months. Nesting sites will be avoided if encountered during construction.	4	Bird and bird nest mitigation will be included as part of a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.13.5	IM/MAM	Y (possible)	4	NA
341	Wildlife and Wildlife Habitat	Nesting Birds Where possible, vegetation clearing will be scheduled outside of the general bird breeding season during the construction phase as described in Section 8.13.2.7. Clearance of forested areas will primarily occur during the winter months. Nesting sites will be avoided if encountered during construction.	4	Bird and bird nest mitigation will be included as part of a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.13.6	IM/MAM	Y (possible, primarily)	4	NA

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342	Wildlife and Wildlife Habitat	Grizzly Bears Grizzly bears feed on salmon spawning (chinook, sockeye and coho) in streams along the Porcupine River during the salmon spawning period (August to early November) (Figure 6.13-18). Wherever possible, construction activities within 2 km of salmon spawning habitat will be scheduled outside of the salmon spawning period to avoid displacing grizzly bears from critical seasonal habitat. This is in accordance with the recommendations of the CIS LRMP (Wildlife, strategy 8.1).	4	Grizzly bear mitigation will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.13.6	IM/MAM	Y (possible)	4	NA
343	Management Plans / Wildlife	A Bear Response Plan will be educated to all mine employees and contractors. This plan will outline step by step procedures to avoid and mitigate potentially dangerous encounters with bears and other wildlife.	4	Wildlife awareness training will be included as part of a management plan	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.6	IM/MAM		4	NA
346	Aerodrome / Wildlife	Two sensitive periods for mountain goats have been identified by the B.C. Ministry of Water, Land and Air Protection (BC MWLAP, 2002): the November to April wintering period; and April 15 to June 15 spring kidding season. During these critical periods and when flying near winter and natal habitats, adherence to the guidelines outlined below will be particularly important. In accordance with the CIS LRMP (Wildlife – Strategy 6.3) repeated flights in or near natal areas for mountain goats should be avoided during the kidding season. This may require special flight paths and no fly zones to be applied during these periods.	4	mitigation measures with regards to wildlife will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.6	IM/MAM		4	NA
347	Aerodrome / Wildlife	Helicopter Operating Procedures around Wildlife To minimize the potential for disturbance to wildlife from helicopter activities the following guidelines will be adhered to by helicopter pilots: • avoid flying directly towards wildlife; and • avoid hovering close to, or flying low over, wildlife.	4	mitigation measures with regards to wildlife will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.6	IM/MAM		4	NA
348	Aerodrome / Wildlife	To minimize the level of disturbance to mountain goat, pre-determined helicopter flight paths will be developed to provide buffer distances between helicopter flight paths and habitats occupied by mountain goats. Where safety permits, helicopter flight paths will not come within 2,000 m horizontal or vertical distance of identified mountain goat habitat unless goats are separated by a physical barrier such as a mountain ridge. Where terrain and safety considerations require flight within 2,000 m of goat habitat, helicopters will remain as far from goats as practically possible. Pilots and project aerodrome and environmental staff will inform each other of goat incidental sightings and plan flights to avoid these areas.	4	mitigation measures with regards to wildlife will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.6	IM/MAM		4	NA
349	Aerodrome / Wildlife	To avoid disturbance to grizzly bears during critical seasonal habitat, helicopter flight paths will avoid flying or hovering over the specific salmon spawning areas of the Porcupine River (Figure 6.13-18) during the salmon spawning period of August to mid-November. This will also reduce the potential for disturbance to bald eagles feeding on salmon.	4	mitigation measures with regards to wildlife will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.6	IM/MAM		4	NA
354	Socio-Economic	NovaGold Canada Inc. (NovaGold) is committed to sustainable development and will take all the necessary actions to minimize waste, mitigate any effects from generated waste and ensure that the collection, storage, transportation and disposal of wastes are carried out in a safe and environmentally responsible manner.	4	Waste management will be addressed as a component of the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.14	IM/MAM		4	NA
355	Management Plans	The primary focus of the Domestic and Industrial Waste Management Plan is a wise use of resources, which includes the four R's; reduce, reuse, recycle, and recover. Where possible, all of these methods will be exhausted before the waste materials are disposed of. In order for the Waste Management Plan and associated procedures to work to their full extent, all people on site must be made aware of the plan and their corresponding responsibilities. All Galore Creek Project personnel need to be active participants.	4	Waste management will be addressed as a component of the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.14.1	IM/MAM	Y (possible)	4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
356	Housing and Accommodation / Infrastructure and Services / Management Plans	Galore Creek Valley Exploration Camp The waste collection / disposal facilities that will be required during the operations phase will be constructed up front to deal with the wastes that will be produced during the construction phase. Clearly labelled containers will be provided for each work area for different types of wastes, thus ensuring proper disposal of all wastes. In the interim, waste from the existing exploration camp will continue to be disposed of in the temporary landfill or temporarily stored in appropriate marked containers or areas, for that specific waste, and await further disposal as specified by the Waste Management Plan. For example, the inert non reactive solid wastes (tires, conveyor belts, rebar, wood, etc.) will be stockpiled for later disposal in the landfill. Hazardous wastes will be stored in appropriate sealed containers within a bermed area (petroleum wastes, batteries, etc.) for transfer off site and all putrescible kitchen wastes will be incinerated.	4	Waste management will be addressed as a component of the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.14.1	IM		4	NA
357	Housing and Accommodation / Management Plans	Filter Plant Camp Most domestic and industrial wastes generated at the filter plant will be incinerated according to Waste Management Plan and procedures. All other wastes will be trucked off site to appropriate disposal facilities. The filter plant's waste collection / disposal facilities will be constructed as soon as possible to handle the waste from the filter plant camp, West More camp and the access corridor construction wastes. While the filter plant waste collection / disposal facilities are being constructed, waste will be temporarily stored in appropriate marked containers or areas, for that specific waste, and await further disposal as specified by the Waste Management Plan.	4	Waste management will be addressed as a component of the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.14.1	IM		4	NA
358	Infrastructure and Services	Most domestic and industrial wastes generated at the Porcupine Camp will be incinerated according to Waste Management Plan and procedures. All other wastes will be stored until road access is available, at which point they will be trucked off site to appropriate disposal facilities.	4	Waste management will be addressed as a component of the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.14.1	IM		4	NA
359	Housing and Accommodation	Waste generated at the West More camp will be transferred to the filter plant.	4	Waste management will be addressed as a component of the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.14.1	IM		4	NA
360	Housing and Accommodation / Infrastructure and Services / Management Plans	Waste Disposal Methods/Facilities for the Construction Camps All construction camps will have incinerators to handle putrescible kitchen wastes, and portable rotating biological contactors (or other similar units) to handle both black and grey water waste. Solid inert wastes and hazardous wastes will be transferred to the waste collection areas at the mine site, Porcupine Camp or the filter plant, according to the Waste Management Plan.	4	Waste management will be addressed as a component of the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.14.1	IM		4	NA
361	Wildlife and Wildlife Habitat	Electric fencing will be used to deter bears from entering waste disposal facilities (i.e. incinerator).	4	human-wildlife conflict prevention measures, including fencing, will be included in a management plan	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.14.1	IM/MAM		4	NA
362	Transportation Infrastructure / Vegetation	The road right-of-way will require initial stripping of vegetation and falling of trees prior to road construction as stipulated under an occupant licence to cut. Clearing requirements will also involve removing trees to ensure a suitable right-of-way width to account for safety considerations associated with the power transmission line. This requirement may result in clearing widths falling outside the right-of-way boundaries.	3	Access road alignment will be managed in consultation with regulatory agencies under FRPA.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM/MAM	Y (clearing widths falling outside the right-of-way)	4	NA
363	Transportation Infrastructure / Air Quality	Roadbed watering trucks will be employed as required to reduce dusting from all road excavation and roadbed surfaces.	4	Dust management will be addressed in the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM	Y (as required)	4	NA
364	Transportation Infrastructure	Road construction methodologies will be consistent with those described in the British Columbia Ministry of Forest and Range publication, Forest Road Engineering (MOFR 2002b). In addition, special attention will be paid to potential for metal leaching and acid rock drainage (ML/ARD) as detailed in Section 8.8, Access Corridor Preliminary ARD Management.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM		4	NA

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365	Transportation Infrastructure	During the construction phase, the use of explosives will be required as part of bedrock excavation associated with the road alignment, borrow sources and tunnel construction. Required explosives quantities will be brought into the field each day from theses central storage locations and kept in secure areas throughout the workday. Development of the access tunnel connecting Scotsimpson and Galore creeks will require the stationing of an explosives magazine near the development headings.	4	Explosives management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM		4	NA
366	Transportation Infrastructure / Soil	All excavated surface soils, organic matter and woody debris [from access road construction] will be retained for reclamation purposes. Wetland soils will also be considered for recovery where feasible.	4	Soil and woody debris management will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM	Y (feasible)	4	NA
367	General	Persons involved in the construction work will be made aware of the need for environmental protection and be encouraged to actively participate in it through training. Any concerns or details will be encouraged from the workers and supervisory staff through a program of adaptive management and continuous improvement consistent with the principles of ISO 14001.	4	Environmental awareness education and training will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.15.3	IM/MAM		4	NA
368	Transportation Infrastructure	All construction activities will be supervised for the environmental as well as engineering aspects of the project. During construction, inspection sheets will be filled out by the Professional Engineer or Forester overseeing construction of the individual road sections. Mitigative measures will be implemented when designed protection measures are not working out as expected (adaptive management). The completed inspection sheets will also act as statement of construction conformance and will include all major elements such as bridges, major culverts and other structures. Inspection sheets will be properly documented and filed as part of the overall Environmental Management System implemented during the construction phase.	4	The environmental monitoring program will be defined within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM		4	NA
369	Land and Resource Use	Staging Areas In addition to the construction camps mentioned above, a number of staging areas will be required along the access road route for the construction phase. Each will cover an area of approximately 0.5 ha. There will be three primary staging areas: Muskwie Creek (km 31), Upper Sphaler Creek (km 91) and Lower Sphaler Creek (km 105). Each staging area will provide fuel and supplies through helicopter support for multiple construction headings. Heavy equipment will be flown in and re-assembled on site. The locations of the staging areas along the access road are shown in Figure 8.15-10.	3	Staging and laydown areas will be managed in consultation with regulatory agencies as part of the permitting program under FRPA.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM		4	Note we suggest the CPD allow for laydowns and staging areas, with details TBD by permitting
370	Transportation Infrastructure / Vegetation / Soil	Route Clearing Preparation of the road route will involve felling trees and grubbing and stripping sumps, roots and downed logs. McElhanney (2006) estimates a total of 362,000 m3 of material will be stripped during excavation of the road route. These materials will be removed to strategically located spoil/waste piles. Topsoil will be removed from within the road prism. All salvageable organic material will be set aside for later use in reclamation. Other materials will be placed in waste piles.	4	Clearing, grubbing and topsoil management activities will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM	Y (strategically located)	4	NA
371	Transportation Infrastructure / Land and Resource Use	Borrow Pits /Quarries A number of borrow and rock sources will be required for construction of the access road. This includes rock and granular materials. McElhanney estimates the need for 1,159,600 m3 of common fill, 1,498,400 m3 of rock to be excavated and 444,200 m3 of borrow material. A number of the borrow sources covering a total area of 28.4 ha (net of road) have been identified along the access road.	2	This is a description	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM	Y (a number of)	4	Note we suggest the CPD allow for borrow pits and rock sources, with details TBD by permitting
372	Land and Resource Use / Vegetation	Borrow pits and quarries will be excavated outside of riparian management areas.	4	Protection of riparian vegetation (and other vegetation) will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM/MAM		4	NA
374	Soil	Salvageable soils from the development of the borrow sources and quarries will be set aside for later use.	4	Clearing, grubbing and topsoil management activities will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM/MAM		4	NA

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375	Soil	Where possible and practical, organic and fine-textured soils will be stockpiled for subsequent placement over closed borrow and waste areas to facilitate revegetation.	4	Clearing, grubbing and topsoil management activities will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM/MAM	Y (possible and practical)	4	NA
376	Terrestrial Ecosystems, Vegetation and Soil Landscape; Wildlife and Wildlife Habitat	Areas of slash and debris disposal will be covered with a minimum of 300 mm of soil to aid in revegetation (McElhanney, 2006).	3	Reclamation and land replacement requirements will be addressed through permitting	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.15.3	IM/MAM		4	NA
377	Transportation Infrastructure	Construction of each [road] section will require hand-falling of standing timber, right-of-way clearing and stripping, drilling and blasting of rock, rock excavation, end-hauling blasted rock, bridge and culvert installation and surfacing with gravel.	5	General context of road construction	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM		4	NA
379	Transportation Infrastructure	The 3.8 km long tunnel will connect the access road from the headwater of Scotsimpson Creek to a point in the Galore Creek Valley. The tunnel will be built from the north and south portals using helicopter support, prior to completion of the access road. The construction will require the preparation of staging and explosives storage areas. [commitment has been superseded; see #946. Tunnel length is now 4,389 m]	5	N/A. commitment superseded.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3	IM	Y (commitment superceded)	4	NA
381	Transportation Infrastructure	Access will be controlled differently during the period of road construction (prior to a road being in place) than the subsequent period of mine development and mine operations (once the road is in place). Access during the two phases is discussed below.	5	General context	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.15.4	IM		4	NA
382	Transportation Infrastructure	8.15.4.1 Construction Phase Access Control This phase will see the construction of the access road and tunnel. Access to the construction areas will originate from three sites: the Filter Plant Camp, the Porcupine Camp and aerodrome and the West More Camp and heliport. Access to the filter plant camp and the access road beyond it will be controlled from the commencement of construction activities with a manned gate. Initial access to Porcupine aerodrome will be by helicopter until the airstrip is built as part of the mine operations phase. West More Camp will be limited to helicopter access. Given the air access only to each of these areas, access control will be restricted to a limitation on aircraft landings for project or emergency purposes only. Once the road is completed and commissioned, it is considered to be in its operations phase.	5	General context	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.15.4.1	IM		4	NA
383	Transportation Infrastructure	The general sequence of construction for mine development is: • road, tunnel and aerodrome • transmission line • pipelines along access route • mine facilities.	5	General context	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.16.3.1	IM		4	NA
384	Transportation Infrastructure	The construction of the Galore Creek Project will involve significant logistical planning. However, from project commencement, constructing the aerodrome, heliport and ancillary helipads will be most important in establishing starting points for construction of the access road and tunnel. Thereafter, the road will be the primary avenue to mobilize equipment, supplies and personnel to the site.	5	General context	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.16.3.1	IM		4	NA
385	Housing and Accommodation / Wildlife / Vegetation / Aerodrome	Clearing of vegetation for the aerodrome, construction camps and staging areas will be scheduled to minimize impacts during the general bird-breeding season.	4	Adherence to least-risk work windows, where feasible based on species occurrence and regional requirements, will be defined within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.16.3.1	IM/MAM		4	NA
386	Wildlife and Wildlife Habitat	Construction activities will be scheduled and managed to minimize animal and human interactions.	4	Wildlife management will be included within management plans.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.16.3.1	IM/MAM		4	NA

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387	General	Components associated with the construction phase are outlined in Table 8.16-4.	5	General context	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.16.3.1	IM		4	NA
389	General	Final storage requirements and plans will be determined during the detailed design phase before construction begins.	5	General context	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.16.3.1	IM	Y (determined during detailed design)	4	NA
393	Management Plans / Wildlife	Additional wildlife considerations and proposed plans would include: Light management: The lighting system will be designed to minimize the attractiveness to wildlife while ensuring operational safety. • Waste management: All wastes will be stored in wildlife-proof containers and waste will be removed and incinerated daily to avoid a build-up of garbage. • Fuel and hazardous materials management: Materials that may act as an attractant to wildlife will be stored in wildlife-proof facilities or containers, and a spill management plan complete with spill kits in strategic locations will serve to minimize releases. • De-icing: When required, this will be undertaken in a specified area with a runoff collection system and collected fluids will be removed for safe disposal. The storage and handling of de-icing fluids will comply with the guidelines set out in Transport Canada’s Guidelines for Aircraft Ground-Icing Operations (TP14052). • Fugitive dust: Water will be the main dust suppressant to prevent wildlife from being attracted to calcium chloride or other chemicals. • Reporting and monitoring of wildlife incidents: All wildlife incidents will be recorded and reported to NovaGold environmental staff. This information will be utilized to refine management plans, as required.	4	Wildlife management will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.16.4.5	IM/MAM	Y (refine management plans)	4	NA
394	Management Plans / Wildlife	Helicopter flight paths will be designed to minimize disturbance during specific seasons of wildlife concern as outlined in the Wildlife Management Plan.	4	Helicopter operation mitigation measures with regards to wildlife, including least-risk operational windows, will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.16.4.5	IM/MAM		4	NA
395	Aerodrome	8.16.5 Areas Requiring Further Consideration Areas requiring further consideration prior to detailed planning and regulatory permitting of the aerodromes are outlined in Table 8.16-5 and the text below.	5	General context	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.16.5	IM	Y (areas requiring further consideration)	4	NA
396	Archaeology	Management and Mitigation Because of the scattered, subsurface and varied nature of sites, together with the irregular terrain in this region, there is always a chance of encountering an unrecorded archaeological site. In addition to archaeological survey before ground disturbance and the avoidance of known sites, certain procedures will be in place prior to construction works to deal with any unexpected cultural evidence encountered during development or exploration activities. Existing sites identified as part of the baseline studies will be protected during all phases of the project to ensure Tahltan heritage aspects are respected.	4	Heritage and Archaeology site and material protection, including training, will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.17	IM/MAM		4	NA
397	Archaeology	NovaGold will implement an extensive environmental training program concurrent with the initiation of construction works. The program will ensure that all personnel involved in exploration and development activities are aware that heritage resources are protected by law, that any archaeological, historic or human remains uncovered during any such activities must be reported and that disturbance must cease until the remains are dealt with appropriately.	4	Heritage and Archaeology site and material protection, including training, will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.17	IM		4	NA

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398	Management Plans / Archaeological and Heritage Resources / Indigenous Nation Identified Valued Component	Protocols will be developed with both the Tahltan Central Council and the Heritage Branch to ensure sites that are documented and protected as required. The training program will ensure that contractors and employees understand how to identify sites and that any sites are to be left alone so that a qualified archaeologist can be called-in to develop an investigation program consistent with agreed protocols.	4	Heritage and Archaeology site and material protection, including training, will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.17	IM/MAM		4	NA
399	Management Plans / Archaeological and Heritage Resources	The following [Archaeology] protocols will be followed in the event that a site is discovered: 1. All construction activity in the vicinity of the remains will cease immediately. 2. The find location will be recorded, and all remains will be left in place. 3. The project archaeologist, First Nation liaison officer and Archaeology Branch will be contacted. Then: • The potential significance of the remains will be assessed. • Mitigative options will be identified. 4. If the significance of the remains is judged to be sufficient to warrant further action and they cannot be avoided, then the project archaeologist in consultation with the Archaeology Branch and representatives of local communities will determine the appropriate course of action. 5. In the case of human remains, the RCMP will be contacted. In addition, a coroner and/or physical anthropologist may be involved, if necessary. If the remains are not recent, then the Archaeology Branch will be consulted to determine how to handle them. Options could include avoidance or respectful removal and reburial. The protocols established here will be refined as appropriate through all phases of the project.	4	Archaeological and heritage site protection measures will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.17	IM/MAM		4	NA
405	Soil	Topsoil will be salvaged as a separate lift during surface pre-stripping, typically over the footprint of pit areas, dams, plant site, linear infrastructure (roads, diversion channels, buried pipelines), overburden storage area(s) and waste rock dumps outside the flooded area. No salvage is anticipated in areas to be flooded for tailings or underwater waste rock placement, unless soil balance requirements (salvage : replacement) show a need for additional salvage volume from these areas.	4	Clearing, grubbing and topsoil management activities will be included within management plans.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.5.7	IM/MAM	Y (typically)	4	NA
407	General	It is likely that additional truck wheel wash and containment facilities will be installed prior to Galore’s start-up.	4	Truck washing will be described in a management plan	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.7.4.1	IM/MAM		4	NA
409	Housing and Accommodation / Infrastructure and Services	Water for each permanent camp will be pumped through a small ozonation treatment plant prior to distribution. Construction camps will use a chlorination process for potable water treatment.Procedures will be developed for maintenance of the potable water systems and for regular testing of drinking water quality (e.g. coliform) as per Northern Health Authority requirements.	3	It is an existing requirement to comply with relevant legislation, regulation and permits	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.8.2.1	IM		4	NA
417	Transportation Infrastructure	Once the road infrastructure is built, pre-stripped material will be placed in the existing valley without additional soil stripping. Only merchantable timber will be removed from the footprint of the waste rock dump.	4	Clearing, grubbing and topsoil management activities will be included within management plans.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.11.1.2	IM/MAM		4	NA
418	Soil	All of these methods will be exhausted before the waste materials will be disposed of. In order for the waste management policies to work to their full extent, all people on site will be made aware through training of the policies, how they function, and their corresponding rules. All Galore Creek Project personnel and contractors need to be active participants.	4	Soil and overburden waste management, including awareness training, will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.11.2	IM/MAM		4	NA
419	Infrastructure and Services	All hazardous materials and dangerous goods will be stored in clearly labelled containers or vessels and handled in accordance with local regulations and appropriate to their hazard characteristics prior to disposal at certified hazardous waste disposal facilities.	4	Fuel and other stored chemicals, and spill management measures will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.11.2.1	IM/MAM		4	NA

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420	Transportation Infrastructure	5.12.1.2 Route Description A detailed description of the alignment, from Highway 37 to the south portal of the tunnel through to the Galore Creek Valley, is provided below. The Lower More section (km 0 to km 40.9) will commence at Highway 37, 15 km north of Bob Quinn Lake, and follow the existing Devil Creek Forest Service Road for 11 km. The first three kilometres of the existing road, between Highway 37 and the proposed filter plant, will be upgraded to two lanes with improved culverts. New construction will begin at km 11 and continue south to km 15.5 before crossing the Iskut River with a 107 m multi-span bridge immediately upstream of the More Creek confluence. From the bridge the proposed road location will switch back and climb over a rock nose above the lower More Creek Canyon. Steep side slopes of 80-100%, rock bluffs and talus slopes dominate the terrain, requiring maximum road gradients of 15% and large rock through-cuts to achieve road access beyond km 20. Before leaving the canyon the route will pass under potentially unstable rock falls and along the toe of an active rock slide at km 21.5. Between km 22 and km 24 the proposed road corridor will be located further away from the More Creek floodplain and pass behind a hill at km 23 before descending past two avalanche chutes at km 23.5 and km 24.5. A 30 m span will be required to cross the creek south of Swamp Lake and extensive rock work (drilling and blasting) will be required between km 25 and km 27. Beyond km 27 the alignment will follow the flat river terrace through to a 98 m bridge over Muskwie Creek [Muskwie Creek crossing has been superseded during permitting and as confirmed during 2021 Administrative Inspections]. More Creek Valley eventually widens beyond km 30 and the route will traverse the north side of the flood plain to a 90 m two span bridge over More Creek at km 39.5. The terrain is relatively flat throughout this section and a series of swamps and small fish bearing streams will be crossed between km 33 and km 36. The alignment will then climb steadily at a 10% to 15% grade to the 200 m bridge at the upper More Creek crossing at km 49. Gentle 15 to 20% side slopes and moist deep glacial till deposits will be encountered up to km 45 where a rock outcrop extends for 300 m. Unstable Class IV terrain exists below the road corridor from km 45.5 to km 48, forcing the route higher and across two active avalanche paths requiring mitigative measures. Once across to the north side of More Creek the terrain is less steep and the road alignment will follow the contour of the land, climbing gently towards the summit above Round Lake. Major land features along this section of the route include; avalanche runout paths at km 50 and km 53; riprap sources from talus slopes near km 54, 58 and 61; and a series of small lakes and wetlands near the headwaters to Mess Creek. Roca Minerals has an exploration camp just south of the proposed alignment at km 69, which is the beginning of sub-alpine terrain with mountain hemlock and sub-alpine fir forest cover.	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.2	IM		4	NA

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421	Transportation Infrastructure	5.12.1.2 Route Description The upper More Creek Valley is a wide outwash plain from the Andrei Glacier. Soils are a mixture of washed gravel and colluvium with the proposed road alignment crossing a 25 m high lateral moraine at km 76. As the route climbs to the summit at approximately 1,200 m elevation the rock formation changes and a limestone scree slope is encountered. Beyond Round Lake the proposed route will be located down the upper Sphaler Creek drainage. This section is primarily alpine and sub-alpine terrain with several unnamed creek crossings at the bottom of deep wide gullies and outflows from the glacier between large medial and lateral moraines. Significant rock work will be required to achieve a 15% grade line from km 78 to km 80, then a major 80 m bridge span at km 83 to follow a narrow bench through to km 85. Outflows from the glaciers will be crossed at km 86 and km 90 and the alignment skirts the edge of the Great Moraine between km 90 and km 91. The Sphaler Creek Canyon runs for 25 km before its confluence with the Porcupine River. The proposed road corridor will stay on the south side of the Canyon to km 97.5, taking advantage of stable rock benches wherever possible. Avalanche sheds or other avalanche protection will be required for 150 m near km 93 and extensive drilling and blasting of full bench cuts will be necessary. The first Sphaler Creek crossing will be an estimated 100 m bank to bank and 20 m above the creek bed to allow for any catastrophic rock and debris flows. From km 97.5 to km 105 the route will be on the north side of Sphaler Creek traversing 60 to 80% side slopes and crossing the bottom edge of avalanche runouts near km 99.5 and again at km 102. Most of the Canyon except for the slide areas has mature hemlock stands as the predominant forest cover. The next Sphaler Creek crossing will be lower and approximately a 40 m span to access a two kilometre long flat bench on the south side. Side slopes will be relatively gentle (30 to 50%) up to a pass behind a hill at km 110. The route will avoid several rock slides and talus slopes but will cross the toe of a rock fall at km 110.5 before dropping down to the final 50 m Sphaler Creek crossing at km 111.5. Avalanche prone terrain will be crossed at km 112 and again at km 114 but the alignment will have to climb constantly to reach the top of a talus slope and the narrow gap allowing access through to the Porcupine River Valley and then climbing into the Scotsimpson Creek Valley. The upper Scotsimpson Creek Valley from km 122 is open alpine terrain with numerous avalanche chutes extending to the valley bottom. The proposed road will end at the south portal of the tunnel near the toe of a glacier at approximately 1,030 m elevation.	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.2	IM		4	NA

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422	Transportation Infrastructure	Alternative Alignments NovaGold assessed several alternatives to the currently preferred road corridor, as discussed in detail in Chapter 10. Within the currently preferred road corridor intensive engineering studies, coordinated with archaeological and environmental studies, terrain stability mapping and geotechnical assessments, led to an iterative process to develop the best all-round alignment. Alternate alignments were investigated and chosen for the following sections in 2005: km 21 to km 22 road centerline moved away from the base of the hill to avoid a high-risk rockslide area km 24 to km 25 road right-of-way moved away from an avalanche runout path and potential rock falls km 48 to km 51 two routes located and surveyed, with the option of staying on the south side of More creek and traversing high-risk avalanche paths and debris flows being rejected in favour of a 200 m bridge crossing over More Creek canyon onto more stable terrain along the north slope km 72.5, km 79 and km 81.5 road was re-aligned to protect identified archaeological sites km 110 to km 112.5 bridge crossing moved to obtain better clearance over Sphaler Creek and avoid rock falls and avalanche hazards	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.2	IM		4	NA
423	Transportation Infrastructure	5.12.1.4 Construction Schedule Discussions were held with road and tunnel contractors to better determine the likely approach and time for construction, as this component is the key driver of the overall project construction schedule. The general approach that has been developed is summarized below. • An airstrip will be developed at Porcupine River and a heavy lift heliport will be created at the West More Camp east of Round Lake as soon as practical after project approval. Both of these development operations will be based on air support. • The initial road development from the Bob Quinn area will commence as soon as practical in 2007 and the road will be pushed through as a pioneer trail as fast as possible to the West More Camp. A critical link will be the construction of the 200 m bridge over More Creek at km 48. This bridge is expected to take four months to construct. • Road headings will be started from West More Camp towards Bob Quinn and from Porcupine Creek to the south tunnel portal using the limited construction equipment that can be transported and supported via the air operations. Once the road access to the tunnel portal is completed, road construction will continue up Sphaler Creek towards the West More Camp base. Three half-hectare staging areas are proposed along the route, located at Muskwie Creek (km 31), upper Sphaler Creek (km 91) and lower Sphaler Creek (km 105). Helicopters will be used to stock each staging area with fuel and supplies to support multiple construction headings. Construction equipment will be flown in and re-assembled on site. Assuming that road construction could start in February of 2007, it is expected that the work will be completed by the end of the 2007 calendar year. Figures 5.12-1 through 5.12-3 provide more detailed timelines for the proposed construction sequence. Where blasting is required, the trench for the pipeline will be excavated during the road construction and backfilled with granular material. The granular material will be dug out for installation of the pipeline in 2009 after completion of the road.	5	N/A. Based on old construction schedule.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.4	IM		4	NA

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424	Transportation Infrastructure	Road construction methodologies will be consistent with those described in the British Columbia Ministry of Forests and Lands' publication Forest Road Engineering, second edition 2002. In addition, special attention will be paid to potential for metal leaching and acid rock drainage (ML/ARD). A preliminary assessment of ML/ARD concerns has been completed and a ML/ARD hazard map and management plan have been prepared.	4	ML/ARD testing and management will be included within a management plan.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.5	IM		4	NA
425	Transportation Infrastructure	All drivers will be advised of NovaGold's rules of the road concerning safety and the environment before they will be permitted to travel the road past the gatehouse at the filter plant. Traffic on the access road will be relatively light since the concentrate and diesel fuel will be transported by pipeline. Most vehicles leaving the mine will be travelling empty.	4	Traffic management and personnel environmental training requirements will be included within management plans.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.2.2	IM		4	NA
427	Infrastructure and Services	The truck shop, warehouse and office complex will be a 132 m long x 22 m wide pre-engineered steel building designed to accommodate the snow loadings expected in the area.	2	CPD to include provision for ancillary infrastructure	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.3	IM/MAM		4	NA
428	Infrastructure and Services	Three unheated, pre-engineered, fabric covered buildings approximately 50 m long x 20 m wide will provide bulk, covered storage for winter operations. These structures could also be utilized for maintenance and laydown of large components during winter conditions. They will be located near the mill.	2	CPD to include provision for ancillary infrastructure	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.3	IM/MAM	Y (could also be utilized for maintenance and laydown)	4	NA
429	Infrastructure and Services	A 29 m long x 17 m wide, pre-fabricated office complex will house the main administrative functions for the operation.	2	CPD to include provision for ancillary infrastructure	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.3	IM/MAM		4	NA
430	Infrastructure and Services	A 30 m long x 10.5 m wide, pre-fabricated building will house the assay laboratory, fully equipped to support the mining, metallurgical and environmental operations. It will include a wet laboratory and metallurgical laboratory and facilities for sample preparation and fire assay.	2	CPD to include provision for ancillary infrastructure	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.3	IM/MAM		4	NA
431	Housing and Accommodation	Initial work on the northern portal of the Scotsimpson tunnel will be based from the existing exploration camp in the Galore Creek Valley. By May 2008 the primary Galore Camp will be established in the vicinity of the plant site in the Galore Creek Valley with a capacity of about 450 people to support initial civil construction. This camp will be expanded by August 2009 to an 850 person capacity to support the major construction efforts prior to commissioning. The expansion will include accommodation units transferred from the Porcupine and West More sites once they are no longer required. Galore Camp will be supported solely by helicopter pending completion of the tunnel and access roads. On completion of construction, Galore Camp will be downsized to house about 280 people for mine operations.	2	camp description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.4.1	IM		4	NA
432	Housing and Accommodation	A new 35 person construction camp will be established in the spring of 2007 near the proposed location of the filter plant, about three kilometres along the access road from Highway 37. This camp will be used to house workers advancing the road, slurry pipeline and electric power transmission line from Highway 37 and construction of the filter plant and related facilities near the junction of the access road and Highway 37. This camp will be adjacent to the main staging/laydown area for the construction of the project.	2	camp description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.4.1	IM		4	NA
433	Housing and Accommodation	A new temporary 50 person construction camp will be built at the in the spring of 2007 at the proposed site of the aerodrome near the Porcupine River. This camp will support development of the aerodrome and construction of the access road from the Porcupine River to the tunnel portal at the head of Scotsimpson Creek, the excavation of the tunnel from the south portal, and the construction of the road from the Porcupine River up Sphaler Creek.	2	camp description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.4.1	IM		4	NA

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434	Housing and Accommodation	Another temporary construction camp, to house about 25 people, will be established at the West More camp near Round Lake in the spring of 2007 to support construction of the access road westward towards Porcupine River and eastwards towards Highway 37.	2	camp description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.4.1	IM		4	NA
435	Housing and Accommodation / Wildlife	All camp facilities will be fenced to prevent wildlife interactions.	4	human-wildlife conflict prevention measures, including fencing, will be included in a management plan	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.4.1	IM		4	NA
436	Housing and Accommodation	5.13.4.2 Permanent Camps The Galore Creek Project will require two permanent camp facilities; one at the mine and a second camp at the filter plant near Highway 37. The permanent minesite camp facility will be located adjacent to the plant in an area with low snow avalanche and geotechnical hazard risk. It will house 440 people and will accommodate all direct and contract employees for the site during operation of the mine.	2	camp description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.4.2	IM		4	NA
437	Housing and Accommodation	The permanent camp facility for the mine operation will consist of: • a pre-fabricated, modular structure with about 230 double occupancy rooms; • kitchen and dining facilities; and • lounge and fitness rooms. It is proposed to install the camp during the early phase of construction to house construction workers, together with an additional, temporary camp facility at that time.	2	camp description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.4.2	IM		4	NA
438	Housing and Accommodation	The filter plant camp will accommodate employees required to operate the filter plant, water treatment facility, road security gate and truck load out on a 24 hour per day basis. It will consist of several attached prefabricated buildings containing 30 single occupancy rooms, washing, laundry, kitchen and dining facilities, a lounge and a fitness room. It will be located immediately adjacent to the filter plant complex.	2	camp description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.4.2	IM		4	NA
440	Indigenous Nation Identified Valued Component	Pre-employment training will be provided where appropriate to prepare interested and qualified Tahltan members for employment during the initial hiring process. On-the-job training or additional short-term training will be provided to significantly qualified Tahltan members to address identified skill gaps for assigned jobs.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.15.2	IM/MAM		4	NA

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441	Transportation Infrastructure	5.16.1 Construction Schedule The access road, tunnel, diversion channels and tailings dam are the critical path activities. The general approach that has been developed is summarized below. • The 3.8 km tunnel into the Galore Creek Valley, which forms the permanent access to the site, will be constructed based on air support for both the north and south headings. The south portal will be developed and driving will commence as soon as the project was approved. The north portal access will require installation of protection from avalanche and therefore it may be necessary to install a short section of tunnel culvert so that the tunnel program can be established as soon as possible. It is anticipated the tunnel will require 388 days to establish, constructed from both headings. • An airstrip will be developed at Porcupine River and a heavy lift heliport established at the West More Camp as soon as practical after project approval. Both of these development operations will be based on air support. • A glacier crossing route could possibly be developed from the south east of the Galore Creek Valley, to be used as a construction access or temporary tunnel bypass route to protect the construction schedule should delays occur on the tunnel driving operation, and to support limited schedule-sensitive construction activities. • The initial road development from the Bob Quinn area will commence as soon as practical in 2007 and the road will be pushed through as a pioneer trail as fast as possible to West More Camp. Road headings will be started from West More Camp towards Bob Quinn and from Porcupine River to the south tunnel portal using the limited construction equipment that could be transported and supported via the air operations. Once the road access to the tunnel portal was completed, road construction will continue up Sphaler Creek towards the West More Camp base. • Installation of the pipeline pumping station will commence in the summer of 2008. Pipeline installation will be completed in 2009 with the closing section through the tunnel being the final section in late summer. • The power transmission lines to site will be installed shortly after completion of the road construction operation to provide power to a location adjacent to the south tunnel portal by the end of 2007. • Completion of the tie-in to the construction substation will coincide with the completion of the tunnel construction. • Temporary power may have to be generated at Bob Quinn until grid power is available. Tie-in to the substation at Bob Quinn with permanent power is anticipated in late 2008. The critical path flows through the construction of the access road and tunnel to access Galore Creek Valley, for construction of the tailings/waste dam and water diversion ditches.	5	N/A. Based on old construction schedule.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.16.1	IM		4	NA
442	Indigenous Nation Identified Valued Component	Provide pre-employment education upgrading in primary communities, in partnership with appropriate agencies and the Tahltan Nation.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	15.6	IM/MAM		4	NA
443	Indigenous Nation Identified Valued Component	TNDC businesses will have a preferential right to negotiate with NovaGold for some contracts before any others.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	15.6	IM/MAM		4	NA
444	Indigenous Nation Identified Valued Component	Provide pre-employment training to qualify candidates for employment	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	15.6	IM/MAM		4	NA

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446	Infrastructure and Services	Segregate waste prior to incineration to minimize toxic air emissions	4	Waste management will be addressed as a component of the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	15.6	IM/MAM		4	NA
447	Explosives / Wildlife / Acoustic	Issue visible and audible warnings before a blast to allow wildlife and workers to habituate.	4	Explosives management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	15.6	IM/MAM		4	NA
448	Acoustic	Prior to purchase check to see that new haul trucks and other equipment comply with manufacturer's maximum allowable noise limits	4	Noise monitoring and mitigation in relation to wildlife will be included in management plans.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	15.6	IM/MAM		4	NA
449	Transportation Infrastructure	Conduct pre-construction surveys to identify any important migration corridors for western toads along the access road; install dryland crossings of appropriate size at identified critical sections of the access road	4	Pre-construction survey requirements for wildlife of interest will be included within management plans.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	15.6	IM		4	NA
450	General	Final details of the [Environmental Effects Monitoring and Follow-Up Program] plans outlined herein will be developed during the project permitting phase prior to the start of construction.	4	The environmental monitoring program, including long-term monitoring and follow-up reporting, will be included within management plans.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	10.1	IM/MAM	Y (final details....will be developed)	4	NA
452	Management Plans / Wildlife	10.5.3.1 Moose The primary objective of the long-term moose monitoring program will be to monitor population size and composition for any evidence of change which may be attributed to effects associated with the project. It is proposed that winter surveys are repeated every three to four years, beginning the year before construction (2006). When possible, the surveys will be undertaken concurrently with annual surveys in Alaska conducted by the Alaska Department of Fish and Game. The field methods used to inventory moose will adhere to the aerial survey protocol identified by B.C. Ministry of Sustainable Resource Management (B.C. MSRM, 2002). Winter aerial survey based methods for monitoring moose population are well established and are sufficiently robust to allow statistical assessment of relatively small changes in population. The population potentially affected would include animals that winter in both the interior ecosystems associated with the Bob Quinn area and coastal ecosystems of the lower Iskut and Stikine rivers, therefore the majority of the survey blocks delineated within the Northern Access Route Moose Study Area (Appendix 6-L) will require surveying.	4	The environmental monitoring program, including long-term monitoring and follow-up reporting, will be included within management plans.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program_RC	10.5.3.1	IM/MAM	Y (possible)	4	NA
453	Management Plans	10.5.3.2 Mountain Goat Surveys will be completed on blocks within the Northern Goat Study Area (Appendix 6-B) most likely to be affected by the development and transportation infrastructure, and which have a suitably high number of animals to allow surveyors to detect change. The first monitoring stage will be a survey of all the selected blocks during July of the year prior to development, anticipated to be 2006. Following this, a complete survey will be conducted every five years afterward (2011, 2016, etc.). A sample of the selected survey blocks most likely affected plus a control block is proposed for monitoring every year starting in 2007. The surveys will follow the aerial survey protocol identified by B.C. MSRM (2002) and use comparable techniques to those used for baseline data collection (Appendix 6-B). Number and classification of adults and kids will be undertaken and location and flight lines will be recorded on a hand held GPS.	4	The environmental monitoring program, including long-term monitoring and follow-up reporting, will be included within management plans.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program_RC	10.5.3.2	IM/MAM		4	NA
455	Housing and Accommodation / Infrastructure and Services	Maintenance program for diesel construction equipment, camp incinerator will likely be fitted with an high efficiency venturi and acid gas scrubbers, waste will be segregated before it is incinerated	4	Equipment maintenance and waste management measures will be included in management plans	Vol 2 - Ch 7 - Environment & Socio-Economic Effects Assessment - Pg 1-83_RC	Table 7.3-3	IM/MAM	Y (likely)	4	NA

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456	Explosives / Wildlife / Acoustic	Several mitigation measures are planned to control blast noise. The sequential delay systems subdivide the overall blast into many smaller blasts, each separated by sequential time delays ranging from 10 to 100 milliseconds. Stemming of the blast holes will also reduce the noise. When and where possible, blasting will be conducted at the same time every day to allow wildlife and personnel to habituate. Visual and audible warning signals (e.g. flashing lights and a siren) will be issued prior to a blast. These give animals a cue, which is critical to conditioning and habituation. Many species of wildlife learn to ignore explosive noises if stimuli are repeated often enough.	4	Explosives management will be included within a management plan.	Vol 2 - Ch 7 - Environment & Socio-Economic Effects Assessment - Pg 131-169_RC_10	7.4.3	IM/MAM		4	NA
461	Transportation Infrastructure	The preferred alternative is an all weather road from an existing forestry road connecting with Highway 37 north of Bob Quinn Lake, following More Creek to the headwaters of West More Creek, down the Sphaler Creek drainage to the Porcupine River and up the Scotsimpson Creek drainage to a tunnel at the head of Scotsimpson Creek that will provide access to the Galore Creek Valley. The alignment is illustrated on Figure 5.2.4.	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12	IM		4	NA
462	Transportation Infrastructure	see Table 5.12-1 for Access Road Design Criteria	3	Access road construction design requirements to be addressed by permitting.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.1	IM		4	NA
463	Transportation Infrastructure	The proposed rights of way will have variable widths for construction and maintenance requirements including the road prism, pipelines, snow removal and power transmission line.	3	The ROW widths will be managed in consultation with regulatory agencies as part of the permitting program under FRPA and Land Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.1	IM/MAM	Y (variable)	4	GCMC proposes that the CPD would include a 'certified linear infrastructure corridor' (or similar), with the ROW widths being determined as part of the permitting program under FRPA and Land Act. Note that during the Access Development amendment the road is in scope but not the pipeline, therefore only the road related components of this commitment would be modernized.
464	Wildlife and Wildlife Habitat; Terrestrial Ecosystems, Vegetation and Soil Landscape; Fish and Fish Habitat	Rights of way clearing widths may be reduced for riparian zones or other environmentally sensitive areas	3	The ROW widths will be managed in consultation with regulatory agencies as part of the permitting program under FRPA and Land Act.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.12.1.1	IM		4	NA
465	Socio-Economic	Nominally four inter-visible pull-outs will be located every kilometre.	3	Compliance to roadway engineering and safety standards will be managed in consultation with regulatory agencies under FRPA.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.12.1.1	IM	Y (nominally)	4	NA
466	Transportation Infrastructure	The Lower More section (km 0 to km 40.9) will commence at Highway 37, 15 km north of Bob Quinn Lake, and follow the existing Devil Creek Forest Service Road for 11 km.	2	Access road alignment will be described in Certified Project Description as a corridor.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.2	IM		4	NA
467	Transportation Infrastructure	The first three kilometres of the existing road, between Highway 37 and the proposed filter plant, will be upgraded to two lanes with improved culverts.	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	NA

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468	Transportation Infrastructure	New construction will begin at km 11 and continue south to km 15.5 before crossing the Iskut River with a 107 m multi-span bridge immediately upstream of the More Creek confluence.	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	GCMC proposes that the CPD would include a 'certified linear infrastructure corridor' (or similar), with the details of crossings being determined as part of the permitting program under FRPA and Land Act
469	Transportation Infrastructure	From the bridge the proposed road location will switch back and climb over a rock nose above the lower More Creek Canyon. Steep side slopes of 80-100%, rock bluffs and talus slopes dominate the terrain, requiring maximum road gradients of 15% and large rock through-cuts to achieve road access beyond km 20. Before leaving the canyon the route will pass under potentially unstable rock falls and along the toe of an active rock slide at km 21.5.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	NA
470	Transportation Infrastructure	Between km 22 and km 24 the proposed road corridor will be located further away from the More Creek floodplain and pass behind a hill at km 23 before descending past two avalanche chutes at km 23.5 and km 24.5. A 30 m span will be required to cross the creek south of Swamp Lake and extensive rock work (drilling and blasting) will be required between km 25 and km 27. Beyond km 27 the alignment will follow the flat river terrace through to a 98 m bridge over Muskwie Creek [Muskwie Creek crossing has been superseded during pemritting and as confirmed during 2021 Administrative Inspections].	5	N/A. Muskwie creek crossing superseded.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	NA
471	Transportation Infrastructure	More Creek Valley eventually widens beyond km 30 and the route will traverse the north side of the flood plain to a 90 m two span bridge over More Creek at km 39.5. The terrain is relatively flat throughout this section and a series of swamps and small fish bearing streams will be crossed between km 33 and km 36.	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	NA
472	Transportation Infrastructure	The alignment will then climb steadily at a 10% to 15% grade to the 200 m bridge at the upper More Creek crossing at km 49. Gentle 15 to 20% side slopes and moist deep glacial till deposits will be encountered up to km 45 where a rock outcrop extends for 300 m. Unstable Class IV terrain exists below the road corridor from km 45.5 to km 48, forcing the route higher and across two active avalanche paths requiring mitigative measures.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	GCMC proposes that the CPD would include a 'certified linear infrastructure corridor' (or similar), with the details of crossings being determined as part of the permitting program under FRPA and Land Act. The context regarding grade is not relevant in the CPD.
473	Transportation Infrastructure	Once across to the north side of More Creek the terrain is less steep and the road alignment will follow the contour of the land, climbing gently towards the summit above Round Lake. Major land features along this section of the route include; avalanche runout paths at km 50 and km 53; riprap sources from talus slopes near km 54, 58 and 61; and a series of small lakes and wetlands near the headwaters to Mess Creek. Roca Minerals has an exploration camp just south of the proposed alignment at km 69, which is the beginning of sub-alpine terrain with mountain hemlock and sub-alpine fir forest cover.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	GCMC proposes that the CPD would include a 'certified linear infrastructure corridor' (or similar). The other contextual info in this commitment is not relevant in the CPD.
474	Transportation Infrastructure	The upper More Creek Valley is a wide outwash plain from the Andrei Glacier. Soils are a mixture of washed gravel and colluvium with the proposed road alignment crossing a 25 m high lateral moraine at km 76. As the route climbs to the summit at approximately 1,200 m elevation the rock formation changes and a limestone scree slope is encountered.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	NA

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475	Transportation Infrastructure	Beyond Round Lake the proposed [access] route will be located down the upper Sphaler Creek drainage. This section is primarily alpine and sub-alpine terrain with several unnamed creek crossings at the bottom of deep wide gullies and outflows from the glacier between large medial and lateral moraines. Significant rock work will be required to achieve a 15% grade line from km 78 to km 80, then a major 80 m bridge span at km 83 to follow a narrow bench through to km 85. Outflows from the glaciers will be crossed at km 86 and km 90 and the [road] alignment skirts the edge of the Great Moraine between km 90 and km 91.	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	NA
476	Transportation Infrastructure	The Sphaler Creek Canyon runs for 25 km before its confluence with the Porcupine River. The proposed road corridor will stay on the south side of the Canyon to km 97.5, taking advantage of stable rock benches wherever possible. Avalanche sheds or other avalanche protection will be required for 150 m near km 93 and extensive drilling and blasting of full bench cuts will be necessary. The first Sphaler Creek crossing will be an estimated 100 m bank to bank and 20 m above the creek bed to allow for any catastrophic rock and debris flows.	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM	Y (estimated)	4	NA
477	Transportation Infrastructure	From km 97.5 to km 105 the route will be on the north side of Sphaler Creek traversing 60 to 80% side slopes and crossing the bottom edge of avalanche runouts near km 99.5 and again at km 102. Most of the Canyon except for the slide areas has mature hemlock stands as the predominant forest cover.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	NA
478	Transportation Infrastructure	The next Sphaler Creek crossing will be lower and approximately a 40 m span to access a two kilometre long flat bench on the south side. Side slopes will be relatively gentle (30 to 50%) up to a pass behind a hill at km 110. The route will avoid several rock slides and talus slopes but will cross the toe of a rock fall at km 110.5 before dropping down to the final 50 m Sphaler Creek crossing at km 111.5.	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM	Y (approximately)	4	NA
479	Transportation Infrastructure	Avalanche prone terrain will be crossed at km 112 and again at km 114 but the alignment will have to climb constantly to reach the top of a talus slope and the narrow gap allowing access through to the Porcupine River Valley and then climbing into the Scotsimpson Creek Valley. The upper Scotsimpson Creek Valley from km 122 is open alpine terrain with numerous avalanche chutes extending to the valley bottom. The proposed road will end at the south portal of the tunnel near the toe of a glacier at approximately 1,030 m elevation. [south portal tunnel elevation of 1,030 m has been superseded by #945, and and is now ~72 m lower in elevation].	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	NA
480	Transportation Infrastructure	Alternate alignments were investigated and chosen for the following sections in 2005: • km 21 to km 22 road centerline moved away from the base of the hill to avoid a high-risk rockslide area; • km 24 to km 25 road right-of-way moved away from an avalanche runoff path and potential rock falls; • km 48 to km 51 two routes located and surveyed, with the option of staying on the south side of More creek and traversing high-risk avalanche paths and debris flows being rejected in favour of a 200 m bridge crossing over More Creek canyon onto more stable terrain along the north slope; • km 72.5, km 79 and km 81.5 road was re-aligned to protect identified archaeological sites; • km 110 to km 112.5 bridge crossing moved to obtain better clearance over Sphaler Creek and avoid rock falls and avalanche hazards	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	NA
481	Transportation Infrastructure	NovaGold assessed several alternatives to the currently preferred road corridor, as discussed in detail in Chapter 10.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	NA

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482	Acid Rock Drainage / Metal Leaching / Groundwater	A program has been initiated to identify and manage potential acid rock drainage/metal leaching hazards along the [alternative alignments] route. The program identifies areas, such as intrusive contacts, where sulphide minerals are most likely to be present and correlates them with large rock cuts to prioritize monitoring and potential mediation activities. Dilution potential and proximity to fish habitat are also being considered.	4	ML/ARD testing and management will be included within a management plan.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM/MAM		4	NA
483	Transportation Infrastructure	The access road will traverse a wide range of terrains, from steep rock slopes to swamps. A significant amount of the road will require full bench cuts and end hauling, which will produce large volumes of rock. The final design will attempt to balance material requirements to minimize excavation and wasting of construction materials.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM		4	NA
484	Transportation Infrastructure / Land and Resource Use	Estimated [gravel pit] areas and volumes are approximate and depend on the final gravel pit extent and depth. In general McElhanney has identified a sufficient number of sites along the access road that should minimize hauling distance and processing. [See Table 5.12-2, Summary of Proposed Gravel Pit Locations, for all the details.]	3	Locations of borrow pits and quarries, including quantities and quality of extracted rock, will be managed in consultation with regulatory agencies under FRPA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM	Y (approximate)	4	NA
485	Transportation Infrastructure	Discussions were held with road and tunnel contractors to better determine the likely approach and time for construction, as this component is the key driver of the overall project construction schedule. The general approach that has been developed is summarized below. • An airstrip will be developed at Porcupine River and a heavy lift heliport will be created at the West More Camp east of Round Lake as soon as practical after project approval. Both of these development operations will be based on air support. • The initial road development from the Bob Quinn area will commence as soon as practical in 2007 and the road will be pushed through as a pioneer trail as fast as possible to the West More Camp. A critical link will be the construction of the 200 m bridge over More Creek at km 48. This bridge is expected to take four months to construct. • Road headings will be started from West More Camp towards Bob Quinn and from Porcupine Creek the south tunnel portal using the limited construction equipment that can be transported and supported via the air operations. Once the road access to the tunnel portal is completed, road construction will continue up Sphaler Creek towards the West More Camp base.	5	N/A. Based on old construction schedule.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.4	IM		4	This type of contextual schedule information is not relevant for the EAC.
486	Land and Resource Use	Three half-hectare staging areas are proposed along the route, located at Muskwie Creek (km 31), upper Sphaler Creek (km 91) and lower Sphaler Creek (km 105).	3	Locations ancillary structures and laydown areas will be managed in consultation with regulatory agencies as part of the permitting program under FRPA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.4	IM		4	NA
487	Transportation Infrastructure	Assuming that road construction could start in February of 2007, it is expected that the work will be completed by the end of the 2007 calendar year. Figures 5.12-1 through 5.12-3 provide more detailed timelines for the proposed construction sequence. [indicated that road construction duration is expected to be less than one full year].	5	N/A. Based on old construction schedule.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.4	IM		4	NA
489	Transportation Infrastructure	Construction of each [road] section will require hand falling of standing timber, right of way clearing and stripping, drilling and blasting of rock, rock excavation, end haul of blasted rock, bridge and culvert installation and surfacing with gravel.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.5	IM		4	NA
490	Transportation Infrastructure	Typical road cross sections have been prepared to illustrate these design concepts and depict the approximate range of construction procedures and earthwork quantities associated with varying terrain conditions. These typical road cross sections are illustrated in Figure 5.12-4.	3	Compliance to roadway engineering and safety standards will be managed in consultation with regulatory agencies under FRPA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.5	IM	Y (approximate)	4	NA
491	Transportation Infrastructure	The [road] alignment has been established to minimize environmental impacts and avoid hazardous, unstable, and sensitive areas wherever possible.	2	Access road alignment will be described in Certified Project Description as a corridor.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.5	IM	Y (possible)	4	NA

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492	Transportation Infrastructure	[Road construction schedule (to the three camps) proposed in figures 5.12-1 through 5.12-3. Review if/when questions around the timing of blasting/instream work, or other comes up.	5	N/A. Based on old construction schedule.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.5	IM		4	NA
493	Transportation Infrastructure	Road construction methodologies will be consistent with those described in the British Columbia Ministry of Forests and Lands' publication Forest Road Engineering, second edition 2002.	3	Compliance to roadway engineering and safety standards will be managed in consultation with regulatory agencies under FRPA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.5	IM		4	While the specific engineering standards/roadway BMPs required by permitting agencies will be followed, some of this detail will also be included in management plans.
494	Acid Rock Drainage / Metal Leaching / Groundwater	In addition, special attention will be paid to potential for metal leaching and acid rock drainage (ML/ARD).	4	ML/ARD testing and management will be included within a management plan.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.5	IM/MAM		4	NA
495	Transportation Infrastructure	The 100-year instantaneous flood (Q100i) was calculated for all major culvert installations, and minor bridges and the 200 year instantaneous flood (Q200i) for all major bridge crossings. Standard debris clearance to the underside of the girders of 1.5m was used except where additional clearance was specified in the geotechnical requirements.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.6	IM		4	NA
496	Transportation Infrastructure	[Culvert sizing] Based on the opinion of McElhanney's senior engineer proficient in hydrology, Rescan's 100 year flood flow values were selected for the smaller drainages and bridge crossings. The flow values [for crossings not initially known] were adjusted so the results were reasonable, and suited the site conditions and proposed road alignment [after they were roughly determined by extrapolating the relationship between the Rescan and McElanney values].	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.6	IM	Y (roughly)	4	NA
497	Transportation Infrastructure	[Road Hazards] Table 5.12-3: Total Access Route Lengths Potentially Subject to Landslide and Snow Avalanche Hazards (prior to mitigation); Table 5.12-4: Estimated Average Annual Frequencies and Durations of Road Closure and Transmission Line Power Interruption Due to Landslides	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.6	IM		4	NA
499	Transportation Infrastructure	Crossings of fish bearing streams will be consistent with the Ministry of Forests and Lands' Fish Stream Crossing Guidebook.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.8	IM		4	NA

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500	Transportation Infrastructure	Fish bearing streams were identified and either bridges or special open bottom arch type culverts were designed for these crossings.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.8	IM		4	NA
501	Transportation Infrastructure	Culverts were designed for a 50-year life and to pass the 100-year flood event (Q100). To reduce the risk of blockage from infilling, snow and ice the minimum specified cross drain is a 600 mm diameter corrugated steel pipe. Cross-drainage culverts will be located based on site conditions. The inlet and outlet to all culverts will be protected from scouring with class 25 kg riprap. Ditch blocks will be installed immediately down slope from cross drain culverts.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.8	IM		4	NA
502	Transportation Infrastructure	With the exception of two-span bridges at Iskut River (107 m), Muskwie Creek (98 m), More Creek (91 m) and Porcupine River (84 m), all crossings of fish streams will be full single span bridges or open bottom arch culverts to avoid disturbing the channel.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.8	IM		4	NA
503	Fish and Fish Habitat	All work in and about fish bearing streams will be undertaken during specified fisheries windows or, where alternative timing is required, with the specific approval of the Ministry of Environment and the Department of Fisheries and Oceans.	3	Encroachment on fish-bearing streams will be managed through DFO & MoF within the permitting program under FRPA, WSA, and FA.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.12.1.8	IM/MAM		4	NA
504	Transportation Infrastructure	The access tunnel will be developed simultaneously from the north and the south.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.7.3.1	IM		4	NA
505	Acid Rock Drainage / Metal Leaching	All rock will be tested during development to allow for segregation of the rock in terms of potential for ML/ARD generation.	4	ML/ARD testing and management will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.7.3.1	IM/MAM		4	NA
506	Acid Rock Drainage / Metal Leaching / Groundwater	Potentially ARD generating (PAG) rock, or rock with elevated metal leaching (ML) potential, removed from the south end of the development will be stockpiled and transported to the Galore Creek Valley for disposal in the tailings and waste rock impoundment once the tunnel is complete to ensure that rock remaining at the south portal has low ML and ARD potential. Rock from the south end with low ARD potential will be used as rock fill at the south end of the tunnel.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.7.3.1	IM		4	NA
507	Acid Rock Drainage / Metal Leaching / Groundwater	At the north portal, the main requirement is to manage PAG rock rather than ML potential, since mine development in the Galore Creek Valley will result in subaerial not-PAG waste rock dumps with ML leaching potential. PAG rock removed from the north portal will eventually be transported to the impoundment to allow for subsequent flooding. Rock with low ARD potential from the north end will be disposed near the north portal.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.7.3.1	IM		4	NA
508	Explosives / Acid Rock Drainage / Metal Leaching / Groundwater	No geochemical data are available for rock along the alignment. Limited surface testing indicates that ML/ARD should be addressed for rock removed from the tunnel.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.7.3.2	IM		4	NA

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509	Explosives	[Commitment from 8.7.3 - Access tunnel Waste Rock] For the first five blast rounds [two composite samples collected from each round] in each major rock types listed above, a sampling program will be completed to evaluate the performance of simple ABA screening methods to ensure that subsequent data from testing are provided in a timely fashion to avoid delays in sampling. Based on the result of testing of these ten samples [5 blasts x 2 samples each], a monitoring program specifying an appropriate level of testing will be designed. Subsequent sampling will include total S, a measure of carbonate to indicate NP and paste pH on every [blast] round. [see subsection of the EAC Application for additional sampling details required.]	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.7.3.3	IM		4	NA
510	Tunnel Explosives	[waste rock] Disposal will be determined using the criteria shown in Table 8.7-1: Management of Tunnel Waste Rock.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.7.3.4	IM		4	NA
511	Acid Rock Drainage / Metal Leaching / Groundwater	An annual seepage survey for the south portal permanent rock disposal area will be performed to evaluate drainage chemistry.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.7.3.5	IM		4	NA
512	Transportation Infrastructure	The Galore Creek Project will require the construction of about 118 km of new road to access the mine, a 1.5 km spur road for the filter plant discharge pipeline access to Iskut River and a 3 km spur road to access the Porcupine aerodrome. The distance from Highway 37 to the south tunnel portal will be 129 km.	2	This is a description	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.1	IM/MAM		4	NA
513	Transportation Infrastructure / Soil	Despite design specifications that permit a narrow width of 5 to 6 m, almost 1.5 Mm3 of rock excavation will be required for construction. Additional volumes of colluvium will be excavated.	3	Locations of borrow pits and quarries, including quantities and quality of extracted rock, will be managed in consultation with regulatory agencies under FRPA.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.8.1	IM/MAM		4	NA
514	Transportation Infrastructure / Management Plans	The road will be constructed under the authority of a Special Use Permit (SUP) issued by the Ministry of Forests. It is expected that the SUP for the road will require a plan to implement ARD monitoring and management of ARD generating rock from cuts, borrow sources and tunnels. There is no precedent for ARD management under a SUP.	3	It is an existing requirement to comply with relevant legislation, regulation and permits	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.1	IM		4	NA
515	Transportation Infrastructure	The ARD potential ranking system was used to identify 200 m segments of the proposed 129 km access road as having no, low, moderate, high or extreme potential for exposure of ARD generating rocks (Table 8.8-1 and Figure 8.8-1).	5	General context	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.1	IM		4	NA
516	Management Plans	NovaGold will implement a reconnaissance level field program in 2006 to spot check the potential [ARD] ranking and collect data to fine tune the preliminary [ARD] management plan to a level ready for construction.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.1	IM	Y (fine tune, preliminary)	4	NA
517	Acid Rock Drainage / Metal Leaching / Groundwater	The [ARD management] plan will be revised prior to construction to incorporate new information and concepts from the 2006 reconnaissance ARD potential field program.	1	Condition for development and implementation of ML/ARD management measures in a management plan	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.2	IM	Y (will be revised)	4	NA
518	Acid Rock Drainage / Metal Leaching / Groundwater	NovaGold proposes a limited program of assessment of ARD management options in advance of construction. The results of the 2006 field program will be used to establish criteria for additional rock sampling in key areas in order to further define the boundaries of known or expected ARD generating rocks.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.2	IM/MAM		4	NA
520	Transportation Infrastructure	[8.8.3 Modifications to Road Design] Small areas of potential ARD generating rock may be avoided by revising cut schedules to reduce the frequency and volume of cuts in ARD generating rock. Cuts may be avoided or reduced on moderate slopes by increasing the volume of fill supporting the downhill side of the road prism.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.3.2	IM		4	NA

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521	Surface Water; Fish and Fish Habitat	ARD analyses required during the construction phase will be performed in a mobile field laboratory trailer located within the project area. A laboratory technician and a helper will be required to operate the field laboratory and manage the anticipated flow of samples. For quality assurance and quality control (QA/QC) selected sample splits will be sent off site to an accredited laboratory for ABA analyses.[see section 8.8.4 for additional details on the laboratory capabilities.]	4	ML/ARD testing and management will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.8.4	IM/MAM		4	NA
522	Acid Rock Drainage / Metal Leaching / Groundwater	Geoscientist A registered professional geoscientist will be charged with overall responsibility for the ongoing assessment of ARD potential and the management of ARD generating and potentially ARD generating rock during the construction program. The geoscientist will inspect construction spreads and meet with environmental monitors and construction supervisors as required to ensure consistent quality and detail of assessment and management.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5.1	IM/MAM		4	NA
523	Transportation Infrastructure	Environmental Monitors Environmental monitors, under the direction of the geoscientist, will be employed to oversee the environmental performance of the construction of the road and will be key players in the ARD management plan.Environmental monitors will inspect all rock excavation areas at every stage of construction.	4	The environmental monitoring program will be defined within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5.1	IM		4	NA
524	Acid Rock Drainage / Metal Leaching / Groundwater	Construction Supervisors Construction supervisors will be trained to identify potentially ARD generating rocks visually, based on iron staining and presence of sulphides, and from laboratory analyses. They will be required to work with environmental monitors to review and respond appropriately to daily laboratory reports....some text omitted.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5.1	IM/MAM		4	NA
525	Acid Rock Drainage / Metal Leaching / Groundwater	Equipment Operators Equipment operators will be trained in the identification of ARD indicators such as iron oxide staining and sulphides. Equipment operators will be responsible for inspecting rock after every blast [during construction] in areas of low ARD potential to ensure that no new occurrences of iron oxides or sulphides have been exposed.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5.1	IM/MAM		4	NA
526	NA	The early stages of construction will include felling timber, clearing/grubbing stumps and debris and stripping organics and unsuitable materials before subgrade construction begins.The grubbing and stripping stages will require the use of heavy equipment ...some text omitted.	5	General context	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.8.5.2	IM		4	NA
527	Acid Rock Drainage / Metal Leaching / Groundwater	Drilling and blasting [that would occur after grubbing and stripping] will precede major rock excavations, except where bedrock can be excavated by ripping, during the subgrade construction stage. Where there is ARD potential, drill cuttings will be collected for analysis at the field laboratory and the results returned in time to guide in the management of the blasted rock.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5.2	IM/MAM		4	NA
528	Acid Rock Drainage / Metal Leaching / Groundwater	Environmental monitors will collect [during the construction phase] rock samples at regular intervals in advance of excavation in all areas ranked as having high or extreme potential for ARD. Daily sample collections will be delivered to the field laboratory by helicopter for timely ARD characterization.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5.3	IM/MAM		4	NA

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529	Land and Resource Use	Disposal options for highly reactive ARD [waste] rock [during the construction phase] include: • transportation to the mine site for permanent disposal in the waste rock facility; • storage in excavations in limestone units that occur near Round Lake; • storage in compacted or sealed piles along the [road] alignment or encapsulated in limestone colluvium. Depleted borrow pits in till materials may offer excellent sites for disposal. The rock would be layered, compacted and covered with till to minimize air and water penetration.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5.3	IM/MAM	Y (options)	4	NA
530	Land and Resource Use	Waste rock that cannot be immediately transported to permanent disposal sites may be temporarily stored in managed sites along the road.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5.3	IM/MAM		4	NA
531	Transportation Infrastructure	It is likely that [during the construction phase] very small zones of potentially ARD generating rock, or ARD generating rock, associated with faults and shear zones will be uncovered during excavations. Recognizing that these small volumes are unlikely to have significant adverse effects, a rule of thumb will be developed for their disposal. It is suggested that where waste from these zones is less than 10 m3, it may be disposed of with not potentially ARD generating rock, provided that the disposal location is greater than 50 m from a watercourse and not within 100 m of a fish-bearing stream. Locations of disposal sites for potentially ARD generating and net ARD generating rock will be marked to avoid the accidental re-use of that rock for future road maintenance or repair.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5.3	IM/MAM		4	NA
532	Acid Rock Drainage / Metal Leaching / Groundwater	Table 8.8-2: Preliminary Guidelines for Management of ARD Generating Rock	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5.3	IM/MAM	Y (preliminary)	4	NA
533	Transportation Infrastructure	Where possible sulphide bearing rock areas will be avoided by making minor alignment [road] revisions, but where avoidance is not an option other approaches will be taken. This could include reducing the width of the road to minimize excavated volumes, importing not potentially ARD generating rock as fill material and disposing of sulphide-bearing rock in the most appropriate manner.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5.3	IM	(Y other approaches)	4	NA
534	Acid Rock Drainage / Metal Leaching / Groundwater	Cuts in potentially ARD generating rock [during the construction phase] will be avoided where possible.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.5.3	IM/MAM	Y (possible)	4	NA
535	Surface Water; Fish and Fish Habitat	Water quality in ditches below the highwalls will initially be monitored, and if water quality degrades, then crushed limestone will be added to the bed of the ditches as a mitigation control strategy. Water quality from these ditches will initially be monitored to assess the effectiveness of the limestone treatment.	4	ML/ARD testing and management will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.8.5.3	IM/MAM		4	NA
536	Surface Water; Fish and Fish Habitat	Cuts in rock that is already generating ARD, such as gossan, will be avoided where possible.	4	ML/ARD testing and management will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.8.5.3	IM/MAM	Y (possible)	4	NA
537	Transportation Infrastructure	One of the primary considerations in determining the final [road] alignment was to enable passage with the least degree of potential human safety and environmental effects.	2	This statement speaks to the need to vary the alignment due to safety and environmental effects - which supports concept of a road corridor.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.1	IM	Y (least degree of potential human saety and environmental effects)	4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
538	Transportation Infrastructure	The completed route provides a 140 km all-weather access road that will run west from Highway 37 at a point approximately 8 km north of Bob Quinn Lake, rising up along the More Creek valley, down Sphaler Creek valley to the Porcupine River. It will then travel north up Scotsimpson Creek to its headwaters and into a 3.8 km long tunnel through to Galore Creek Valley and the mine site. For the first 10 km the access road will use the existing Devil Creek Forest Service Road. The concentrate filter plant and truck loadout facility will be located at km 3.3 near Highway 37. At km 116, a 2.1 km long connector road leads from the main road to provide access to the aerodrome near the Porcupine River. Along the corridor, there are 50 bridge crossings, including 8 major crossings, 10 open-bottom arches and a range of round corrugated steel culverts. The access road alignment selected for permitting is shown in Figure 8.15-1.	2	This is a description	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.1	IM		4	NA
539	Transportation Infrastructure	In addition to requirements to be stipulated under the Galore Mine road access Special Use Permit, a number of aspects of the federal Fisheries Act are relevant to the access road and any stream crossings. It includes the following components: • obstructions of fish migration (Section 22 and 26) • destruction of fish (Section 32) • harmful alteration, disruption, or destruction (HADD) to fish habitat (Section 35) unless authorized • depositing of substances deleterious to fish in waters frequented by fish (Section 37).	3	It is an existing requirement to comply with relevant legislation, regulation and permits	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.1.1	IM		4	NA
540	Transportation Infrastructure	The federal Navigable Waters Protection Act aims to ensure unimpeded navigation along navigable waters. Section 5(1)(a) of the Act indicates that the plans and site for any work to be built or placed on, over, under, through or across a navigable waterway requires the approval of the Minister of Transport. It includes waters capable of being used for commerce, transportation or recreation. Approvals will be required for construction of stream crossings along the mine access road. Several crossings will meet the current criteria to be classified as navigable waters. Therefore, construction of these crossings will require authorization under the Navigable Waters Protection Act.	3	It is an existing requirement to comply with relevant legislation, regulation and permits	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.1.1	IM		4	NA
541	Transportation Infrastructure	8.15.2.1 Road Design Basis The Galore Creek Project access road will be classified as a resource development road with a finished road width of 5 to 6 m and a design speed of 30 to 60 km/h capable of carrying the legal load limit for trucks on British Columbia highways on a year-round basis. The intent is to construct a road that can be travelled at 50 to 60 km/h; however, the design speed will be limited to reduce construction costs through difficult terrain such as the Sphaler Canyon. It is expected that major segments of the road will be engineered for speeds at or below 40 km/h. Allowance for a minimum standard in control sections such as Sphaler Canyon was made for a 5 to 6 m road width with inter-visible turnouts and a reduced travel speed of 30 km/h. Grades in this short section may reach 14% to 15% on short pitches. The use of a slurry pipeline rather than trucks to transport concentrate allows for steeper grades exiting the mine site.	3	Compliance to roadway engineering and safety standards will be managed in consultation with regulatory agencies under FRPA.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.1.2	IM		4	NA
542	Socio-Economic	Design considerations include special mitigation structures such as strategic placement of turnouts, double-laning of blind corners and sharp crest curves, runout lanes on sustained 15% grades and special mitigation structures, mostly related to the geohazards along the route.	3	Compliance to roadway engineering and safety standards will be managed in consultation with regulatory agencies under FRPA.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.15.2	IM		4	NA
543	Transportation Infrastructure	NovaGold will erect mileage signposts (in kilometres) along the road, and road users will regularly report their location by radio. This procedure will be required to avoid collisions on the narrow road. Regular position reporting will avoid the need for vehicles and especially heavy trucks to reverse to passing areas.	4	Access management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2	IM		4	NA

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544	Transportation Infrastructure	Culverts will be designed for a 50-year life and to pass the 100-year instantaneous flood flow. To reduce the risk of blockage from infilling, snow and ice, culverts will be at least 0.6 m diameter in size. The inlet and outlet to all culverts will be protected from scouring with appropriately sized riprap. Ditch blocks will be installed immediately downslope from cross drain culverts (McElhanney, 2006).	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2	IM		4	NA
545	Socio-Economic	Right-of-way widths may be reduced for riparian zones or other environmentally sensitive areas.	3	The ROW widths will be managed in consultation with regulatory agencies as part of the permitting program under FRPA and Land Act.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.15.2.2	IM/MAM		4	NA
546	Transportation Infrastructure	The following design criteria were established for the design of stream crossings: • Major bridges will be designed for the 200-year instantaneous flood (Q200i) plus 1.5 m debris clearance to the underside of the bridge girders unless additional clearance is required for navigable waters or geotechnical requirements.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.2	IM		4	NA
547	Transportation Infrastructure	The following design criteria were established for the design of stream crossings: • Fish-bearing streams will be bridged or have open-bottom arches installed to protect the stream channel.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.2	IM		4	NA
548	Transportation Infrastructure	The following design criteria were established for the design of stream crossings: Culverts will be designed for a 50-year life and to pass the 100-year instantaneous flood (Q100i) and cross-drain culverts to be placed not more than 250 m apart. The cross-drain culvert frequency will be adjusted to avoid either drying out marshland and destroying forage and refuge, or flooding areas used for waterfowl nesting.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.2	IM		4	NA
549	Transportation Infrastructure	The following design criteria were established for the design of stream crossings: Major bridge crossings will meet the clearance requirements of the Navigable Waters Protection Act. Major bridge crossings over navigable waters will be located at the Iskut River, Muskwie Creek, More Creek and Porcupine River.	3	It is an existing requirement to comply with relevant legislation, regulation and permits	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.2	IM		4	NA

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550	Transportation Infrastructure	Most bridges will be simple, clear spans ranging from 12 m to 40 m in length. Multiple-span structures will be required for the Iskut (107 m) and Porcupine (85 m) river crossings and for the Muskwie (98 m) and one of the More (91 m) creek crossings. Major single-span bridges will be required to cross More Creek (201 m) and three crossings over Sphaler Creek (67 m, 24 m and 37 m).	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.2	IM		4	NA
551	Transportation Infrastructure	8.15.2.3 Access Road Tunnel Design Basis and Criteria The Scotsimpson Creek tunnel will be approximately 3.8 km long. It will run north from the headwaters of Scotsimpson Creek to the headwaters of Galore Creek (West Fork). Figure 8.15-6 shows the plan and section of the access tunnel. [commitment has been superseded; see #946. Tunnel length is now 4,389 m]	5	N/A. commitment superseded.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.3	IM		4	In some cases, the details of a commitment have been superseded by another commitment found in a later dated document.
552	Transportation Infrastructure	Tunnel Layout The entire tunnel will be sloped so that road surface drainage flows northward back to the mine site where it can be collected and managed as required. The south portal elevation is estimated at approximately 1,072 m while the north portal is anticipated at approximately 1,020 m. All tunnel groundwater inflows will drain out the north portal and into the open pit owing to the 2.4% gradient of the tunnel. The depth of cover over the tunnel will be up to a maximum of 1,100 m in its central region. [commitment has been superseded; see #945 and 947]	5	N/A. commitment superseded.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.3	IM		4	NA
553	Transportation Infrastructure	Access Tunnel Sizing The tunnel will be sized to accommodate both construction and operations traffic. Considerable effort has been expended to identify the minimum sizes of equipment disassembled for road transportation, resulting in a finished tunnel cross-sectional dimension of approximately 6.8 m wide and 6.5 m high (excavated dimensions 7.3 m wide x 7 m high). ##### - not superseded after all. no different dimensions read to date.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.3	IM		4	NA
554	Transportation Infrastructure	The northern (Galore Creek side) portal is susceptible to active rockfall and avalanche risks. To reduce these risks the portal will include the following considerations: • The portal will be located below a partially vegetated buttress with lower rockfall activity. • A deflection berm may be constructed upslope of the portal. • Scaling and rock-bolting will be undertaken to protect from rockfalls. • Remote avalanche triggering equipment may be used to reduce avalanche risks. The access road extending into the Galore Creek Valley will be protected with a corrugated steelarch and will be elevated on an embankment for the first 500 m to deflect any avalanche runouts.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.3	IM		4	NA
555	Transportation Infrastructure	The access road will, however, require construction of a berm upslope of the road to reduce hazards from rockfalls and incorporate an extension.	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.3	IM		4	NA
562	General	Main Features and Environmental Considerations [Summary]: • felling approximately 80,000 m3 of timber • clearing 386 ha of right-of-way (30 m wide) • moving an estimated 3.0 Mm3 of till overburden and rock. • placing more than 300,000 m3 of surfacing material.	5	General context	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.15.3	IM		4	NA

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563	Transportation Infrastructure	Main Features and Environmental Considerations [Summary]: Additional features, disturbance areas and environmental considerations include: • borrow areas along the access road covering a total area of 28.4 ha (net of road) • the filter plant site at km 3.3, covering an area of approximately 27 ha (net of road) • clearing approximately 620 ha under the power transmission line (net of road) • crossings over as many as 396 streams and tributaries, including 8 major bridge crossings, 38 clear-span bridge crossings and a variety of culverts to permit water flows across the alignment.	2	This is a description.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.3	IM/MAM		4	NA
564	Transportation Infrastructure	Main Features and Environmental Considerations [Summary]: The completed right-of-way will include the following main components: • single-lane access road for supply trucks, restricted passenger vehicles, maintenance service trucks for facilities along access corridor, etc. • buried concentrate pipeline from mine site to filter plant 3.3 km from the end of road at Highway 37 • buried diesel fuel pipeline transferring fuel from an unloading tank at the filter plant site to the main fuel farm at the mine site • overhead electrical power transmission line except in part of Scotsimpson Creek and the road tunnel where the line will be buried • buried effluent water pipeline from filter plant water treatment plant to Iskut River discharge location upstream of the Iskut River crossing	2	This is a description.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.3	IM/MAM		4	This is an example of a commitment that would be partially modernized - as some relates to access road and some relates to components not in scope of the initial modernization (e.g. pipeline)
565	Transportation Infrastructure	Main Features and Environmental Considerations [Summary]: Environmental and safety considerations associated with the access road include: • natural road blockages, e.g., snow and/or rock avalanches, rock slides, road washouts • sections with steep grades of 10% to 15% • winter driving hazards, including frost heaves • access control, i.e., limiting access using a manned gatehouse and gates • traffic control along the roadway, i.e., requirement for signage and radio control • communication along corridor to ensure no run-ins into any recent avalanche/rock slide areas, and to inform users of any updated road conditions, environmental concerns/emergencies, etc. • wildlife interactions • large number of stream crossings • rock quality along road corridor, including the risk of spalling or breaking off onto roadway, ML/ARD considerations possibly affecting downstream water quality.	5	General context	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.3	IM		4	NA
567	Transportation Infrastructure / Air Quality	Construction environmental concerns will also include the need for dust abatement measures. Roadbed watering trucks will be employed as required to reduce dusting from all road excavation and roadbed surfaces.	4	Dust management will be addressed in the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.3	IM	Y (as required)	4	NA
568	Housing and Accommodation	A fourth camp will be developed at the mine site in the Galore Creek Valley, resulting in four sources of equipment working on the access road sections and Scotsimpson tunnel headings, which will eventually be linked into one continuous road.	2	This is a description	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.3	IM		4	NA
569	Transportation Infrastructure	A snow safety operations plan will be developed for the road, once detailed constructions plans are outlined as part of concurrent permitting.	3	Safety requirements are addressed by permitting	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.3	IM		4	NA

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570	Explosives	The day-boxes will be stored during non-working hours in secure areas accessible by authorized staff only. Required explosives quantities will be brought into the field each day from theses central storage locations and kept in secure areas throughout the workday. Development of the access tunnel connecting Scotsimpson and Galore creeks will require the stationing of an explosives magazine near the development headings.	4	Explosives management will be included within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.3	IM/MAM		4	NA
571	Soil	Wetland soils will also be considered for recovery where feasible.	4	Soil and material management, including use of wetland soils for recovery, will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.15.3	IM/MAM	Y (feasible)	4	NA
573	Transportation Infrastructure / Soil	McElhanney (2006) estimates a total of 362,000 m3 of material will be stripped during excavation of the road route. These materials will be removed to strategically located spoil/waste piles. Topsoil will be removed from within the road prism. All salvageable organic material will be set aside for later use in reclamation. Other materials will be placed in waste piles.	4	Soil management will be included within management plans.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.3	IM/MAM	Y (estimates)	4	NA
576	Acid Rock Drainage	Acid-generating rock will not be used for construction purposes. Any acid-generating rock uncovered during excavation work will be appropriately impounded.	4	ML/ARD testing and management will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.15.3	IM/MAM		4	NA
577	Transportation Infrastructure	All navigable water crossings will be built with 1.7 m of clearance above the 200-year instantaneous flood level (Q200i) in the watercourse below (McElhanney, 2006).	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.3	IM		4	NA
578	Land and Resource Use	Table 5.12-2: Summary of Proposed Gravel Pit Locations	3	Location of gravel pits will be addressed in permitting	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.3	IM/MAM		4	NA
580	Housing and Accommodation	5.13.4.1 Construction Camps By May 2008 the primary Galore Camp will be established in the vicinity of the plant site in the Galore Creek Valley with a capacity of about 450 people to support initial civil construction. This camp will be expanded by August 2009 to an 850 person capacity to support the major construction efforts prior to commissioning. The expansion will include accommodation units transferred from the Porcupine and West More sites once they are no longer required. Galore Camp will be supported solely by helicopter pending completion of the tunnel and access roads. On completion of construction, Galore Camp will be downsized to house about 280 people for mine operations.	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.4.1	IM		4	NA
581	Housing and Accommodation	5.13.4.1 Construction Camps A new 35 person construction camp will be established in the spring of 2007 near the proposed location of the filter plant [camp], about three kilometres along the access road from Highway 37. This camp will be used to house workers advancing the road, slurry pipeline and electric power transmission line from Highway 37 and construction of the filter plant and related facilities near the junction of the access road and Highway 37. This camp will be adjacent to the main staging/laydown area for the construction of the project.	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.4.1	IM		4	NA

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582	Housing and Accommodation	5.13.4.1 Construction Camps A new temporary 50 person construction camp will be built at the in the spring of 2007 at the proposed site of the aerodrome near the Porcupine River [camp]. This camp will support development of the aerodrome and construction of the access road from the Porcupine River to the tunnel portal at the head of Scotsimpson Creek, the excavation of the tunnel from the south portal, and the construction of the road from the Porcupine River up Sphaler Creek.	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.4.1	IM		4	NA
583	Housing and Accommodation	5.13.4.1 Construction Camps Another temporary construction camp, to house about 25 people, will be established at the West More camp near Round Lake in the spring of 2007 to support construction of the access road westward towards Porcupine River and eastwards towards Highway 37.	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.4.1	IM		4	NA
584	Housing and Accommodation	5.13.4.2 Permanent Camps The Galore Creek Project will require two permanent camp facilities; one at the mine [camp] and a second camp at the filter plant near Highway 37. The permanent minesite camp facility will be located adjacent to the plant in an area with low snow avalanche and geotechnical hazard risk. It will house 440 people and will accommodate all direct and contract employees for the site during operation of the mine.	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.4.2	IM		4	NA
585	Housing and Accommodation	[Permanent Mine Camp] The permanent camp facility for the mine operation will consist of: • a pre-fabricated, modular structure with about 230 double occupancy rooms; • kitchen and dining facilities; and • lounge and fitness rooms.	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.4.2	IM		4	NA
597	Housing and Accommodation	During the construction phase there will be four main camps, and other smaller camps to be supported. The camps will vary in size during different stages of the construction process.	2	This is a description	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.1	IM	Y (vary in size during different stages)	4	NA
598	Housing and Accommodation	1. Galore Creek Camp • a permanent camp • 180 personnel onsite currently, up to 550 personnel on site during plant construction and mine operations phase • direct air support until road and tunnel construction is complete • road support in the operations phase • camp will provide construction workers for the north end of the tunnel	2	This is a description	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.1	IM		4	NA
599	Housing and Accommodation	2. Round Lake Camp • temporary camp during road construction (approximately 7 - 8 month life) • air support during full life of the camp • laydown yard with materials management	2	This is a description	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.1	IM		4	NA
600	Housing and Accommodation	3. Porcupine River Camp • large temporary camp during aerodrome, road and tunnel construction • laydown yard with materials management • permanent smaller camp to operate the aerodrome and to support logistics movement to the operational Galore Camp • rotary wing support will be required until the aerodrome construction is complete, either directly from Bob Quinn or from Galore Creek • a small satellite camp at the south tunnel portal	2	This is a description	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.1	IM		4	NA
601	Housing and Accommodation	4. Camp at east end of haul road (Bob Quinn Lake) [Cassiar Hwy Camp?] • no air support required • road support from the Cassiar Highway	2	This is a description	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.1	IM		4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
602	Aerodrome / Housing and Accommodation	There will be approximately 150 staff on site at the [Round Lake] camp for the working season (April - October 2007) who will be supported by fixed wing aircraft from Bob Quinn (or other airports such as Terrace or Smithers).	2	This is a description	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.5	IM	Y (approximately)	4	NA
603	Housing and Accommodation	The Porcupine River Camp is expected to house 200 persons on site at all times during the road construction phase, March through October 2007.	2	This is a description	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.5	IM		4	NA
604	Housing and Accommodation / Aerodrome	The Porcupine Camp will be downsized at end of the road construction phase to support the ongoing tunnel construction work and in the long term, must support aerodrome maintenance, operations and logistics staff continuously through the production operations phase.	2	This is a description	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.5	IM		4	NA
605	Housing and Accommodation / Aerodrome	4. Tunnel South Portal Camp This camp is considered as a subsidiary camp serviced by the Porcupine River camp and aerodrome.	2	This is a description	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.5	IM		4	NA
616	Housing and Accommodation	Fuel requirements--see Table 2-1 Galore CAMP Logistics Requirements [for the exploration phase]: [370,000 Liters per month is expected to be required.]	5	General context	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.4	IM		4	NA
617	Housing and Accommodation / Aerodrome	Fuel requirements--see Table 2-2 Porcupine Aerodrome [camp] Construction Logistics Requirements: [250,000 Liters per month is expected to be required.]	5	General context	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.2	IM		4	NA
618	Transportation Infrastructure	Fuel requirements--see Table 2-3: Tunnel Construction Logistics Requirements [based out of the South Tunnel Camp]: [360,000 Liters per month is the maximum expected requirement.]	5	General context	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.3	IM		4	NA
619	Aerodrome	Fuel requirements--see Table 2-4 Round Lake Camp Construction Logistics Requirements [to build the aerodrome]: [250,000 Liters per month is the maximum expected requirement.] [Note, this aerodrome is not longer part of the Project, as far as RC can tell.]	5	General context	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.4	IM		4	NA
620	Transportation Infrastructure	Fuel requirements--see Table 2-5 Round Lake Road Construction Logistics Requirements [to build the road]: [315,000 Liters per month is the maximum expected requirement.]	5	General context	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.5	IM		4	NA
621	Transportation Infrastructure	Fuel requirements--see Table 2-6 Porcupine [Camp] Road Construction Logistics Requirements [needed to build the road]: [750,000 Liters per month is the maximum expected requirement.]	5	General context	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.5.5	IM		4	NA
622	Housing and Accommodation / Human Health	As basic food and heat are critical, at least two weeks of essential consumables storage is suggested [per camp] , while 3 to 5 days of storage is proposed for construction materials and fuel.	5	General context	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.7	IM		4	NA

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623	Housing and Accommodation / Human Health	The following assumptions are based on a food and supplies requirement of 4.5 kg / person / day and heating and emergency fuel requirements of 10 litres / person / day [per camp] . [see Table 2-10 Contingency Storage Requirements for actual numbers provided] [Contingency Camp Population Construction Materials Construction Fuel Food and supplies Heating Fuel Days backup storage required 3 days 5 days 14 days 14 days Capacity required • Porcupine River 200 150,000 kg 145,000 l 12,600 kg 28,000 l Capacity Required • Round Lake 150 50,000 kg 45,000 l 9,500 kg 21,000 l]	5	General context	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	2.7	IM		4	NA
626	Explosives	Table 5.5-12: Estimate of Annual Explosives Consumption: Project Year Explosives (Kg) Year -2 4,091,998 Year -1 4,091,998 Year 1 6,478,923 Year 2 9,810,075 Year 3 12,062,357 Year 4 11,775,036 Year 5 10,489,922 Year 6 13,602,326 Year 7 10,266,131 Year 8 10,758,528 Year 9 12,646,380 Year 10 15,240,221 Year 11 14,914,148 Year 12 9,039,014 Year 13 13,029,111 Year 14 9,926,086 Year 15 7,681,613 Year 16 4,229,189 Year 17 13,669,742 Year 18 9,342,216 Year 19 13,484,570 Year 20 4,740,228	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.12	IM		4	NA
629	General	Establish a recruitment, training and employment strategy consisting of a workforce training needs assessment, training and recruitment plans, and development of career plans for employees	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
630	General	Establish a training centre on-site.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
631	Indigenous Nation Identified Valued Component	Assist communities and local learning institutions to encourage community members to upgrade their training levels.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
632	Indigenous Nation Identified Valued Component	Provide pre-employment education upgrading in primary communities, in partnership with appropriate agencies and the Tahltan Nation	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
633	Indigenous Nation Identified Valued Component	Develop a learning guide in preparation for the entrance exam to the British Columbia apprenticeship training program, in partnership with the Provincial government.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
634	General	Provide job-specific training programs on-site.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
635	Indigenous Nation Identified Valued Component	Establish monitoring plans that monitor project-related mitigation that is within the company's control related to appropriate socio-economic indicators and the delivery of impact management measures according to the commitments in the NovaGold-Tahltan Nation Participation Agreement for the Galore Creek Mine (December 2005).	1	Condition requiring the development of a socio economics effects management plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
636	Human Health / Infrastructure and Services	Provide healthy workforce environment with appropriate lighting, ambient air quality control, general noise abatement and personal noise protection where required, potable water treatment, sanitary lunch rooms, etc.	3	Safety requirements are addressed by permitting	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
637	Human Health / Infrastructure and Services	Provide fully equipped first-aid facilities with qualified support staff.	4	Provision of first aid/medical care will be addressed in a management plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
639	Human Health	Provide corporate medicals for employees.	4	Provision of first aid/medical care will be addressed in a management plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
641	Acoustic / Human Health	Provide annual hearing tests.	4	Provision of first aid/medical care will be addressed in a management plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
642	Acoustic	Dosimeter noise and PM 2.5 personal monitoring.	3	Air quality and noise monitoring and mitigation measures in relation to human health/safety to be addressed by permitting	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
643	Air Quality	Provide ambient air quality monitoring.	3	Air quality monitoring and mitigation measures to be addressed by permitting	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
644	Human Health	Provide potable water quality monitoring.	4	Potable water quality monitoring and management measures will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
646	Indigenous Nation Identified Valued Component	Participation and input of the Tahltan Nation through the Tahltan Heritage Resources and Environmental Assessment Team (THREAT).	1	Condition requiring a consultation plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
647	Indigenous Nation Identified Valued Component	Ongoing communication with Tahltan Central Council, Tahltan Band, Iskut First Nation.	1	Condition requiring a consultation plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
648	Indigenous Nation Identified Valued Component	Communication with Alaskan communities.	1	Condition requiring a public engagement plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
649	Indigenous Nation Identified Valued Component	Communication with local communities	1	Condition requiring a public engagement and socio-ec plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
650	Indigenous Nation Identified Valued Component	Communication with all relevant regional, provincial and federal regulatory authorities.	3	Addressed by permitting (and EA process)	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA

Table A2. Categorized Access-Development EAC Application Commitments.

Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
651	Indigenous Nation Identified Valued Component	[Tahltan] Participation Agreement	1	Condition requiring a consultation plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
652	Indigenous Nation Identified Valued Component	Tahltan Nation monitoring	1	Condition requiring Indigenous construction monitors	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
653	Indigenous Nation Identified Valued Component	Communication with Wrangell and Petersburg at intervals to update communities on the project	1	Condition requiring a public engagement plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
654	General	Communication with local, regional, provincial and federal authorities	3	Addressed by permitting (and EA process)	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
655	General	NovaGold to develop Human Resources Strategy	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
656	Indigenous Nation Identified Valued Component	Maximize employment, retention and advancement opportunities for Tahltan Members	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
657	General	Develop Human Resources Inventory	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
658	Indigenous Nation Identified Valued Component	Fund Tahltan development of a Human Resources Inventory	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
659	General	NovaGold to prepare Human Resources strategy	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
660	Indigenous Nation Identified Valued Component	NovaGold to meet or exceed fixed target for employment and Preferential hiring of Tahltan members.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
661	General	Advance notification of employment opportunities.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
662	Indigenous Nation Identified Valued Component	[Tahltan] Participation Agreement.	1	Condition requiring a consultation plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
663	Indigenous Nation Identified Valued Component	Human Resources Committee with NovaGold and Tahltan membership and participation (Participation Agreement).	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
664	Indigenous Nation Identified Valued Component	Tahltan Nation will ensure that the HR Inventory is kept current for the employment and business needs of the project.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
665	Indigenous Nation Identified Valued Component	Occupational, Health & Safety Committee with Tahltan membership and participation.	3	Safety requirements are addressed by permitting	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
667	Indigenous Nation Identified Valued Component	Provide work-site counselling and an employee assistance program for all employees, which will be designed to include addressing specific Tahltan Nation concerns.	4	Provision of first aid/medical care will be addressed in a management plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
668	Indigenous Nation Identified Valued Component	Coordinate counselling provided off-site by the Tahltan Nation	4	Provision of first aid/medical care will be addressed in a management plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
669	Indigenous Nation Identified Valued Component	Provide cross-cultural training related to the Tahltan Nation culture for all employees.	1	Condition requiring cultural awareness training	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA

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670	Indigenous Nation Identified Valued Component	Implement an anti-discrimination policy.	1	Condition requiring cultural awareness training	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
672	Indigenous Nation Identified Valued Component	Identify business opportunities aimed at developing the delivery of long-term sustainable opportunities and benefits to Tahltan businesses.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
673	Indigenous Nation Identified Valued Component	Establish registry of existing Tahltan businesses	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
674	Indigenous Nation Identified Valued Component	Maximize business opportunities available for Tahltan businesses.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
675	Indigenous Nation Identified Valued Component	Advance notice of business opportunities.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
676	Indigenous Nation Identified Valued Component	Verification of Tahltan businesses.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
677	Indigenous Nation Identified Valued Component	NovaGold and Tahltan Nation (Participation Agreement).	5	Participation agreement is outside of the scope of most EACs	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
678	Indigenous Nation Identified Valued Component	NovaGold will fully consider and use Traditional Knowledge made available by the Tahltan Nation in connection with project planning, design and implementation.	1	As a component of the proposed Indigenous consultation plan condition, include references to incorporating Traditional Knowledge into management and monitoring plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
679	Indigenous Nation Identified Valued Component	Establishment of the Tahltan Heritage Trust to maximize benefits to the Tahltan Nation and Tahltan Members.	5	Trust has been established	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
680	Indigenous Nation Identified Valued Component	Promote awareness in the workplace of the cultural significance of October 18.	1	Condition requiring cultural awareness training	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
681	Indigenous Nation Identified Valued Component	Tahltan Members will be entitled to take unpaid leave to pursue Tahltan cultural activities.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
682	Indigenous Nation Identified Valued Component	Tahltan Members will be entitled to take unpaid bereavement.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
683	Indigenous Nation Identified Valued Component	Tahltan Nation will establish priorities and maintain decision-making authority over the expenditure of monies.	5	Trust has been established	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
685	Indigenous Nation Identified Valued Component	Maximize training opportunities for all Tahltan members.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
686	General	Provide pre-employment training to qualify candidates for employment.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
688	General	NovaGold to provide for Scholarship Fund.	1	Condition requiring an employment, procurement, contracting and training strategy	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
689	Indigenous Nation Identified Valued Component	Establish Tahltan Heritage Trust to maximize benefits to the Tahltan Nation and Tahltan Members ([which is] Dependent upon Tahltan priorities established through the Tahltan Heritage Trust.	5	Trust has been established	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
690	Transportation Infrastructure	Controlled entrance to the access road.	4	Access management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
691	Indigenous Nation Identified Valued Component	Tahltan use of the access road to access traditional use areas.	1	Condition requiring Tahltan ability to use the access road to access traditional use areas	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	This is an example of a type of commitment that could be transitioned to an EAC condition, for example in relation to Indigenous access for traditional purposes.
692	Indigenous Nation Identified Valued Component	Compensation to affected [Guide Outfitters and Trappers] establishments. [Will] Meeting with guide outfitters and trappers.	1	Condition requiring a public engagement and socio-ec plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
693	Transportation Infrastructure	Speed controls [generally applicable].	4	Traffic management will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
694	Transportation Infrastructure	Driver safety training [generally applicable].	4	Traffic management will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
695	Transportation Infrastructure	Speed controls [in Stewart].	4	Traffic management will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
696	Transportation Infrastructure	Driver safety training [in Stewart].	4	Traffic management will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
697	Transportation Infrastructure	Restricted use of air brakes [in Stewart].	4	Traffic management will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
700	Land and Resource Use	Develop borrow pits and rock quarries as close as possible to access road or within mine site area.	3	Locations of borrow pits and quarries, including quantities and quality of extracted rock, will be managed in consultation with regulatory agencies under FRPA.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
701	Vegetation	Implement progressive reclamation.	4	Disturbed surface restoration will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
702	Aerodrome	Project established as a fly in/fly out operation.	5	General context	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
703	Wildlife	Enforcement of no-hunting policy in mine site area for employees and contractors.	1	Condition about no-hunting/no-fishing	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
704	Wildlife	Enforcement of no-fishing and no-hunting policy for employees and contractors along access road and filter plant area except for exemption provided in NovaGold-Tahltan Nation Participation Agreement.	1	Condition about no-hunting/no-fishing	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
705	Wildlife	Monitor and enforce no hunting and fishing policy.	1	Condition about no-hunting/no-fishing	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
706	Visual and Aesthetic Resources	Design buildings and select colour scheme to blend with natural environment.	5	not typically addressed in modern EACs	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
707	Vegetation	Minimize clear-cutting wherever possible.	4	Clearing, grubbing and topsoil management activities will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM	Y (possible)	4	NA
708	Vegetation	Initiate progressive reclamation as soon as practical using indigenous species where possible.	4	Disturbed surface restoration will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM	Y (as soon as practical, possible)	4	NA
709	Visual and Aesthetic Resources	Adjust outside lighting appropriately to reflect natural habitat.	4	If there are any needs for ambient lighting restrictions for wildlife purposes, these would be reflected in a management plan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
710	General	Report success in annual corporate environmental and sustainability report.	5	Corporate success reporting is out of scope of typical EACs	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA

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711	Transportation Infrastructure	Realign access road where feasible from an engineering perspective and where realignment does not impose greater adverse effects.	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM	Y (realign access road where feasible)	4	NA
712	Transportation Infrastructure / Acid Rock Drainage / Metal Leaching / Groundwater	Avoid or reduce cuts in ARD generating rock and most sulphide-bearing rock where feasible [during Access Corridor ARD Management].	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM	Y (feasible)	4	NA
713	Transportation Infrastructure / Acid Rock Drainage / Metal Leaching / Groundwater	Avoid using or disposing of ARD generating rock in sensitive areas [during Access Corridor ARD Management].	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
714	Acid Rock Drainage / Metal Leaching / Groundwater	Establish and staff a field laboratory for the construction phase, capable of analysing paste and rinse pH, conductivity, total sulphur and carbon and modified neutralization potential.	4	ML/ARD testing and management will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
715	Transportation Infrastructure / Acid Rock Drainage / Metal Leaching / Groundwater	Assign a professional geoscientist to be responsible for ongoing assessment of ARD management along the access corridor during construction.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
716	Transportation Infrastructure	Employ and train environmental monitors to monitor environmental performance of the construction of the road.	4	The environmental monitoring program will be defined within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
717	Transportation Infrastructure / Acid Rock Drainage / Metal Leaching / Groundwater	Train construction supervisors and equipment operators to visually identify potentially ARD generating rock [during Access Corridor ARD Management].	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
718	Acid Rock Drainage / Metal Leaching / Groundwater	Environmental monitors will inspect all rock excavation areas and collect rock samples at regular intervals in advance of excavation in areas ranked as high or extreme potential for ARD.	4	ML/ARD testing and management will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
719	Acid Rock Drainage / Metal Leaching / Groundwater	Monitor water quality in ditches below ARD generating and potentially ARD generating highwalls, and at the mouths of diversion ditches around ARD generating highwalls.	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
720	Management Plans / Acid Rock Drainage / Metal Leaching / Groundwater / Transportation Infrastructure	Annual sampling of water quality in the area of potentially ARD generating rock and major waste disposal areas; samples will be analyzed for pH, sulphate, acidity, alkalinity and total dissolved metals [during Access Corridor ARD Management].	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
721	Management Plans	Waste rock with a NP/AP ? 2, ? 1 will not be used for rock fill. Disposal to be consistent with the management plan by compaction in till or burial in limestone matrix.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
722	Transportation Infrastructure / Acid Rock Drainage / Metal Leaching / Groundwater	Waste rock with a NP/AP ? 1 will not be used for rock fill. Disposal to be in the mine PAG waste rock facility or by burial in limestone formation [during Access Corridor ARD Management].	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
723	Acid Rock Drainage / Metal Leaching / Groundwater	Waste rock with NP/AP ? 1 will be stored in a managed site until it can be permanently disposed at the mine site.	3	Waste rock disposal monitoring requirements will be managed in consultation with regulatory agencies as part of the permitting program under the Environmental Management Act and Mines Act.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
724	Transportation Infrastructure / Acid Rock Drainage / Metal Leaching / Groundwater	Where construction scheduling does not permit waiting for ARD characterization, sulphide-bearing rock will be treated as if were highly reactive [during Access Corridor ARD Management].	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
725	Transportation Infrastructure / Acid Rock Drainage / Metal Leaching / Groundwater	Diversion ditches will be excavated above ARD and potentially ARD generating highwalls [during Access Corridor ARD Management].	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
726	Acid Rock Drainage / Metal Leaching / Groundwater	Where annual sampling detects water quality degradation, remedial action will be taken. The type of action will depend on the options available and may range from application of limestone to excavation and replacement of the source waste rock.	4	Groundwater quality monitoring and management will be included in management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM	Y (will depend on options available and may range)	4	NA
727	Acid Rock Drainage / Metal Leaching / Groundwater	Where recontouring for reclamation is possible at sites with reactive highwall faces, attempts will be made to isolate those faces, perhaps with clay-rich till, to minimize exposure to air and water.	4	ML/ARD testing and management will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM	Y (possible, attempts, perhaps)	4	NA
728	Acid Rock Drainage / Metal Leaching / Groundwater	Potentially ARD generating (PAG) rock, or rock with elevated metal leaching (ML) potential, removed from the south end of the development will be stockpiled and transported to the Galore Creek Valley for disposal in the tailings and waste rock impoundment once the tunnel is complete	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
729	Acid Rock Drainage / Metal Leaching / Groundwater	PAG rock removed from the north portal will be transported to the impoundment to allow for subsequent flooding.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
751	Infrastructure and Services	High proportion of energy demands sourced to hydroelectricity.	5	General context	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
752	Transportation Infrastructure	Maintenance of mine equipment and vehicles to maximize energy/fuel efficiency.	4	Equipment and vehicle maintenance measures will be included in management plans	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
753	General	Energy/fuel efficiency to be considered when purchasing mine equipment and acquiring outside service providers.	4	Project procurement, including energy and fuel efficiency measures, will be included in management plans	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
754	Air Quality / Climate	GHG emission audits to be conducted annually as required by regulation.	3	GHG emission reporting and auditing will be managed in consultation with regulatory agencies under the Greenhouse Gas Industrial Reporting and Control Act.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
755	Land and Resource Use	Monitor diesel fuel and electricity consumption for all aspects of the project.	5	not typically addressed in modern EACs	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
757	Land and Resource Use	Monitor fuel and energy consumption.	5	not typically addressed in modern EACs	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM		4	NA
758	Air Quality / Climate	Monitor meteorology (e.g., air temperature, relative humidity, precipitation, wind speed and direction) at various locations in the project area with automated stations.	4	Meteorological monitoring will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
759	Health and Safety	Provide good ventilation systems for workplace, where required.	4	Safety requirements are addressed by permitting	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA

Table A2. Categorized Access-Development EAC Application Commitments.

Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
761	Air Quality / Health and Safety	• Maintain protective respiratory equipment and indoor air quality monitoring equipment in good order.	3	Air quality monitoring and mitigation measures to be addressed by permitting	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
763	Transportation Infrastructure / Air Quality	Road watering, regulate vehicle speed on haul roads to control fugitive dust.	4	Dust management will be addressed in the CEMP	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
764	Air Quality / Climate	When practical use low-sulphur diesel fuel.	4	Fuel and other stored chemicals, and spill management measures will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM	Y (practical)	4	NA
765	Air Quality / Climate	Use vehicle fleet with low nitrogen oxides and hydrocarbon emissions.	4	Energy and fuel efficiency measures will be included in management plans	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
769	Air Quality	Periodic monitoring of workplace air quality for air contaminants relevant to employee tasks and equipment operations	3	Air quality monitoring and mitigation measures to be addressed by permitting	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
770	Air Quality / Health and Safety	Monitor to ensure that employees are using appropriate personal protective equipment (PPE) when the exposure levels for various air contaminants (e.g., welding fumes, solvents, etc.) present in the workplace exceed local or internationally accepted standards.	3	Air quality monitoring and mitigation measures to be addressed by permitting	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
773	Air Quality / Health and Safety	Maintain protective respiratory equipment and indoor air quality monitoring equipment in good order.	3	Air quality monitoring and mitigation measures to be addressed by permitting	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
780	Infrastructure and Services / Air Quality / Climate	Implement recycling program to minimize the volume of material to be incinerated.	4	Waste management will be addressed as a component of the CEMP	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
781	Infrastructure and Services / Air Quality / Climate	Use fuel storage tanks with pressure valves to control fuel vapor emissions.	4	Fuel and other stored chemicals, and spill management measures will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
782	Infrastructure and Services / Air Quality / Climate	Use an incinerator with built-in air emissions control system and operate the unit within the manufacturer's guidelines.	4	Waste management will be addressed as a component of the CEMP	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
783	Infrastructure and Services / Air Quality / Climate	Segregate waste prior to incineration to minimize toxic air emissions.	4	Waste management will be addressed as a component of the CEMP	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
784	Infrastructure and Services / Air Quality / Climate	Where possible use electric drills and shovels to reduce diesel emissions.	4	Energy and fuel efficiency measures will be included in management plans	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM	Y (possible)	4	NA
785	Infrastructure and Services / Air Quality / Climate	Maintain mine equipment and vehicles to reduce air emissions.	4	Equipment and vehicle maintenance measures will be included in management plans	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
786	Infrastructure and Services / Air Quality / Climate	Avoid fuel spills when refuelling equipment to reduce hydrocarbon emissions.	4	Vehicle and equipment refuelling requirements will be included in management plans	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
787	Acoustic / Human Health	Where necessary mount placards/warning signs where workplace noise levels exceed the Health, Safety and Reclamation Code for Mines in B.C.	3	Safety requirements are addressed by permitting	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
788	Explosives / Acoustic	Minimize open pit mine and construction blast noise with sequential delay systems and sufficient stemming of blast holes.	4	Explosives management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
789	Wildlife	Where possible, minimize construction activities within 2 km of mountain goat natal areas during kidding season (April 15 to June 15) in Galore Creek Valley.	4	Mountain goat and habitat monitoring and mitigation will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM	Y (possible)	4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
792	Wildlife	Where possible maintain standard helicopter flight corridors and approach distances.	4	Helicopter operation mitigation measures with regards to wildlife, including least-risk operational windows, will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM	Y (possible)	4	NA
793	Transportation Infrastructure / Vegetation	Maintain as much vegetation as possible along the access road and around the mine footprint to provide noise attenuation.	4	Noise monitoring and mitigation in relation to wildlife will be included in management plans.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM	Y (possible)	4	NA
794	Transportation Infrastructure / Acoustic	Prior to purchase check to see that new haul trucks and other equipment comply with manufacturer's maximum allowable noise limits.	4	Noise monitoring and mitigation in relation to wildlife will be included in management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
795	Acoustic / Human Health	Monitor workplace noise (indoor); where necessary prescribe hearing protection based on recommendations in the Health, Safety and Reclamation Code for Mines in B.C.	3	Noise monitoring and mitigation measures in relation to human health/safety will be addressed by permitting.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
796	Acoustic / Human Health	Monitor workers in "noisy" areas to ensure they are using the proper PPE.	3	Noise monitoring and mitigation measures in relation to human health/safety will be addressed by permitting.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
797	Explosives / Wildlife / Acoustic	Monitor mountain goat population in the Galore Creek Valley with respect to their response to industrial, blasting and avalanche control noise; when necessary apply adaptive management measures.	4	Mountain goat and habitat monitoring and mitigation will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
798	Aerodrome / Wildlife	Monitor grizzly bears feeding on spawning salmon in the Porcupine River Valley (near the aerodrome, August to early November) for their response to noise, when necessary apply adaptive management measures.	4	Wildlife management will be included within management plans.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
800	Aerodrome / Groundwater	Monitor groundwater levels and quality outside of Galore Creek Valley at proposed wells at the Porcupine River aerodrome/camp site, Round Lake heliport/camp site and at the filter plant site (see Table 13.7-4). Monitoring to be conducted four times/year according to MOE standards.	4	Water quality monitoring to be addressed in management plans	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
803	Aerodrome	Meteorological stations maintained in Galore Valley, Porcupine Aerodrome, More Valley and Iskut filter plant area.	4	Meteorological monitoring will be included within management plans.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
813	Transportation Infrastructure	Access road sited so that less than 5 km of the road will be within the active floodplain.	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
814	Transportation Infrastructure	Adequate cross-drain culverts in regions along access road susceptible to drainage concerns.	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
817	Transportation Infrastructure	Stream crossings along access road designed to the Q100 or Q200 depending on size of crossing.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
818	Transportation Infrastructure	Regular maintenance, including debris clearance, of drainage structures at mine site and along access road.	4	drainage/water management to be addressed in a management plan	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
821	Soil / Surface Water	Erosion and Sediment Control Plan [will be developed].	1	Condition to require development and implementation of erosion and sediment control mitigation (in CEMP)	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
822	Soil / Surface Water	Sediment control ponds, water diversion, buffer zones, sediment traps, revegetation, unstable slopes.	4	Erosion and Sediment Control will be included within the CEMP	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
823	Transportation Infrastructure	Best Management Practices for road construction [will be implemented].	4	Best management practices will be included throughout management plans.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
824	Management Plans	Fish and Fish Habitat Management Plan [will be developed].	1	Condition to require development and implementation of fish and fish habitat mitigation (in CEMP)	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
825	Transportation Infrastructure	Access Road Environmental Management Plan [will be developed].	4	Environmental management measures for access road construction will be implemented throughout management plans.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
826	Fish and Fish Habitat	Fish habitat compensation in wetlands [will be developed].	1	Condition to require development of fish habitat compensation in wetlands	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
827	Soil	Recontouring of slopes, slope stabilization, snowsheds, berms, widening ditches.	4	Erosion and Sediment Control will be included within the CEMP	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
832	Management Plans	Spill Contingency and Emergency Response Plan [will be developed].	1	Condition to require development and implementation of spill contingency measures (in CEMP). Emergency response to be addressed by permitting.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
834	Infrastructure and Services	Containment berms at fuel storage sites, collection of de-icing substances.	4	Fuel and other stored chemicals, and spill management measures will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
835	Soil / Surface Water	Regular inspection and maintenance of sediment control structures.	4	Erosion and Sediment Control will be included within the CEMP	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
836	General	Environmental monitor on site during construction.	4	Environmental Monitoring will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
837	Transportation Infrastructure	Regular inspection of road crossings and potential geohazards.	4	Geohazard monitoring requirements will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
838	Infrastructure and Services	Inspection and maintenance of storage facilities.	4	Inspection and Maintenance of storage facilities will be included within management plans	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
844	Management Plans / Transportation Infrastructure / Acid Rock Drainage / Metal Leaching / Groundwater	Access Corridor Conceptual ARD Management Plan [will be developed and implemented as part of the Aquatic organisms and habitat mitigation measures].	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
845	Management Plans / Acid Rock Drainage / Metal Leaching / Groundwater	ML/ARD Prediction and Prevention Plan.	4	ML/ARD testing and management will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
847	Transportation Infrastructure / Acid Rock Drainage / Metal Leaching / Groundwater	Divert water away from rock highwalls along road, line ditches with limestone, bury PAG rock or transport to waste rock facility [as part of the Aquatic organisms and habitat mitigation measures].	4	ML/ARD testing and management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
848	Management Plans	Waste Management Plan [will be developed and implemented].	1	Condition to require development and implementation of waste management mitigation (in CEMP)	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA

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849	Infrastructure and Services / Surface Water	Sewage treatment facility, including tile field and settling pond, located at least 100 m away from waterbodies. Any groundwater transport would lead to tailings pond.	3	Sewage management associated will be managed in consultation with regulatory agencies under the Environmental Management Act and Mines Act.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
850	Transportation Infrastructure	Access control on road route to prevent public access to waterbodies.	4	Access management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
851	Wildlife	All workers to be prohibited from fishing while on site.	1	Condition about no-hunting/no-fishing	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
854	Wildlife	Avoid/minimize disturbance in red and blue-listed ecological communities tracked by the BC Conservation Data Centre.	4	Wildlife and Vegetation management measures, including limiting disturbance to red and blue-listed ecological communities, and will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
856	Wildlife	Avoid/minimize disturbance to red and blue-listed plants tracked by the BC Conservation Data Centre.	4	Vegetation management measures, including limiting disturbance to red and blue-listed plants, and will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
857	Vegetation	Establish suitable habitat for plant species to re-establish.	4	Vegetation management measures, including limiting disturbance to red and blue-listed plants, and will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
858	Vegetation	Ensure rapid revegetation of exposed soil (e.g., road cuts, recently disturbed areas) to minimize establishment of invasive plant species.	4	Invasive plant species management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
860	Wildlife	Implement environmental awareness education and training for all employees on ways to reduce human-wildlife conflicts and avoid wildlife harassment.	4	Environmental awareness education and training will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
861	Wildlife	Establish rules and corrective action procedures for waste management and wildlife encounters.	4	Waste management will be addressed as a component of the CEMP	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
862	Transportation Infrastructure	Limit entry to the access road to mine employees and Tahltan engaged in traditional activities.	4	Access management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
863	Wildlife	Install incinerators to burn food and non-toxic combustibles that may be wildlife attractants.	4	Waste management will be addressed as a component of the CEMP	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
864	Wildlife	Establish helicopter flight corridors and approach distances that minimize potential disturbance to mountain goat and grizzly bear.	4	Mountain goat and grizzly bear habitat protection will be included within a management plan. Adherence to least-risk work windows, where feasible based on species occurrence and regional requirements, will be defined within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
865	Wildlife	Enforce a no-hunting policy for employees and contractors.	1	Condition about no-hunting/no-fishing	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
866	Wildlife	Record the locations of incidental sightings of wildlife at all project facilities.	4	Wildlife management will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
868	Infrastructure and Services	Monitor success of waste management programs.	4	Waste management will be addressed as a component of the CEMP	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
869	Transportation Infrastructure/Wildlife	Survey access road on a regular basis to identify road associated mortalities and remove carrion.	4	Road operation mitigation measures with regards to wildlife will be included within management plans.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA

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870	Transportation Infrastructure/Wildlife	Conduct pre-construction surveys to identify any important migration corridors for western toads along the access road; install dryland crossings of appropriate size at identified critical sections of the access road.	4	Western toad and western toad habitat management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
871	Wildlife	Where possible, schedule construction activities outside of sensitive time periods and locations to wildlife VECs.	4	Wildlife management will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM	Y (possible)	4	NA
872	Wildlife	During the construction phase of the project, an Environmental Monitor will direct the placement of temporary diverters and/or toad tunnels if mass migration events occur at a site.	4	Amphibian and habitat protection will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
874	Wildlife	Where possible, maintain coarse woody debris and riparian habitats along the access corridor.	4	Protection of riparian vegetation (and other vegetation) will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM	Y (possible)	4	NA
875	Explosives / Acoustic	Reduce the noise level from blasting by using modern sequential blasting and stemming of blast holes techniques.	4	Explosives management will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
876	Transportation Infrastructure/Wildlife	Utilize directed/focused lighting rather than broad area lighting by shielding lights and directing downward to minimize stray light.	4	Mitigation of light effects if required for wildlife mitigation will be included as part of a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
877	Transportation Infrastructure/Wildlife	Establish and enforce speed limits and wildlife "rights-of-way" on access roads.	4	Road operation mitigation measures with regards to wildlife will be included within management plans.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
878	Air Quality	Minimize use of calcium chloride and other chemicals for dust suppression.	4	Dust management will be addressed in the CEMP	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM	Y (minimize use)	4	NA
879	Transportation Infrastructure/Wildlife	During winter, plowed escape areas will be maintained where the road passes through moose winter habitat.	4	Road operation mitigation measures with regards to wildlife will be included within management plans.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM		4	NA
880	Wildlife	Maintain skirting around buildings to avoid mammal habitation.	4	Wildlife management will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
881	Wildlife	Monitor abundance and distribution of grizzly bear.	4	Grizzly bear mitigation will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
882	Wildlife	Monitor abundance and distribution of mountain goat at mine influenced and control areas.	4	Mountain goat and habitat monitoring and mitigation will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
883	Wildlife	Record the locations of incidental goat observations during avalanche control aerial surveys.	4	Mountain goat and habitat monitoring and mitigation will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
884	Wildlife	Monitor moose population in the study area and within the Porcupine River Valley.	4	Moose and habitat monitoring and protection will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
887	Tunnel Explosives	Monitor the effectiveness of any amphibian tunnels installed and repair as necessary.	4	Amphibian and habitat protection will be included within a management plan.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA
888	General	Implement proper training, awareness, education.	4	Environmental awareness education and training will be included within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
889	Transportation Infrastructure	implement proper equipment maintenance.	4	Equipment and vehicle maintenance measures will be included in management plans	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
890	General	Incorporate inherently safe designs into the project.	5	General context	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
891	Management Plans	Develop and implement site environmental management plan, including effective and efficient emergency response plans.	3	Emergency response to be addressed in permitting	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2	IM/MAM		4	NA

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892	Accidents and Malfunctions	Assess accident and malfunction risks during all project life cycles, including detailed design, construction, operations and closure.	4	Accident and malfunction assessment procedures will be included within management plans.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
893	General / Management Plans	Use of EMS for monitoring.	4	The environmental monitoring program will be defined within a management plan.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
896	Health and Safety / Management Plans	Implement Health and Safety Program.	3	Health and safety is addressed by permitting	Chap 15 - Summary of Corporate Commitments	Table 15.1-2	IM/MAM		4	NA
897	Transportation Infrastructure	Glacier Access An alternative access for moving large equipment into the Galore Creek Valley would be to traverse the glacier between the headwaters of Scotsimpson Creek leading into the West Fork of the Galore Creek Valley. Winter access for construction equipment over this route was investigated by McElhanney and deemed to be feasible. This temporary access will include steeper grades (maximum 20%) and the need to use snow or ice fills combined with matting to bridge the numerous crevasses over a 500 m length of the glacier. This route could also be used as a construction access or temporary tunnel bypass route to protect the construction schedule if delays should occur on the tunnel-driving operation, and to support limited schedule-sensitive construction activities. The location of the glacier access route is shown in Figure 8.15-12.	5	General context alternatives assessed	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-3519_RC	8.16.3	IM		4	NA
898	Housing and Accommodation	Table 8.16-1: Camp Requirements and Locations [this table outlines camp capacities and provides another data point for which to confirm these.] Camp Location Size of Camp (Construction/Operations) Duration Filter Plant Camp (km 3.3) 30 / 30 Construction (Feb 07 – Dec 07) and Operations phases Porcupine River Camp 50 Construction phase-road and tunnel (Feb 07 – Oct 07) West More Camp 25 Construction phase (Mar07-Dec07) Galore Creek Camp 850 / 280 Construction and Operations phases	2	This is a description	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-3519_RC	8.16.1	IM		4	NA
903	General / Management Plans	Monitoring programs are provided for each of the following component areas: • Climate Change and Glaciers [see Section 10.2] • Air Quality [see Section 10.3] • Noise [see Section 10.4] • Wildlife and Wildlife Habitat [see Section 10.5] • Aquatic Effects [see Section 10.6]. NovaGold is committed to monitoring the effects of the Galore Creek Project and to follow-up with the results of these programs in an annual summary report. The report will summarize how the proponent has implemented mitigation measures and will comment on the effectiveness of these measures in reducing adverse environmental effects. A key aspect of these reports will be the identification of opportunities for adaptive management. In addition, every three years, NovaGold will prepare a more detailed report outlining trends observed in the monitoring programs. These reports will assess trends in the predicted effects of the project, as outlined in the EA, and determine the success of mitigation measures or alternate measures to reduce the effects on the environment. As part of the adaptive management process, the EMS [Environmental Management System] will be updated and associated training programs enhanced to improve the level of environmental protection based on the results of these monitoring programs.	4	The environmental monitoring program, including long-term monitoring and follow-up reporting, will be included within management plans.	Environmental Effects Monitoring and Follow-Up Program	10	IM/MAM	Y (adaptive management)	3	NA

Table A2. Categorized Access-Development EAC Application Commitments.

Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
907	Management Plans / Air Quality	10.3.1 Air Quality Follow-up [See Section 10.3.1 of the EAC Application for further details; the following is an excerpt only.] A summary of the data collected in the monitoring programs outlined in section 10.3 will be included in an annual report. Trend analysis of these data will be conducted for the detailed report completed every three years. If the analysis highlights an area of concern, then adaptive management plans will be implemented. These plans could include increasing the rate of road watering. More significant measures, such as a change in equipment, may be chosen if a chronic adverse effect on air quality is identified. NovaGold will be responsible for implementing methods to achieve environmental effects consistent with the EA.	3	Air quality monitoring and mitigation measures to be addressed by permitting	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.3.1	IM/MAM		4	NA
909	Management Plans / Wildlife	10.5.1 Introduction and Objectives [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] As part of the environmental monitoring program for the Galore Creek project, a Wildlife Effects Monitoring Program (WEMP) will be implemented to document changes in wildlife abundance, behaviour, health, and habitat resulting from project development, operation and closure. Changes to wildlife will be documented to: • assess the success of mitigation measures proposed in the Wildlife Management Plan (Section 8.13); • identify opportunities for adaptive management; and • enable the actual wildlife effects. The WEMP will assess mine related effects through formal and informal monitoring programs that focus on wildlife behaviour, mortality, population dynamics, distribution and habitat loss. The effects of project activities on wildlife will be assessed by incidental observations of wildlife injury, mortality or abnormal behaviour associated with mine components (e.g., access roads, waste management, etc.). Long-term monitoring will be conducted on selected focal species (e.g., species of particular value or indicators of broader ecosystem health) to assess impacts at broader temporal scales. Habitat loss, change, and reclamation will be monitored and documented as the mine footprint is expanded and subsequently reclaimed post- operation.	4	Long-term wildlife and wildlife habitat monitoring and management will be included within management plans.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.5.1	IM/MAM		4	NA
910	Management Plans / Wildlife	10.5.2 Monitoring of Project Components [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] The project components selected for monitoring are those with the greatest potential for interactions between project activities and wildlife. Monitoring will occur through all project phases (construction, operation and decommissioning). The selected components include: • Access Road; • Aerodrome and Air Traffic; • Transmission Line; • Pit Walls; • Waste and Wildlife Attractant Management; and • Tailings Facility Additional project components may be added to the monitoring program under a process of adaptive management if evidence emerges that the components pose a potential hazard to wildlife.	4	Long-term wildlife and wildlife habitat monitoring and management will be included within management plans.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.5.2	IM/MAM		4	NA

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911	Management Plans / Wildlife	10.5.2.1 Access Road [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Wildlife interactions with vehicular traffic and behaviour of wildlife near and on the access road and mine-site haul roads will be monitored. Locations of all interactions and observations (e.g., species, location and behaviour) will be reported to environment staff to identify areas of high conflict and enable the development of site-specific strategies to reduce conflict. Specific adaptive management strategies for reducing conflict are detailed in the Wildlife and Wildlife Habitat Management Plan. Monitoring will focus on those areas identified during baseline studies as being particularly sensitive due to a greater wildlife presence. These areas include Sphaler Creek (mountain goat and grizzly bears), Porcupine River (moose, wildfowl and grizzly bear) and the area around the Iskut / More Creek confluence (mountain goat) (Appendix 6-L, Appendix 6-B and Appendix 6-M).	4	Long-term wildlife and wildlife habitat monitoring and management will be included within management plans.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.5.2.1	IM		4	NA
915	Management Plans / Wildlife	10.5.2.5 Waste and Wildlife Attractant Management [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Waste products and project facilities can attract wildlife and bring them into conflict with human activity. A key component of both the Waste Management Plan (Section 8.14) and Wildlife Management Plan (Section 8.13) is to minimize this potential through the careful control of waste in the project area. The effectiveness of the management measures The program will include the following measures [see Section 10.5.2.5]: Wildlife Observations Landfill Waste Misdirection Wildlife-Attracting Wastes Access Road Tunnel Monitoring and Adaptive Management.	4	Waste management and Long-term wildlife and wildlife habitat monitoring will be included within management plans.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.5.2.5	IM/MAM		4	NA
917	Management Plans / Wildlife	10.5.3 Monitoring of Focal Species [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Four species have been selected for long-term monitoring: moose, mountain goat, western toad and grizzly bear. 10.5.3.1 Moose (Alces alces). Moose have been selected for long-term monitoring because they have been highlighted as one of the most important VECs within the study area. The field methods used to inventory moose will adhere to the aerial survey protocol identified by B.C. Ministry of Sustainable Resource Management (B.C. MSRM, 2002). Winter aerial survey based methods for monitoring moose population are well established and are sufficiently robust to allow statistical assessment of relatively small changes in population. A summary of the data collected in the monitoring programs outlined in section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report.	4	Long-term wildlife and wildlife habitat monitoring and management will be included within management plans.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.5.3.1	IM/MAM		4	NA

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918	Management Plans / Wildlife	10.5.3 Monitoring of Focal Species Four species have been selected for long-term monitoring: moose, mountain goat, western toad and grizzly bear. 10.5.3.2 Mountain Goat (<i>Oreamnos americanus</i>) Mountain goats have been selected for long-term monitoring because: there are specific objectives for management of mountain goats and their habitat within the CIS-LRMP (B.C. MSRM, 2000); they are an important resource for the Tahltan Nation; they are particularly susceptible to disturbance (Côté, 1996 and Demarchi et al, 2000); and the environmental assessment identified that the project may have residual effects on this species. Surveys will be completed on blocks within the Northern Goat Study Area (Appendix 6-B). The first monitoring stage will be a survey of all the selected blocks during July of the year prior to development, anticipated to be 2006. Following this, a complete survey will be conducted every five years afterward (2011, 2016, etc.). A sample of the selected survey blocks most likely affected plus a control block is proposed for monitoring every year starting in 2007. A summary of the data collected in the monitoring programs outlined in section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report.	4	The environmental monitoring program, including long-term monitoring and follow-up reporting, will be included within management plans.	Environmental Effects Monitoring and Follow-Up Program	10.5.3.2	IM/MAM		3	NA
919	Management Plans / Wildlife	10.5.3 Monitoring of Focal Species [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Four species have been selected for long-term monitoring: moose, mountain goat, western toad and grizzly bear. 10.5.3.3 Western Toad (<i>Bufo boreas</i>) Western toad has been selected for monitoring because they are listed under Schedule 1 of the Canada Species at Risk Act and therefore require monitoring under section 79(2) of the Act. The objective of the western toad monitoring program will be to enable an assessment of current population levels, any population changes over time and population movements within the project area, particularly in relation to the access road. One aspect of the monitoring will be determining the effectiveness of amphibian tunnels installed to allow toads to traverse the access road safely. The condition of these tunnels will also be monitored and repairs conducted as necessary. A summary of the data collected in the monitoring programs outlined in section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report.	4	Western toad and western toad habitat management will be included within a management plan.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.5.3.3	IM		4	NA
920	Aerodrome / Wildlife	10.5.3.4 Grizzly Bear (<i>Ursus arctos horribilis</i>) [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Grizzly bears have been selected for long-term monitoring because there are specific objectives for management of grizzly bears and their habitat within the CIS-LRMP, they are listed as being of Special Concern in British Columbia and by COSEWIC and are an excellent umbrella species because they require large home ranges. Monitoring of grizzly bear populations in the northern study area (Appendix 6-M) will be carried out with the primary objective of monitoring population levels and any changes. Monitoring is proposed to be accomplished by collecting bear hair samples once per year during May and June. Visual monitoring of grizzly bear feeding on salmon spawning along the Porcupine River will take place during the salmon spawning period. This will establish whether grizzly bear foraging is being affected by disturbance from activities associated with the Porcupine Aerodrome. A summary of the data collected in the monitoring programs outlined in section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report.	4	Long-term wildlife and wildlife habitat monitoring and management will be included within management plans.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.5.3.4	IM/MAM		4	NA

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926	Management Plans / Soil / Vegetation / Surface Water	10.5.4.6 Spill Monitoring [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] In the event of a major chemical spill, soil, water and vegetation within the spill area will be monitored to ensure that the levels of chemicals of potential concern are within the regulatory guidelines. A summary of the data collected in the monitoring programs outlined in section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report.	4	The environmental monitoring program, including long-term monitoring and follow-up reporting, will be included within management plans.	Environmental Effects Monitoring and Follow-Up Program	10.5.4.6	IM/MAM		3	NA
927	Management Plans / Vegetation	10.5.4.7 Invasive Species [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Exotic plant invasions potentially facilitated by project associated activities (i.e., the clearing of access corridors and increase transport traffic to site) are an ongoing concern because they can alter native habitat. Invasive plants which become established in the access corridors or at the mine sites will be identified through an annual monitoring program conducted by environmental staff. Monitoring will identify invasive species that have become established in the project area. This will allow the development of adaptive management activities aimed at eliminating invaders and controlling the risk of future invasions. A summary of the data collected in the monitoring programs outlined in section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report.	4	Invasive plant species management will be included within a management plan.	Environmental Effects Monitoring and Follow-Up Program	10.5.4.7	IM/MAM		3	NA
928	Aerodrome / Wildlife	10.5.5 Wildlife and Wildlife Habitat Follow-up A summary of the data collected in the monitoring programs outlined in section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report. Trend analysis of these data will be conducted for the detailed report completed every three years except in situations where a more frequent analysis is prescribed by permitting requirements report. Trend analysis of these data will be conducted for the detailed report completed every three years and will include a discussion on the monitoring of the potential effects on VEC wildlife from the: 1. Access Road, 2. Aerodrome and Air Traffic, 3. Transmission line, 4. Pit Walls, 5. Waste and Wildlife Attractant Management, 6. Tailings Facility, 7. Chemicals released during an accidental spill (if applicable).	4	Long-term wildlife and wildlife habitat monitoring and management will be included within management plans.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.5.5	IM/MAM		4	NA
932	Management Plans / Surface Water / Fish and Fish Habitat	10.6.1 Hydrology [a component of the Aquatic Effects Monitoring Program] The objectives of the surface flow monitoring program will be to determine project-related effects to water quantity, to assist in the implementation and evaluation of mitigation measures associated with water management, and to provide data for the water quality and aquatic effects monitoring programs. Based on the surface hydrology effects assessment, the project components that require monitoring are those with the greatest potential for impacts on water quantity; • the mine site and facilities in Galore Creek (open pits, tailings facility, diversion channels, etc.); and • the Access Corridor. A summary of the data collected in the monitoring programs outlined in section 10.6.1 to 10.6.6 will be included in an annual [AEMP] report.	4	Surface water quantity/quality monitoring for the access road to be addressed in management plan.	Environmental Effects Monitoring and Follow-Up Program	10.6.1	IM/MAM		3	Note that the majority of the AEMP relates to mine site and therefore is addressed in the Major Amendment. There are a few commitments that also relate to some surface water quality monitoring in relation to the access corridor, in which case those are noted as applying to both the initial modernization and the major amendment modernization.

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933	Aerodrome / Surface Water	10.6.2 Surface Water Quality [a component of the Aquatic Effects Monitoring Program] Surface water quality will be monitored at exposure sites associated with the Mine Area, Access Route, Filter Plant and Aerodrome to ensure that discharge limits are met and to monitor for effects in the receiving environment. Water sampling will be conducted weekly at the discharge sites associated with the Mine Area (Tailings Impoundment) and the Filter Plant. Monthly water sampling will take place at three locations in the Mine Area: the Diversion Channel, Gal-3A and Gal-3. All other stream sites, except those associated with the Access Corridor, will be sampled on a quarterly basis. Three sites will be monitored to assess the impact of the Access Corridor on stream water quality. All water samples will be analyzed for general physio-chemical variables, anions, nutrients, total cyanide, total organic carbon (TOC), and total and dissolved metals, and will therefore replicate the analyses conducted for the baseline monitoring program (Aquatics, 2004, 2005). A summary of the data collected in the monitoring programs outlined in section 10.6.1 to 10.6.6 will be included in an annual [AEMP] report.	4	Surface water quantity/quality monitoring for the access road to be addressed in management plan.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.6.2	IM/MAM		4	Note that the majority of the AEMP relates to mine site and therefore is addressed in the Major Amendment. There are a few commitments that also relate to some surface water quality monitoring in relation to the access corridor, in which case those are noted as applying to both the initial modernization and the major amendment modernization.
945	Transportation Infrastructure	The revised alignment retains the original north portal location, but the south portal is about 72 m lower in elevation, and about 500 m southwest of, the location indicated in the Application.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	novaGold_2006_revised tunnel alignment	2	IM		3	NA
946	Transportation Infrastructure	The overall length of the tunnel has increased to 4389 m from the original 3837 m.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	novaGold_2006_revised tunnel alignment	2	IM		3	NA
947	Transportation Infrastructure	The tunnel will drain northwards to the Galore Creek valley with a gradient of ranging from 1.31% to 2.36%. Only the southernmost 24 m will slope towards Scotsimpson Creek valley.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	novaGold_2006_revised tunnel alignment	2	IM		3	NA
948	Transportation Infrastructure	This [tunnel and road] alignment [see #945 for additional context of the alignment changes] increases the depth of cover between the tunnel and the glacier, reducing the risk of poor ground conditions. It also provides a south portal location that is relatively protected from snow avalanches and rockfall, with manageable access from the Scotsimpson Creek valley (Figures 3 and 4). The new portal has been designed with an avalanche protection structure (Figure 2).	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	novaGold_2006_revised tunnel alignment	2	IM		3	NA
984	Transportation Infrastructure	2.8 Recommendations for Future Work The following issues were identified during this phase of work which will require additional work as the project moves forward. • Additional test samples may be required to better define slurry properties as the beneficiation process is developed. • Study route optimization opportunities after receipt of the access road and tunnel details. • Coordinate with road bridge design to include pipe supports on the bridge structures for certain river crossings. • Optimize the locations of the intermediate pressure monitoring stations considering final pipeline profile and access. • Complete route investigations and review with relevant authorities to verify the viability of the selected pipeline route. • Coordinate with mine, road, and tunnel construction personnel to identify potential for saving (e.g., periods when the road can be closed to traffic for extended periods).	5	General context	novaGold_2006_Overland Pipelines Detailed Feasibility Study by PSI	2.6 Constructability	IM		3	NA

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986	General	9.1.2 Project Phases The project will consist of four major phases, each terminating in a well-defined deliverable package, which will be presented for approval before being issued for its intended purpose as outlined below. <u>Phase Title Deliverable</u> • I Basic Engineering Final system sizing, pipeline routing and specification of significant system components: • II Detailed Engineering Detailed design including procurement and construction specifications, drawings, etc. for the project – includes final cost estimate/control budget for the project Contracting / Procurement Material-Contracts and PC-Contracts / Materials. • III Construction Completed facility Engineering Follow-Up Construction support and final documentation. • IV Commissioning System in service. Incorporated in the above-mentioned phases is the system design which is part of the engineering which occurs throughout the detailed engineering phase. The system design is interactive, with updates required to incorporate the latest information (vendor certified prints) to provide the basis for the design. The Engineering portion may be split into Basic and Detailed Engineering phase or implemented as a single phase. Note also that engineering support during procurement (i.e., incorporation of vendor prints) is included as part of detailed engineering.	5	General context	novaGold_2006_Overland Pipelines Detailed Feasibility Study by PSI	9.1.2 Project Phases	IM		3	NA
987	General	9.1.3 Basic Engineering During the basic engineering, which will be based on the selection of the preferred pipeline design from the detailed feasibility study, the definition of all system components will be performed and the basis that will be required to acquire the general approval of the project shall be completed. The following is a list of the main tasks to be performed during the basic engineering phase: • Supplemental environmental investigations (by Hatch), if required. • Detailed geo-technical, hydrological, ecological, archeological, and soil resistivity investigations (by specialty sub-contractor). • Pipeline route surveys (by specialty sub-contractor). • Application to Authorities for project approval, permits, etc. (by Hatch). • Initiation of the Right-of-Way activities (by Hatch with the support of the engineering team). • Finalization of the pipeline station locations (pump station, pressure monitoring stations, and terminal station). • Preparation and approval of the process flow diagrams, calculations, specifications and standard drawings, and P&IDs. • Confirm the line pipe material quantity and wall thickness per the route survey data. • Material take-offs. • Pre-qualification of vendors and contractors to be considered for project implementation • The system design will be finalized in this phase although optimization will continue through future phases of the project. • Development of an overall contracting plan identifying which items will be purchased by Hatch and supplied to the selected construction contractor and which items will be supplied by the contractor. Additionally, battery limits for the construction package(s) will be determined. Basic engineering will likely be implemented in Canada with overall project controls centered at Hatch to ease the transition to detailed engineering. Specialty sub-contracts (including PSI) will be coordinated by Hatch.	5	General context	novaGold_2006_Overland Pipelines Detailed Feasibility Study by PSI	9.1.3 Basic Engineering	IM		3	NA

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988	Transportation Infrastructure	9.2.3.4 Access Roads No new access roads are anticipated for this pipeline. The right-of-way is along the mine access road that will be constructed for the mine access. The access road to the mine site and tunnel will be constructed before the pipeline construction begins.	2	This is a description	novaGold_2006_Overland Pipelines Detailed Feasibility Study by PSI	9.2.3.4 Access Roads	IM		3	NA
993	Transportation Infrastructure	NovaGold's preferred access alternative, from environmental, socio-cultural and technical and economic feasibility perspectives, is the modified Northern route. This route was identified in consultation with government agencies and First Nations early in 2005. It will start from Highway 37 north of Bob Quinn Lake, follow More Creek upstream from its junction with the Iskut River to the pass at the head of More and Sphaler creeks, descend the Sphaler Creek Canyon to the Porcupine River, then ascend Scotsimpson Creek to a 3.8 km tunnel. The tunnel will allow access from Scotsimpson Creek Valley to the Galore Creek Valley. The distance from Highway 37 to the south tunnel portal will be 128 km, 118 km of which will require new construction. Section 5.11 presents a comprehensive discussion of the road. With relatively minor variations, the access road, concentrate slurry pipeline and electric power transmission line will all follow the same alignment (Figure 5.2-4).	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.2.2	IM		4	NA
994	Transportation Infrastructure	Construction of the road will take about 12 months. The access road will be used for initial delivery of machinery and equipment for the construction of the mine and for ongoing delivery of grinding media, reagents and other operating supplies.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.2.2	IM		4	NA
997	Acid Rock Drainage / Metal Leaching / Groundwater	5.3.6.5 Potential for ARD Geochemical testing has shown that some of the rocks at Galore Creek are potentially ARD generating (PAG) over long time scales. Evaluation of test results has led to the identification of a site-specific ratio of ICCa,Mg to acid potential (AP) that defines PAG and not-PAG (not-acid generating) rock. This relationship is: ICCa,Mg /AP = 1.3. Laboratory testing and field evaluation have shown that fresh PAG rock will ultimately generate acid, however there will be a delay between time of exposure and onset of ARD generation. This delay corresponds to a period in which buffering capacity is being consumed, and is conservatively estimated to be greater than 22 years for the large majority of rock at the site. The conservative nature of this estimate is supported by the lack of acidity observed in 1960s drill core that has been stored at the site under surface conditions for over 40 years.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.3.6.5	IM		4	NA
998	Acid Rock Drainage / Metal Leaching / Groundwater	A provisional criterion for differentiating PAG from not-PAG waste rock was identified on the basis of ML/ARD characterization of a large number of samples, representing the full range of metal content, sulphur content, and rock types present in the vicinity of the deposits at Galore Creek. This evaluation indicated that rock material with ICCa,Mg /AP>1.3 will not likely generate ARD over the long term. Furthermore, based on kinetic tests and the lack of acidic conditions in core from the 1960s, ARD generation has been estimated to take at least 22 years after rock is exposed.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.3.6.12	IM		4	NA
1002	Health and Safety	Much of the Galore Creek Valley is subject to avalanche hazard. NovaGold engaged BGC Engineering Inc. and Chris Stethem and Associated Ltd. to assess this hazard. They created an Avalanche Atlas (Figure 5.5-4) that identified the avalanche paths in the Galore Mine area that could produce avalanches of Size 3 or greater.	5	General context	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.5.1.2	IM		4	NA

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1003	Health and Safety	Mitigation of avalanche hazards, besides avoidance of hazard areas, temporary shutdowns during periods of avalanche threat and construction of deflection barriers, include use of: • case charging; • helicopter bombing, assuming acceptance of long closures during storms; • military surplus artillery; and • remote systems such as Avalanche Guard or Gazex, or • a combination of all approaches.	3	Avalanche risk will be managed in consultation with regulatory agencies under FRPA and the Mines Act.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.5.1.2	IM/MAM		4	NA
1011	Soil / Land and Resource Use	Topsoil will be stockpiled separately from other materials. It will be stored in stable areas and will not be disturbed until the soil material is required for replacement, for reclamation purposes, on the final (post-mine) recontoured surfaces. Topsoil may be windrowed adjacent to areas of linear development. Direct replacement (salvage and concurrent replacement) will be employed where permitted by scheduling. Direct replacement is anticipated to be a small portion of the total volume of soil handled as few surfaces will be available for reclamation in the early stages of development.	4	Clearing, grubbing and topsoil management activities will be included within management plans.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.7	IM/MAM		4	NA
1017	Explosives	Explosives will be manufactured on site to improve site efficiencies and reduce raw material transportation costs. The explosives manufacturing and storage facilities will be located away from other mine site facilities, about 800 m north of the truck shop, in a fenced compound with security provisions to limit access to only authorized personnel. The facilities will occupy an area of about 200 m by 200 m, although the exact configuration has not been determined at this time. The layout of the site will be designed to allow for a straight run into and out of the gate as well as ample turning radius for B-trains and bulk transport trucks of raw materials. Alternative explosives manufacturing facility sites were investigated. This selected site was chosen to ensure the safety of other facilities in the event of a mishap, ease of use and access under extreme weather conditions and in consultation with potential explosives suppliers and plant operators. A building (approximately 24 m x 18 m) will be constructed within the compound for explosives manufacture and truck loading. The building will meet the guidelines published by the Explosives Regulatory Division (ERD) of Natural Resources Canada and local and federal regulations. A sump will collect water for oil/water separation and disposal.	4	Explosives management will be included within a management plan.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.12	IM/MAM		4	NA
1019	Explosives	NovaGold employees will drill and dewater the boreholes and prime, stem, tie in and detonate the explosives. Boreholes will be 311 mm drilled on 9.8 m by 11.3 m patterns, with a five metre explosives collar and two metre subdrill. Major blasts will occur on average about once a day.	4	Explosives management will be included within a management plan.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.12	IM/MAM		4	NA
1045	Housing and Accommodation / Infrastructure and Services	5.8 Water Supply 5.8.1 Potable Water Supply 5.8.1.1 Source Potable water for domestic use for the accommodation complex and plant and maintenance facilities at the mine site will be supplied from a well field, estimated at this time to comprise two wells, located near the plant site.	3	Potable water to be addressed by permitting	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.8.1.1	IM/MAM		4	NA
1046	Housing and Accommodation / Infrastructure and Services	Potable water for the filter plant complex will likely be drawn from a well field comprised of two wells near the plant. Wells will also be drilled to supply water for the temporary construction camps at Porcupine River and at the West More heliport. The Porcupine River wells will be retained to service the aerodrome once the construction camp is removed.	3	Potable water to be addressed by permitting	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.8.1.1	IM/MAM		4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
1047	Housing and Accommodation / Infrastructure and Services	Water for each permanent camp will be pumped through a small ozonation treatment plant prior to distribution. Construction camps will use a chlorination process for potable water treatment. Procedures will be developed for maintenance of the potable water systems and for regular testing of drinking water quality (e.g., coliform) as per Northern Health Authority requirements. Each camp will have a potable water tank sized to the requirements of the camp, located between the supply pumps and the treatment plant.	3	Potable water to be addressed by permitting	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.8.1.2	IM		4	NA
1070	Infrastructure and Services	5.11 Waste Management All mine waste produced at the Galore Creek Project will be stored in the Galore Creek Valley, with the exception of various industrial and domestic waste streams that will require backhauling to a licensed waste disposal or recycling facility. The waste streams that will be produced at the Galore Creek Project include the following: • waste rock: any rock other than ore that is moved in the mining process; • tailings: the residual material from the processing plant after the valuable ore minerals have been extracted; • domestic and industrial wastes with hazardous and non-hazardous substances; and • sewage effluent and sludges.	4	Waste management will be addressed as a component of the CEMP	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.11	IM/MAM		4	NA
1072	Management Plans / Infrastructure and Services	NovaGold's main objective with the domestic and industrial waste stream is to minimize potential adverse effects on the environment, including wildlife, and wildlife habitat. Thus waste production will be minimized, and the collection, storage, transportation and disposal of wastes will be carried out in a safe and environmentally conscious manner. The waste management plan (Chapter 11.14) covers waste management in detail and should be reviewed for further information and figures.	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.11	IM		4	NA
1073	Acid Rock Drainage / Metal Leaching / Groundwater	The amount of PAG and not-PAG waste expected based on ABA testing is also summarized on Table 5.11-1 [refers to waste material from the open pits].	5	General context	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.11.1.1	IM		4	NA
1074	Acid Rock Drainage / Metal Leaching / Groundwater	Waste rock will be used to build the tailings dam and much of the road infrastructure. Only not-PAG material will be used where the rock will not be permanently submerged. All waste considered to be PAG will be deposited in designated waste dump areas for eventual flooding. It has been assumed that ARD will not develop for decades, allowing flooding of the PAG waste rock to be delayed. Not-PAG waste will be placed in Galore Creek Valley and may or may not be submerged.	4	PAG rock and non-PAG rock management and monitoring requirements will be included within a management plan.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.11.1.1	IM/MAM		4	NA
1082	Management Plans / Infrastructure and Services	5.11.2 Domestic Wastes and Industrial Wastes The Galore Creek Project will generate several forms of industrial and domestic wastes in both the construction and operating phases of the mine. This waste will be managed with waste management policies that include the four Rs: reduce, reuse, recycle, and recover. All of these methods will be exhausted before the waste materials will be disposed of. The Waste Management Plan (Section 8.14) describes in detail wastes produced in the different phases of mine production, and how each waste will be dealt with individually.	4	Waste management will be addressed as a component of the CEMP	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.11.2	IM/MAM		4	NA
1083	Transportation Infrastructure	5.12.1.1 Road Design Assumptions The Galore Creek Project access road is classified as a resource development road with a finished road width of five to six metres and a design speed of 30 to 60 km/h capable of carrying the legal load limit for trucks on British Columbia highways on a year round basis (Appendix 5-J, Feasibility Study Galore Creek Mine Access Road 2005 Study Report). The average design speed is 40 km/hr. Allowance for a minimum standard in control sections such as Sphaler Canyon was made for a five to six metre road width with inter-visible turnouts and a reduced travel speed of 30 km/h. Grades in this short section may reach 14 to 15% on short pitches. Design criteria are listed in Table 5.12-1.	4	Access management will be included within a management plan.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.1	IM		4	NA

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1085	Transportation Infrastructure	McElhanney Consulting Services estimated the preliminary 100-year flood flow for each of the bridge crossing sites using the Rational formula, Beaumont method, Community Watershed formula, British Columbia Stream Inventory method, and Log Pearson Type III method. The same methods were used for each site, regardless of crossing size.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.6	IM		4	NA
1086	Transportation Infrastructure	Environmental objectives associated with the construction, installation, and use of stream crossings will be: • protecting fish and fish habitat; • providing for fish passage; • preventing impacts on fish eggs and alevin that are present in the gravel, or on adult and juvenile fish that are migrating or rearing; and • reducing the risk of sediment release and other deleterious substances during work at stream crossings. To achieve those objectives, the following fish-stream protection measures will be used: • work will be completed during the appropriate instream work window; • sediment-related problems will be eliminated or reduced during installation; • deleterious substances will be prevented from entering streams; • disturbance of fish habitat above and below the area required for actual construction of the stream crossing will be avoided or minimized; • measures will be established to ensure safe fish passage design specifications are achieved. • post-construction erosion will be avoided by revegetation and stabilization of the site; and • clearing width at the crossing site will be minimized and streamside vegetation retained within the stream crossing right-of-way wherever possible, recognizing operational requirements.	3	Encroachment on fish-bearing streams will be managed through DFO & MoF within the permitting program under FRPA, WSA, and FA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.8	IM		4	NA
1087	Transportation Infrastructure	5.12.1.9 Navigable Water Crossings The Galore Creek mine access road will cross several significant rivers and streams. Although NovaGold has been unable to establish a history of navigation on these watercourses, the proposed bridges will accommodate potential water-borne traffic. Bridge designs allow a minimum of 1.5 m between the lowest elevation of the bridge deck structure and the projected elevation of the 200 year flood, unless geotechnical issues required additional clearance. Several bridges will require multiple spans. Bridge in-stream piers will be placed in areas of contemporary gravel bars or similar flow interruptions to minimize impacts to water-borne traffic. General arrangement drawings for all bridges will be provided for project permitting.	3	Construction in proximity to navigable waters, if any, will be managed in consultation with regulatory agencies under CNWA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.9	IM		4	NA
1088	Transportation Infrastructure	5.12.1.10 Scotsimpson Creek Tunnel Access to the Galore Creek Valley and minesite will be via a 3.8 km tunnel envisaged to extend north from the headwaters of Scotsimpson Creek to a point south of the Southwest pit and west of the West Fork pit in the Galore Creek Valley (Figure 5.12-8). [commitment has been superseded; see #946. Tunnel length is now 4,389 m]	5	N/A. commitment superseded.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM		4	NA

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1089	Transportation Infrastructure	Currently proposed portal locations indicate that the access tunnel will have a length of about 3.8 kilometres. Figure 5.12-9 shows the proposed horizontal and vertical alignments of the tunnel, as well as geological information. The south portal elevation is estimated at approximately 1,072 m, while the north portal is anticipated at approximately 980 m. All tunnel groundwater inflows will drain into the open pit due to the 2.4% gradient. The tunnel cover will be up to 1,100 m in its central region. [commitment has been superseded; see #945, #946, and #947]	5	N/A. commitment superseded.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM		4	NA
1090	Transportation Infrastructure	To reduce these risks the portal will be located below a partially vegetated buttress with lower rock fall activity, a ten metre wide catch bench will be constructed upslope of the portal, the portal will be protected by an extended corrugated steel arch and remote avalanche triggering equipment will be used to reduce avalanche risks. The access road to the north portal will be elevated on an embankment for the first 500 m to deflect avalanche run outs.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM		4	NA
1091	Transportation Infrastructure	The south portal will also be extended with a corrugated steel arch to reduce avalanche impacts.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM		4	NA
1092	Explosives	Tunnel Dimensions The tunnel will be sized to accommodate both construction and operations traffic. Considerable effort has been expended to identify the minimum sizes of equipment disassembled for road transportation, resulting in a finished tunnel cross-sectional dimension of approximately 6.8 m wide x 6.5 m high (excavated dimensions 7.3 m wide x 7 m high). It is proposed that the tunnel will be constructed using conventional drill and blast methods to excavate a horseshoe-shaped cross section. The excavated dimensions allow for rock support, convergence and alignment deviations and a one metre clearance on either side of maximum width loads.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM		4	NA
1093	Tunnel Explosives	Jet fans for normal operation and emergency ventilation will be mounted at both of the portals and at an additional internal site.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM		4	NA
1094	Tunnel Explosives	The criterion for the sizing of the access tunnel was to allow passage for all of the equipment and supplies for initial construction and on-going operations. Mine equipment will be broken down into the smallest practical size for transportation. The tunnel cross-section is shown in Figure 5.12-10.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM		4	NA
1095	Transportation Infrastructure	Rock support consisting of pattern rock bolts and/or shotcrete will be required to provide initial support during tunnelling. Once the access road has reached the south portal, final support, consisting of additional shotcrete (and possibly rock bolts) will be applied.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM		4	NA
1096	Groundwater	Minor groundwater inflows are expected to accumulate along the tunnel alignment except at the intersection of fault zones where moderate to high inflows could be encountered. Using assumed hydraulic conductivities for different bedrock units, depth of cover and fault zones, steady state groundwater inflows after completion of the tunnel are estimated at 50 litres per second. Flush flows up to 35 litres per second can also be expected at individual higher permeability features such as fault zones. Water draining from the tunnel will be directed to the open pits for management with mine water.	4	Groundwater quality monitoring and management will be included in management plans.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM/MAM		4	NA
1097	Transportation Infrastructure	In order to avoid a possible deeply eroded valley, the [road] alignment has been curved into the mountain to increase the depth of cover below the glacier.	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM		4	NA

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1098	Land and Resource Use	Rock excavated through the northern (Galore Creek) portal will be managed along with mine waste rock. A suite of analyses, including standard ABA testing of samples collected during the excavation process will identify any special management concerns and any problematic waste rock from the southern portal will be stored until it can be transported through the tunnel for management with mine waste rock.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM		4	NA
1099	Transportation Infrastructure	Tunnel traffic will be monitored and managed with a traffic light at each end to ensure only one way traffic at a time.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM/MAM		4	NA
1100	Transportation Infrastructure	Minimal lighting will be installed throughout the tunnel to facilitate safe traffic movement and to allow any driver stranded as a result of a breakdown to safely locate an emergency telephone.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM/MAM		4	NA
1101	Transportation Infrastructure	Refuge stations capable of sustaining up to 30 people with oxygen, water, blankets, first aid materials and telephone communications for a period of 24 hours will be constructed every 500 m along the tunnel length. Breakdown bays or pullouts measuring 3 m wide by 20 m long will be constructed at each refuge station.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM/MAM		4	NA
1102	Air Quality	The tunnel will be equipped with three banks of three jet fans each to supplement natural ventilation and to provide air in an emergency, such as a fire. Air quality will be monitored either manually or with automatic sensors.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM/MAM		4	NA
1103	Infrastructure and Services	A leaky feeder cable [in the tunnel] and repeaters at the portals will ensure constant radio communications along the tunnel with the mine dispatch office.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM/MAM		4	NA
1105	Tunnel Explosives	Mine site telephones and fire extinguishers will be located every 90 m within the tunnel and reflective signage on both sides of the tunnel will indicate the distance and direction to the nearest telephone, refuge station and fire extinguisher.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM/MAM		4	NA
1106	Transportation Infrastructure	It is proposed that a gate house be erected in the vicinity of the filter plant near the junction of the mine road with Highway 37. This location will enable synergies with the filter plant operation and will permit 24 hour monitoring of traffic. Random inspections of vehicles will be undertaken. Firearms, alcohol and/or illegal drugs will not be tolerated. At the gatehouse, authorized road users will be required to sign in and be instructed regarding the management directions for the road with respect to wildlife interactions and general safety rules. Road users will also be advised of any operational issues, such as repair or maintenance crew locations and unusual road conditions. Radios will be provided to authorized users when necessary and contact will be maintained with all vehicles over the length of the road.	4	Access management will be included within a management plan.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10	IM		4	NA

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1108	Transportation Infrastructure	Regular [road] maintenance will include: • gravelling and grading; • sub-grade repairs; • regular structural inspections of stream crossings; • dust treatment as required from time to time (water sprays); • scaling of loose material on steep banks above the road; • removal of fallen trees, rocks and debris; • maintenance of safety berms and run-out lanes; • winter snow and avalanche debris removal; • winter application of traction aggregate; • avalanche management; • maintenance of kilometre posts and signage; • ensuring ditches, culverts and settling ponds operate effectively; • removing litter and other hazards to wildlife; • constructing and maintaining fences and other deterrents to wildlife use of the road; and • planting and maintaining vegetation over disturbed areas and as buffers to wildlife habitat.	4	Access road maintenance will be defined within management plans.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.2.4	IM	Y (as required, time to time)	4	NA
1109	Transportation Infrastructure	Regular bridge maintenance will include: • riprap replacement; • clearing log jams; • semi-annual inspections; • repairing scour damage; • replacing curbs, deck and delineators as required; and • sign maintenance.	4	Crossing monitoring and maintenance will be included within management plans.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.2.4	IM/MAM		4	NA
1110	Transportation Infrastructure	NovaGold will develop comprehensive road maintenance standards and objectives and assign a senior person to ensure that the standards will be met consistently.	4	Access road maintenance will be defined within management plans.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.2.4	IM		4	NA
1111	Transportation Infrastructure	Where possible the road alignment will be designed to avoid avalanche hazard areas, but in some cases alternatives are not available. As a result, a comprehensive program of avalanche control will be required along the road corridor during the snow season. Avalanche control will use a specifically trained dedicated crew using the approaches described in Section 5.5.1.2	3	Avalanche risk will be managed in consultation with regulatory agencies under FRPA and the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.2.5	IM	Y (where possible the road alignment will be designed to avoid avalanche hazard areas)	4	NA
1112	Transportation Infrastructure	Safe vehicle turnouts will be designated within key avalanche-prone segments. These safety zones will be located below naturally protective terrain features where a driver can wait out the storm or wait for assistance if required. These sites will be located in the field during road construction and will be clearly marked.	3	Avalanche risk will be managed in consultation with regulatory agencies under FRPA and the Mines Act.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.2.5	IM		4	NA
1113	Transportation Infrastructure	5.12.2.6 Milepost Operation NovaGold will erect signposts at regular intervals, providing distance in kilometres from the start of the road, to permit road users to report their location by radio. Regulation of traffic by radio will be important to avoid collisions on this narrow road. Distance markers will also permit the gatehouse operators to warn drivers of known safety concerns such as road maintenance work and unstable banks and will allow drivers to report wildlife sightings and incidents.	4	Access management will be included within a management plan.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.2.6	IM		4	NA
1123	Transportation Infrastructure / Soil	The [diesel] fuel transfer station for incoming diesel supply trucks will use conventional safety and spill prevention systems. It will have a concrete pad and sumps to collect spills and will be equipped with appropriate spill kits.	4	Fuel and other stored chemicals, and spill management measures will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.2.1	IM/MAM		4	NA

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1124	Soil	Hydrocarbon spills will be collected and contaminated soils will be hauled to an on-site land farm for bioremediation.	4	Spill contingency Plans will be included within a management plan	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.2.3	IM/MAM		4	NA
1125	Housing and Accommodation	5.13.4 Personnel Accommodations NovaGold proposes to construct and operate the Galore Creek Project using camp type accommodation for all employees. Workers will be accommodated on site for a period of several weeks, depending on their specific job rotation schedule, and will commute to their homes in other communities for their scheduled time off. The company will not construct a traditional community to house workers near the project.	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.4	IM		4	NA
1126	Housing and Accommodation	[Galore Creek Valley Camp] By May 2008 the primary Galore Camp will be established in the vicinity of the plant site in the Galore Creek Valley with a capacity of about 450 people to support initial civil construction. This camp will be expanded by August 2009 to an 850 person capacity to support the major construction efforts prior to commissioning. The expansion will include accommodation units transferred from the Porcupine and West More sites once they are no longer required. Galore Camp will be supported solely by helicopter pending completion of the tunnel and access roads. On completion of construction, Galore Camp will be downsized to house about 280 people for mine operations.	2	This is a description	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.4.1	IM	Y (about)	4	NA
1127	Transportation Infrastructure	5.13.5 Employee Transportation Employees will not be permitted to drive their personal vehicles to the Galore Creek Project site. They will be transported to and from the mine site by company-owned or contracted passenger bus.	4	Traffic management will be included within a management plan.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.5	IM		4	NA
1128	NA	The luggage of arriving passengers will be subject to random inspections. Firearms, alcohol and illegal drugs will not be tolerated.	3	Health and safety is addressed by permitting	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.5	IM/MAM		4	NA
1129	Transportation Infrastructure	The fibre optic cable between the crusher station, concentrator, truck shop, and reclaim water pumping stations will be strung along the electrical transmission pole lines.	3	Utilities infrastructure ROWs will be managed in consultation with regulatory agencies as part of the permitting program under FRPA and Land Act.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.6	IM/MAM		4	NA
1147	Indigenous Nation Identified Valued Component	5.14.1 Procurement Plan and Policy In general, NovaGold will focus purchases on regional suppliers wherever practical, using conventional competitive bidding practices while respecting commitments to the Tahltan Central Council.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.14.1	IM/MAM	Y (practical)	4	NA
1148	Indigenous Nation Identified Valued Component	The Participation Agreement between NovaGold and the Tahltan Central Council commits NovaGold to giving preference to qualified and verified Tahltan businesses. In particular, the Tahltan Nation Development Corporation (TNDC) will have preferential rights to negotiate certain contracts in advance of other interested persons. These contracts include camp catering and camp support, road construction, road maintenance and snow removal, construction phase earthwork, environmental monitoring programs and ground transportation of people. Other qualified and verified Tahltan businesses will have a preferential right to engage in open book negotiations with NovaGold for contracts relating to heavy equipment service, avalanche control, local food supply, contract mining, design drafting, powerline maintenance, concentrate pipeline maintenance, logging, home-based manufacturing and small business opportunities. Where NovaGold is unable to negotiate appropriate contracts with Tahltan businesses, NovaGold may invite bids from other qualified suppliers. NovaGold's general competitive bid process will include a provision to benefit bids that include commitments to training and employing Tahltan members and working with Tahltan businesses.	1	Condition requiring an employment, procurement, contracting and training strategy	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.14.1	IM/MAM		4	NA

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1149	Indigenous Nation Identified Valued Component	5.15.2 Hiring Policy The Galore Creek Project will create over 500 new long term direct jobs ranging from labourers to engineers to clerks and accountants. NovaGold’s objective is to fill as many job opportunities as reasonably possible from the local area and region. NovaGold will, in consultation with the Tahltan Central Council, develop a human resources strategy that will seek to maximize the job opportunities for Tahltan members and establish a target for Tahltan employment. A NovaGold-funded Tahltan Employment Coordinator will develop an outline of expected Galore Creek Project jobs, compile a list of available Tahltan members and determine appropriate training needs for Tahltan members.	1	Condition requiring an employment, procurement, contracting and training strategy	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.15.2	IM/MAM		4	NA
1151	Indigenous Nation Identified Valued Component	Once the project is underway, existing Tahltan employees will have preference over other employees for new job opportunities and Tahltan members not employed by NovaGold will have preference over other people not employed by NovaGold.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.15.2	IM/MAM		4	NA
1152	Indigenous Nation Identified Valued Component	A NovaGold – Tahltan Human Resources Committee will monitor the general advancement of Tahltan members in the workplace.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.15.2	IM/MAM		4	NA
1153	Indigenous Nation Identified Valued Component	5.15.3 Training NovaGold has committed to an initial training program for interested and qualified Tahltan members and to on-the-job training to address skills gaps for Tahltan. All employees will receive environmental awareness training. NovaGold will also initiate a comprehensive on-the-job training policy to allow all its employees to increase their skill levels and advance within the organization, and to ensure that its employees will function in a safe and efficient manner while working on the Galore Creek Project. This program will include apprenticeships in several areas. All persons entering the project area will receive general safety training as well as activity-specific training as required, for instance regarding avoidance of wildlife interactions.	1	Condition requiring an employment, procurement, contracting and training strategy	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.15.3	IM/MAM		4	NA
1154	Tunnel Explosives	Limited geotechnical or geological investigations have been completed along the proposed tunnel alignment to date. Investigations will continue through detailed design work in support of permitting.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.2.3	IM		4	NA
1155	Tunnel Explosives	Several locations were investigated for the south portal to minimize geohazard risk. The proposed location is below a steep bedrock bluff that is relatively free of natural hazards.	3	Tunnel construction will be managed in consultation with regulatory agencies under the Mines Act.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.2.3	IM		4	NA
1156	Housing and Accommodation / Human Health	Extraction activities at the Gravel Pit identified in the appended Certified Project Description will not occur while the Isba Camp is being used to house off-shift workers.	1	Existing condition in Amended EAC	BC_EAO_2018_amend3_certificate	Conditions	IM		1	NA
1160	Transportation Infrastructure	Figure 8.10-1 provides an overview of the project area are specifically the access road route, along with the eight major stream crossings along the access corridor.	2	This is a description	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.10.	IM		4	NA
1161	Transportation Infrastructure / Management Plans	8.10.3 Mitigation Measures NovaGold will continue to identify areas of higher risk for erosion and sediment generation during the various phases of the mine life, beginning with detailed road and mine design and including project development, operation, closure and decommissioning phases. Detailed mitigation and management plans will be developed for these areas during the advanced stages of project permitting and updated as part of construction and operations.	4	Erosion and Sediment Control will be included within the CEMP	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.10.3	IM/MAM		4	NA
1163	Transportation Infrastructure	Wherever the horizontal or vertical [road] alignment can be modified to better meet the environmental, geotechnical and archaeological requirements this should be considered and field changes initiated if necessary.	2	Description supporting corridor approach	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 1	5	IM	Y (can be modified, considered, changes initiated)	4	NA
1164	Freshwater Fish	8.12.3.2 Fisheries Protection	3	Stream crossings will be designed and constructed to meet provincial	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.12.3.2	IM/MAM		4	NA

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		By following the federal and provincial guidelines and others noted below, no significant residual impacts will occur to aquatic resources along the proposed access road, at the mine/mill site, below the tailings management area, around the proposed aerodrome, or anywhere in the project area. Comprehensive guidelines to protect the fisheries resources include the following, which offer a range of effective measures that would, with proper supervision, ensure no net adverse impact to streams and lakes from the proposed mining project: • Water Crossing Guidelines for the Pipeline Industry (TERA and Beak, 1993) – a comprehensive guide with many illustrations to all aspects of wet and dry stream crossing techniques, instream sediment control and environmental monitoring (also known as the “CAPP” guidelines because they were produced for the Canadian Association of Petroleum Producers); • Environmental Objectives and Procedures for Water Crossings (Saremba and Mattison, 1984) by the BC Ministry of Environment. These guidelines focus on maintenance of natural stream conditions, provision of fish passage, prevention of pollution and sedimentation, and preservation of riparian vegetation; • Guidelines for Environmental Protection from the Development of Electrical Transmission Lines (Saskatchewan Environment, 1993) – comprehensive and specific to transmission lines; • Guidelines for Land Development and Protection of the Aquatic Environment (DFO, 1978) – a precursor to the 1992 guidelines containing additional helpful material on detention and settling basins, collection ditches and swales; • Riparian Assessment and Prescription Procedures - Field Guide (Oikos et al., 1996) - includes assessment and prescription methods to rehabilitate disturbed riparian areas; • Resource Road Rehabilitation Handbook: Planning and Implementation Guidelines (Interim Methods) (Moore, 1994) - part of the Watershed Restoration Program (WRP) procedures manuals, which includes the BC Ministry of Forests Road Construction, Maintenance and Deactivation Handbook and other practical papers on erosion and sediment control; • Culvert Guidelines: Recommendations for the Design and Installation of Culverts in British Columbia to Avoid Conflict with Anadromous Fish (Dane, 1978) - includes a detailed appendix on methods to control erosion and sedimentation at construction sites, and to avoid perched culverts that block fish; • Stream Stewardship - A Guide for Planners and Developers (DFO and BC Environment, 1993) - includes environmental protection measures for construction projects and methods for longer term management of stream habitat; • Environmental Code of Good Practice for Highways and Railways (Storgaard and Associates, 1979) - detailed design, construction, operations and deactivation measures to protect fishery resources; • Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters (Wright and Hopky, 1998) – important for construction and operational guidance; • A Handbook for Fish Habitat Protection on Forest Lands in British Columbia (Toews and Brownlee, 1981) - detailed methods to protect fish habitat during logging and clearing operations; • Reclamation and Environmental Protection Handbook for Sand, Gravel and Quarry Operations in British Columbia (MOT and NRC, 1995); • Riparian Management Area Guidebook (MOF and MOE, 1995) - guidelines for clearing within fisheries sensitive zones and for maintaining riparian areas;		and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.						

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		• Fish Passage Culvert Inspection Procedures (MWLAP and MOF, 2000) - fish migration barrier evaluation and corrective measures; • Streamside Protection Regulations (MOE, 2004) - riparian protection measures including setback requirements; • Urban Runoff Quality Control Guidelines for British Columbia (BC Research, 1992) - comprehensive guidelines on sediment control and contaminant removal in stormwater runoff; and • Bioengineering Techniques for Streambank Restoration (BC WLAP and MOF, 1995) - a detailed review of central European practices.								
1165	General	Qualified and experienced environmental monitors will be employed to direct and supervise the impact avoidance and environmental protection procedures during construction. The environmental monitors provide quality assurance that project environmental management commitments are being achieved.	4	The environmental monitoring program will be defined within a management plan.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	NovaGold 2006	IM/MAM		4	NA
1167	Transportation Infrastructure	All bridges and culverts will be constructed to DFO's and MOE's best management practices for stream crossings, as outlined in the guidelines.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	NovaGold 2006	IM		4	NA
1172	General	The Galore Creek Project is in a relatively early stage so the logistics support requirements are likely to change over several years as the project proceeds through development, construction and into production.	5	General context	Appendix 5-K: Aerodromes Concept	2.1	IM	Y (likely to change)	4	NA
1173	Transportation Infrastructure	A single lane (6m wide) resource access road is planned to support construction of the slurry pipeline, and the power transmission line and provide supplies, equipment, and crew transport during construction and operation of the mine. With 15% grades and an average design speed of 40 km/hr this is intended to be a low impact road within the utilities corridor.	2	This is a description	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 1	Exec Summ	IM		4	NA
1174	Transportation Infrastructure	Bridges and culverts are designed for the 200 year and 100 year instantaneous flood respectively, with a minimum 1.5m clearance to the underside of the bridge girders unless additional clearance is required for navigable waters or geotechnical requirements.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 1	Exec Summ	IM		4	NA
1175	Transportation Infrastructure	Road layout is an iterative process, as the best location is not always readily apparent. Supplementary requirements to the road design contained in Archaeological and Environmental studies and Terrain Stability Mapping and Geotechnical Assessments may override construction criteria.	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 1	2.2.2	IM	Y (Iteritative)	4	NA
1176	Transportation Infrastructure	the Design Criteria (Table 1) approved by the Project Team specifies a single lane (6m) radio controlled road capable of carrying the legal axle loading for trucks on British Columbia Highways.	4	Access management will be included within a management plan.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 1	2.3.1	IM		4	NA
1177	Transportation Infrastructure	An average design speed of 40 km/hr and maximum grades of 15% are meant to allow vehicle traffic year round for construction of the tunnel, power transmission line and slurry pipeline, which will utilize the same road corridor.	4	Access management will be included within a management plan.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 1	2.3.1	IM/MAM		4	NA

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1179	Transportation Infrastructure	Our design is based on the Pline survey and has been adjusted to account for environmental and safety constraints and the approximate earthwork volumes optimized.	5	General context	FEASIBILITY STUDY GALORE CREEK MINE ACCESS ROAD 2005 Study Report - Final VOLUME 1	2.3.2	IM		4	NA
1180	Transportation Infrastructure	Table 1: Design Criteria Classification: Single Lane Average Daily Traffic (ADT): ? 50 Design Speed (km/hr): ? 30 ? 60 Min. SSD (m): 65 Min. Radius (m): 35 Switch-Backs – Min. Radius (m): 15 Switch-Backs – Max. Grade %: 10 Min. K. Factor – Sag: 5.1 Min. K Factor – Crest: 3.1 Max. Grades: 15% Road Width (m): ? 5.0 ? 6.0 Pull-out width: Add 4.0m Right-of-way (m): ? 30	3	Access road alignment and stream crossings will be managed in consultation with regulatory agencies under FRPA & WSA.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	2.3.2	IM		4	NA
1181	Transportation Infrastructure	Standard debris clearance from high water to the underside of the girders of 1.5m was used whenever possible, except where conditions did not allow it. For all bridges in excess of 40 m in length, a minimum of 1.7 meters above the Q100 or Q200 was provided, except where additional clearance was specified in the BGC Debris Flow Assessment report. It should be noted that some of the recommended clearances in the BGC report were not possible to achieve due to the road location in steep mountain sideslopes. It should be expected that these locations may not survive a debris flow event, and measures will need to be taken to mitigate the risk to the public, such as frequent inspections.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	2.3.2	IM	Y (some of the recommended clearances were not possible to achieve, whenever possible, except where conditions did not allow)	4	NA
1182	Transportation Infrastructure	Fish bearing streams were identified and either bridges or special open bottom arch type culverts were designed for these crossings. (Figure 3). Typically, all structures past approximately km 43 were not classified as having fish values.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	2.4.2	IM		4	NA
1183	Transportation Infrastructure	Culverts are designed for a 50-year life and to pass the 100-year flood event (Q100). To reduce the risk of blockage from infilling, snow, and ice the minimum specified cross drain is a 600mm diameter corrugated steel pipe. The inlet and outlet to all culverts are protected from scouring with class 25 kg riprap. Ditch blocks will be installed immediately down slope from cross drain culverts.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	2.4.2	IM		4	NA

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1184	Transportation Infrastructure	General Arrangement drawing (GA) has been prepared for each of the bridge and major culvert crossings. (Appendix 4) Each GA shows: • The Watercourse • The bridge alignment • The abutment configuration • The bridge length and clearance • The deck gradient; and • The bridge approaches and turnouts Typical bridge details specifications will supplement the GA to provide a Design for cost estimating and permitting purposes.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	2.4.4	IM		4	NA
1185	Transportation Infrastructure	The Galore Creek access road will be a year round, radio controlled, single lane road with pullouts able to provide equipment and supplies to the operating mine and crew transport during shift changes. It is also critical that road access be available for repair and maintenance of the slurry pipeline and power transmission line.	2	This is a description	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	3.2	IM		4	GCMC proposes that the CPD would reference single lane with pull outs while the rest of the commitment language is not relevant for the EAC
1186	Transportation Infrastructure	Regular scheduled maintenance activities such as: • Snow removal • Sanding • Ditch clearing • Rock scaling • Spot gravelling and grading are to be planned in advance and carried out to ensure road safety and ensure that the road surface and drainage structures function properly and can carry the design loads and flood flows respectively.	4	Access road maintenance will be defined within management plans.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	3.2	IM		4	NA
1187	Transportation Infrastructure	In order to minimize road closures an active avalanche monitoring and control strategy will be implemented along with the design and installation of special mitigation structures.	3	Avalanche risk will be managed in consultation with regulatory agencies under FRPA and the Mines Act.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	3.2	IM		4	NA
1188	Transportation Infrastructure	Many of the risks associated with debris flows, rock falls and snow slides can be mitigated by increasing the clearance on bridges, raising the road subgrade and/or moving the road away from the slope and widening the ditches.	3	Stream crossings will be designed and constructed to meet provincial and federal regulatory requirements. Conditions of the Special Use Permit issued under FRPA will govern, and where instream work in fish habitat is required, WSA and/or FA approvals/authorizations will be required in advance of conducting instream works.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	3.3	IM	Y (and/or)	4	NA
1189	Transportation Infrastructure	As a single lane radio controlled road with no alternate access, the communication via the repeater system must be continuous throughout the route for all vehicle traffic.	4	Access management will be included within a management plan.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	3.4	IM		4	NA
1190	Transportation Infrastructure	A commitment to regular maintenance is required to maintain road safety. Grading, sanding snow removal and avalanche monitoring and control are ongoing and an immediate response to snow slides, rockfalls and washouts blocking the road will be needed. In the event of an emergency helicopter support to rescue and transport stranded or injured persons shall be available.	4	Access road maintenance will be defined within management plans.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	3.4	IM		4	NA
1191	Transportation Infrastructure	Public access will be prohibited during construction and restricted to authorized personnel only once operational. Access beyond the filtration plant at km 3.3, will be controlled by a full time security gate. Controlled access is required to provide for the health and safety of company personnel and the public and to ensure the protection of the environment.	4	Access management will be included within a management plan.	FEASIBILITY STUDY GALORE CREEK MINE ACCESS ROAD 2005 Study Report - Final VOLUME 2	3.5	IM		4	NA

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Commitment Number	Project Component	Commitment Text	Category	Category Rationale	Source Document File Name	Section	Applicability to the Modernization Process	Disclaimer Commitments	Priority Ranking	Comments for BC EAO
1192	Transportation Infrastructure	The route selection and preliminary centerline (p-line) survey were completed in August 2005 based on the best information available at the time. As more data was received, it was incorporated into the road design. Wherever the horizontal or vertical alignment can be modified to better meet the environmental, geotechnical and archaeological requirements this should be considered and field changes initiated if necessary.	2	This is a description supporting corridor approach	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	5	IM	Y (field changes initiated if necessary)	4	NA
1193	Transportation Infrastructure	Detailed site surveys and final designs for special structures to protect the road and pipeline from avalanches and rock falls are required to prepare construction drawings.	3	Avalanche risk will be managed in consultation with regulatory agencies under FRPA and the Mines Act.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 2	5	IM/MAM		4	NA
1194	Transportation Infrastructure	Earth berms at km 19.3 and km 86.5, and snow sheds through Sphaler Canyon from km 99.2 to km 113.8 need to be located on the ground, surveyed, and unique designs achieved to mitigate risks.	3	Avalanche risk will be managed in consultation with regulatory agencies under FRPA and the Mines Act.	FEASIBILITY STUDY GALORE CREEK MINE ACCESS ROAD 2005 Study Report - Final VOLUME 2	5	IM		4	NA
1195	Transportation Infrastructure	A review of construction activities and scheduling should be conducted to verify the practicality of certain assumptions with regards to access and productivity.	5	General context	FEASIBILITY STUDY GALORE CREEK MINE ACCESS ROAD 2005 Study Report - Final VOLUME 2	5	IM		4	NA

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
1	Will establish an Environmental Management System for the Project after commencing commercial operations and use best efforts to obtain ISO 14001 certification or any other equivalent independent certification.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
20	Will implement a program of risk reduction to provide protection from accidental losses for all personnel and physical assets.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
21	Will use the Loss Control and Risk Reduction Policy to guide all phases of the Project	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
24	Will consider installing a gravity-fed fire suppression water system in addition to the pump-supported system proposed in the Application for an environmental assessment certificate.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
26	Will use appropriate emissions control equipment such as scrubbers.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
27	Will use high-efficiency technologies for diesel mining equipment.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
28	Will develop and implement a site-wide air monitoring program during permitting to assess the effectiveness of mitigation strategies employed.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
35	Will develop a dust deposition monitoring program to measure dust/chemical deposition from mining activities.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
36	Will use a dust suppression system for the primary crusher to reduce fugitive dust and keep ore drop height to a minimum.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
37	Will cover the conveyors and ore stockpile to reduce fugitive dust.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
40	Will use appropriate covers for concentrate trucks to minimize the loss of concentrate due to dusting along Highway 37.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
41	Will, if tarpaulins are used to cover concentrate trucks, develop an operating procedures manual for correct tarpaulin use and provide training for transportation contractors.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
42	Will participate with other industrial users of Highway 37 and government agencies to monitor for potential metals contamination resulting from concentrate dusting along the highway.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
43	Will participate with other Port of Stewart users and the Ministry of Environment in a joint air quality monitoring program.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
46	Will monitor noise levels in the accommodation complex once operations begin, in order to ensure appropriate noise levels.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
47	Will compare the results of noise monitoring in the accommodation complex to noise levels related to sleep disturbance in the World Health Organization Guidelines for Community Noise (1999), and in the event that noise levels exceed these guidelines then mitigation measures that are technically and economically feasible will be undertaken.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
51	Will participate with the Crown and Tahltan Central Council to help expand collective knowledge of potential cumulative impacts of resource development on all valued ecosystem components.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
52	Will use pipelines for moving concentrate and diesel fuel to reduce the number of haul truck trips and the consequent amount of diesel emissions and fugitive dust.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
58	Will replace land area cleared by deforestation during reclamation.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
59	Will conduct glacier mass balance monitoring starting in 2007 with a monitoring plan to be developed and reviewed by relevant agencies and the Tahltan Nation.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
60	Will retain an independent consultant to determine the Probable and Maximum Flood snow depth for the Galore Creek basin, the Groundwater Probable Maximum Flood hydrograph using a defensible snow melt rate, and, by the end of January 2007, prepare a technical report that summarizes the assessment and provides a recommended Probable Maximum Flood hydrograph. The report will be provided to the Ministry of Environment, Ministry of Energy, Mines and Petroleum Resources, Environment Canada and Tahltan Central Council.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
73	Will divert drainage from the tunnel into the tailings and waste rock impoundment.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
74	Will continue test work during mine operations to identify means to reduce the volume of waste rock requiring subaqueous disposal, thereby reducing the required impoundment size and dam height.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
75	Will eventually submerge all potentially acid generating rock as an acid generation control measure.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
76	Will submerge any remaining marginal ore stockpiles in the waste rock storage impoundment at closure.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
77	Will conduct further water quality modelling during operations to characterize pit and impoundment water quality after closure.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
80	Will control total suspended solids at 15 mg/L during operations to meet federal Metal Mining Effluent Regulation for discharge.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
81	Will pace discharge into Galore Creek generally between May 15 and October 15 to mimic the natural hydrograph.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
82	Will have pumping capacity to discharge up to 20 m3/s during high flow periods.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
83	Will have the ability to store freshet flow behind main dam up to July 15 of each year as a contingency in event water quality is not acceptable for discharge in May or June.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
84	Will monitor pumped outflow rates during operations.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
85	Will install groundwater wells downstream of the main dam to intercept any seepage exceeding effluent permit limits.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
88	Will design main diversion channel to 200-year flood event.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
89	Will construct the diversion channel with an impermeable liner in areas of high permeability.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
90	Will design other diversion structures around the mine to 100-year flood event.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
91	Will decommission pit de-watering wells at closure.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
92	Will, during the permitting stage, assess water treatment options for operations and post closure, including, but not limited to, a water treatment plant.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
93	Will maintain diversion channels as outlined in the environmental assessment to minimize mine-contact water inflows into the impoundment.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
96	Will prepare an Operations, Maintenance and Surveillance manual for dewatering of the pits and the manual will include steps on how to respond during a probable maximum flood.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
99	Will meet or exceed all water quality criteria established in permits to maintain water quality downstream.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
101	Will, during operations and after closure, monitor and manage drainage from the tunnel, not-potentially acid generating dumps, ore and marginal ore storage stockpiles, pits, seeps and other mine areas, including the impoundment, and manage or treat problematic water sources as required to ensure site discharges meet both the Environmental Management Act, effluent discharge permit limits and federal Metal Mining Effluent Regulation discharge criteria that are applicable at the time.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
102	Will plug wells and drains at mine closure.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
103	Will monitor water quality after closure until regulatory agencies determine that conditions are stable and predictable.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
104	Will incorporate sufficient redundancy and storage capacity in the filter plant to accommodate any equipment maintenance and unplanned shutdowns.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
105	Will monitor water levels in Porcupine River and design a flood protection barrier adjacent to the Porcupine aerodrome.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
106	Will undertake a flood risk assessment during the final design for the Porcupine aerodrome which will include consideration of potential impacts of climate change.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
107	Will monitor pertinent glaciers to predict effects on mine safety and water management. Consideration will be given to monitoring of firn layer hydrology as part of the glacier monitoring program.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
108	Will ensure that discharge from the diffuser to the Iskut River meets federal Metal Mining Effluent Regulation criteria.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
109	Will modify the current 3D MODFLOW regional model used for pit dewatering predictions to accurately represent long-term post- closure conditions in the groundwater flow system.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
110	Will conduct revised local-scale numerical modelling to predict seepage from the Galore Creek impoundment.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
118	Will add an additional monitoring site downstream on the Stikine River in Alaska at a depositional site to be determined during the permitting stage.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
119	Will monitor for polycyclic aromatic hydrocarbons in the lower Galore drainage and on the Stikine River below the mouth of the Scud River annually and more frequently in the event of an uncontained spill.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
123	Will work with the Fisheries and Oceans Canada, Transport Canada and Tahltan Central Council, to ensure the design of the diffuser minimizes potential impacts on fisheries resources and waterborne traffic.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
125	Will participate in a winter 2007 low flow assessment of fish habitat in Galore Creek.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
126	Will investigate low flow conditions in the lower reaches of Galore Creek in 2007- 2008 to establish mean flows and will supplement baseline flows in Galore Creek to maintain critical water levels for fish in extreme low flow periods.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
127	Will further investigate the cumulative effects of the additive aspects of mixtures of metals and their effect on aquatic life, including testing of actual tailings effluent during the first year of operations prior to discharge to Galore Creek.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
131	Will monitor fish health and tissue quality, including, but not limited to, analysis of the full suite of 30 metals used in the baseline studies, in Galore Creek and other potentially affected rivers as part of the Aquatic Effects Monitoring Plan pursuant to federal Metal Mining Effluent Regulation and the Environmental Management Act.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
135	Will conduct production blasting in the open pits at consistent times during daylight hours to minimize adverse impacts on wildlife, particularly mountain goats, pursuant to the Wildlife Mitigation and Monitoring Plan.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
139	Will modify the filter plant water treatment process if adverse aquatic effects are noted.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
140	Will work with the Fisheries and Oceans Canada and use best management practices during the installation, operation and maintenance of the diffuser in the Iskut River.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
141	Will have on-site analytical capacity for water quality during operations.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
143	Will provide a financial security covering the Project pursuant to the Mines Act.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
145	Will initiate progressive reclamation where possible to control sedimentation around the mine area.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
146	Will use adaptive management approaches to ensure advances in reclamation research are included in final closure planning efforts.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
147	Will conduct test plots during operations to support appropriate revegetation of reclaimed areas.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
148	Will reclaim using plants that will set the stage for natural succession and the establishment of plant communities that reflect the ecology of the area.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
149	Will ensure that dump angles create a stable configuration at closure.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
152	Will, prior to disturbance, sample water in wetlands in the vicinity of the mine that were not previously sampled due to dry conditions.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
155	Will monitor, with Tahltan Central Council participation, surface water, soil and vegetation concentrations of selected metals throughout the period of mine development and operation. A quantitative screening level risk assessment for country foods will be conducted if the quality of these environmental media is shown to decrease and should a specific country food appear vulnerable, monitoring of contaminant levels, if feasible, will be undertaken. In the case that fish tissue quality data obtained from monitoring indicates an increase in contamination levels, potential impacts to human health from fish consumption will be assessed.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
156	Will re-evaluate contaminants of potential concern with respect to country foods.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
157	Will construct the tailings dam in accordance with the Canadian Dam Association guidelines (1999) to withstand a 1 in 10,000 year earthquake and the design will consider the effects of an avalanche-induced wave and the ability for the spillway to pass a Probable Maximum Flood.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
158	Will establish an ongoing initiative with the Tahltan Central Council and relevant Canadian and U.S. federal and B.C. and Alaska state government agencies to assess, at a conceptual level, the potential effects of a catastrophic dam failure and develop a program for remediation of those effects.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
159	Will equip the dam with instrumentation to monitor geotechnical performance during operations and after closure.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
160	Will maintain earthmoving equipment near the dam to support inspection, maintenance and repair functions after closure.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments

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161	Will develop a long-term maintenance and mitigation strategy for the dam and spillway for both operations and closure, including inspections annually and after significant events such as floods and earthquakes, and dam safety inspections, following Canadian Dam Association guidelines, every five years.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
164	Will use a high density polyethylene pipe for the concentrate slurry pipeline to protect the pipe from abrasion from the slurry, and will use a coating and cathode protected anti-corrosion system.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
165	Will implement a comprehensive inspection program to monitor performance of the pipelines.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
166	Will bury the pipeline except where it crosses streams on bridge structures, with deeper burial in areas assessed as having geohazard potential.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
167	Will equip the pipelines with leak detection systems to permit rapid detection and response to leaks or ruptures due to erosion of the pipe or damage from external sources such as debris flows.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
168	Will provide shutdown procedures, shutoff valves, a spill response plan and an emergency drainage sump at the low point of the slurry pipeline alignment to minimize the extent and consequence of any spillage from the pipeline following a breach to the line.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
169	Will mark the location of the buried pipeline and lay a marker tape in the trench above the pipe to warn of the location in case of future excavation.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
170	Will design pipeline aerial crossings to reduce the risk of failure in the event of bridge failure.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
172	Will bury the effluent pipe from the filter plant approximately 1 metre below the channel bed, with the diffuser ports extending up to the channel.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
184	Will develop and implement a Follow-up Program and enter into an agreement with the federal government to implement the Program.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
185	Will ensure that appropriate tenure is obtained for the filter plant and will permit non-essential mineral claims to lapse.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
190	Will develop and implement a hazardous materials management plan that will include management of de-icing fluids required for the aerodrome, and will consult the Department of Fisheries and Oceans and Environment Canada on the management of de-icing fluids.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
191	Will place a berm or protective barrier upslope of the aerodrome to minimize wave energy and debris resulting from a flood that might otherwise cause substantial damage to the facility.	eacGalore2007.pdf	EAC Schedule B: Table of Commitments
192	Will design pit diversion channels to convey the peak discharge from the 200-year, 24-hour precipitation event. If this flow were exceeded, then runoff will drain to the tailings pond.	Environmental Assessment Certificate #M06-03 for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	EAC Schedule B: Table of Commitments
198	With relatively minor variations, the access road, concentrate slurry pipeline and electric power transmission line will all follow the same alignment (Figure 5.2-4).	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.2.2
199	Concentrate will be transported by slurry pipeline to a filter plant near the junction of the access road with Highway 37.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.2.2
200	An aerodrome, designed to accommodate fixed wing aircraft, will be established near the confluence of Sphaler Creek and Porcupine River, initially to support construction activities. The aerodrome will be maintained as a key feature of the operational infrastructure to permit timely all season transportation of personnel.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.2.2
203	Detailed numerical groundwater simulations show that vertical perimeter wells advanced to the contact between the sheet-fractured and massive rock units and spaced evenly apart at a distance of approximately 150 m would be sufficient to dewater the sheet-fractured unit. Within the massive rock, 30 m long horizontal wells spaced approximately 20 m apart (installed on all pit benches) are predicted to be required.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.2.2
204	Horizontal wells will also be required within the sheet-fractured rock to control remaining groundwater seepage at the pit face as well as water infiltrated due to large storm events and annual spring runoff.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.2.2
206	During the operations phase, engineered diversion channels will direct as much fresh water around the mine areas as possible, as illustrated in Figure 8.10-2.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.1
207	The system will include a diversion channel intercepting runoff from the headwaters of East Fork and the perimeter leading around the east side of the ultimate tailings and waste rock impoundment. The diversion will also convey water originating in the southwest portion of the site, with all diverted freshwater discharging to Galore Creek downstream of the main tailings and waste rock containment dam.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.1
213	Operations phase diversion ditches will be designed according to the following criteria: - design to convey the 1:200 year return period precipitation event with at least 0.3 m of freeboard - provide riprap erosion protection, controlled drop structures and/or excavations into bedrock where required based on bed materials and channel velocities - provide a minimum of 3 m wide bench along ditches for inspection and maintenance access - design diversion ditches with longitudinal slopes of 0.3% or steeper to prevent sediment deposition along the channel. Slopes steeper than 0.3% in soil will have a 1.5 m thick layer of riprap overlying a geo-membrane and a 0.5 m thick layer of sand and gravel bedding. - use bitumin lining in the ditches, outside of bedrock based areas - establish cut slopes of 2H:1V in soil and 1H:1V in rock - install energy dissipation structures and sediment traps in areas where the diversion channel is intercepted by larger creeks or gullies. These installations could include small berms, ponds, outlet and inlet structures and/or suitable erosion protection measures.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2

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214	Diversion ditches will be designed to collect and divert surface runoff to carry the design event.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
215	Therefore, small sedimentation ponds with rock overflow weirs will be constructed to collect this initial flushing prior to discharging into natural watercourses.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
216	A number of permanent diversion channels will be constructed as part of the overall operations phase water management system.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
217	By the end of mine life, the tailings and waste rock containment impoundment will be approximately 7 km long, 1.3 km wide and 200 m above the existing valley bottom.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
218	The tailings will be flooded during operation and permanently at closure.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
219	Pervious sections of the diversions will be lined to reduce seepage and ensure proper water conveyance around the mine facilities.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
220	To pond water from the headwaters of East Fork of Galore Creek and divert it into the main diversion channel, an impervious dam, referred to as the East Fork diversion structure, will be built across the valley about 3 km upstream of the tailings and waste rock facility to prevent freshwater from seeping into the impoundment.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
221	Direct precipitation and pit wall seepage will be collected within each pit and pumped into the tailings water management system.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
222	West Fork headwater drainages will be collected via diversions leading eastwards to an aqueduct structure to be constructed across the East Fork of Galore Creek, 0.5 km upstream of the plant site, on a structure to be called the East Fork aqueduct.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
223	The elevation of the West Fork diversion dam will be controlled by the water elevation within the waste rock management area of the overall impoundment. All of the water dams and structures will be built sequentially and raised as required through the mine life.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
224	During the mine construction phase, appropriately sized sediment control ponds will be established at strategic locations to allow sufficient residence time for fine suspended particulate to settle out of the incoming water before being discharged to the receiving aquatic environment.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
227	During the operations phase, the tailings and waste rock impoundment will receive the majority of site runoff not collected by the engineered perimeter diversions and will act as a large sediment control pond.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
228	The maximum allowable discharge level for total suspended solids from the tailings sedimentation pond during the operations phase is set by the Canada Metal Mine Effluent Regulations at 15 mg/L (monthly average).	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.2
229	During the construction period water will be diverted around the main construction sites (e.g., plant site, dam, pre-stripping of pit areas).	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.3.2
230	Immediately prior to the start of tailings deposition into the pond, all water will be pumped out of the pond.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.3.4
231	For the first five years of operation (before the West Fork pit is mined), this channel [West Fork Diversion Channel] will divert km2 runoff from an 11.9 catchment area south of the Central pit.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.3.4
232	Prior to construction of the East Fork aqueduct, the West Fork dissipater will carry water down slope from the bottom of the West Fork Channel into the original Galore Creek channel.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.3.4
233	The solid mined wastes, including tailings, waste rock and pre-stripped overburden from the pits, will be entirely contained within the Galore Creek valley north and east of the proposed open pits.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.3.4
234	To prevent tailings from migrating into the designated waste dump area, a waste dump divider will be constructed before the initiation of tailings deposition.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.4.2
235	Pre-stripped overburden from the pits will either be used for dam construction or stockpiled behind the active rock waste dumps so that the material can be used for reclamation upon closure.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.4.2
236	Downstream of the Open Pit Diversion Dam, there will be a separate cell for over wet pre-stripped overburden.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.4.2
237	The starter dam must be constructed to a crest elevation of 560.0 m (or dam height of 152.0m) prior to tailings deposition, assumed to be November 2010.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.4.2
238	A dam raise of 26 m is required in the first 12 months of production (or Year +1) so that the dam can store to an elevation of 586 m by the end of Year +1 (Nov 2011).	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.4.2
239	Hence, in every year of operation the dam will be able to store all inflows (runoff, tailings inputs for a 9 month period (16th October to 15th July). Runoff volumes are designed for 1 in 200 wet year conditions. However, if water quality in the impoundment is good, pumping will commence as soon as flow conditions in the Galore Valley allow (anticipated to be around 15th May).	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.4.7
240	Immediately prior to the start of tailings deposition into the impoundment, all water will be pumped out of the impoundment.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.4.7

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241	For feasibility design, it has been assumed that the tailings impoundment water does not require treatment prior to discharge to the environment, with the exception of managing the total suspended solids.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.4.8
242	Immediately prior to tailings deposition (assumed to be November 2010), the impoundment will be drawn down by pumping to ensure the largest possible storage in the impoundment.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.4.8
243	The treated water discharge pipeline from the filter plant will have similar monitoring systems to ensure design operability and compliance reporting. The treated water discharge pipeline will share the same excavated and backfilled trench along the road corridor before it deviates down to the Iskut River diffuser system.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.5.3
244	The operating manuals will be prepared before the pipelines are commissioned or any materials are pumped through them.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.5.3
245	Dewatering of the concentrate slurry at the filter plant will produce an effluent that will be treated within the facility before release. Details of the water treatment process, pipeline and diffuser system are currently being finalized and will be provided as part of the project permitting phase.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.5.4
246	Tree removal will be required along the transmission line right-of-way to ensure falling trees cannot damage the line conductors. Generally, this requirement results in clearing widths falling outside the right-of-way boundaries. Appropriate permitting and permissions from the Ministry of Forests in the form of a "Licence to Cut" will be required prior to removal of any trees.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.6.6
247	The transmission line to the filter plant site will likely be constructed first to reduce the dependency of the camp and staging area on a diesel-powered electrical supply.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.6.6
248	The three pipelines connected to the plant will require routine monitoring and maintenance. A documented and comprehensive program will be prepared during detailed design, prior to construction.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.6.6
249	Waste rock fill will be required during the development phase for construction of the impoundment dam, site roads and other facilities. This rock will be obtained from the highwall area of the open pit as part of pre-stripping of the ore deposit.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.7.4
250	Copper sulphides may form a high percentage of the overall sulphide content; hence, the potential for copper leaching at near-neutral pH is a factor to be considered in the use of pre-strip rock.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.7.4
251	Due to the requirement for reliable classification of ARD and ML potential for construction rock, all blast holes in the pre-strip areas will be sampled to define dig limits until sufficient data are available to reduce sampling.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.7.4
252	Blast hole chips from the pre-strip areas will be analyzed at the on-site laboratory in the following sequence: • copper • paste pH • sulphur as sulphide • carbonate. Carbonate is a surrogate for NP based on pre-mining testwork. The data obtained will be used to model dig limits.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.7.4
253	Further testing will be needed prior to and after start-up to refine the criteria used to manage waste rock. This will include: • Initial waste rock blasts will be treated as PAG and tested to evaluate the possible preferential enrichment of sulphide minerals in the fine fraction of blasted rock. Whole rock and the -2 mm fraction will be analyzed to determine whether adjustment to the ICCa,Mg/AP is needed. An annual program will be designed to continually re-evaluate this distribution. • Further additional comparative testing of NAG and ABA will be needed to refine the NAG pH boundaries and ensure that there are no biases related to rock type and mineralogy. This is most likely achieved early in the mine operation by testing additional core or blast hole cuttings. • Additional testing will be needed prior to mining to refine the adjustment of NP to estimate ICCa,Mg. This additional testing will use the same methods used in the EA, which were Rietveld XRD, carbonate analyses and microprobe testing on mineral particles. This program should be repeated annually.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.7.7
254	In addition to these facilities, a temporary low-grade ore stockpile will be developed during the construction phase for material from the pre-stripping areas that is unsuitable for construction but contains elevated copper concentrations.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.7.10
261	Waste rock volumes [obtained during operations and monitoring] from large scaling sites or [road] alignment upgrades will be subjected to ARD characterization prior to disposal to ensure appropriate disposal methods.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.8.6
265	Provisioning campaigns will be considered prior to the onset of winter in order to ensure adequate supplies are on hand at the site to continue normal operations if the road was closed for up to two weeks.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 1-150_RC	8.9.3
272	During the mine construction phase, appropriately sized sediment control ponds will be established at strategic locations to allow sufficient residence time for fine suspended particulate to settle out of the incoming water before being discharged to the receiving aquatic environment. Similar structures will be constructed along the access alignment to prevent excess sedimentation downslope of the road.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.10.2
274	Erosion control plans for the Porcupine heliport (to be converted to a fixed-wing aerodrome during the construction phase) will include rapid revegetation of any disturbed areas and lining of runoff collection ditches and sediment ponds for retention of any suspended solids prior to release to the Porcupine River.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.10.4
275	Sediment control plans for the area include collection of water running off the runway and apron surfaces. These will be directed into engineered ditches leading into sediment ponds prior to release to the natural environment. Surface runoff from the other areas of the facility will be similarly channelled and collected in a sediment pond before release.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.10.4
280	Health hazards of hazardous materials being used by the Galore Creek project will be provided in the Material Safety Data Sheets (MSDSs) that are supplied to the mine prior to delivery of each product. MSDS binders will be located in all areas where the materials are being used.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.11.5

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
283	Specific evacuation procedures will be developed as this plan is revised prior to site construction commencement. Procedures will include steps to be taken during various scenarios and severities of emergencies.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.11.9
293	The best practical technology and most appropriate measures to protect fish stocks and fish habitat will be used in the construction of the mine access road, pipelines and transmission line. These measures will include: • pipelines will be buried approximately 1.5 m deep along the shoulder of the access road. Stream crossings will be completed by directional drilling at four crossings, by site isolation and dewatering methods for the smaller crossings, and attached to bridges at larger crossings. Fish habitat protection measures are detailed in the stream crossing guidelines for pipelines (TERA/Beak, 1992). Directional drilling will have no adverse impact on the stream channel, fish or aquatic habitat, and little on the riparian areas. For small streams, the flow will be diverted around the work areas, or dam and pump methods will be used, and the pipelines installed in the dry. Machinery crossing the watercourses (over and back) to bring equipment required for construction to the opposite side of the watercourses should be limited to a one-time event;	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3
307	The Galore Creek mine area, including ancillary facilities will be surrounded by a system of perimeter ditches and diversion channels to divert surface runoff around the site area (see Figure 5.9-1 in Section 5.9).	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.12.3
308	All minewater and other minesite wastewater from within the mining footprint will be directed to the tailings impoundment or processing plant. These and other sediment and contaminant control measures will be implemented soon after project approvals and before mine excavation begins.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.12.3
309	The specific, construction-related fish habitat protection measures associated with the mine site will include: • excavation of perimeter ditching and diversion channels to carry all surface water flow from upslope and adjacent to the mine working area around the work area to Galore Creek below the tailings containment area. This will ensure that almost all the glacial meltwater that normally forms much of the headwater flow in the East Fork continues to flow down the creek, while the relatively little sediment-laden water from the mine work areas is also kept out of the creek. The diversion channel will be excavated into bedrock in some sections, while others will lie in talus and sedimentary material; the latter sections will be lined with geotextile material to prevent erosion and sediment transport, and to prevent bank failure within the channels. Rock check dams and gravel berms will be placed in the flat-bottom diversion channels to attenuate flow velocities and reduce the potential for within-channel erosion;	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.12.3
310	The specific, construction-related fish habitat protection measures associated with the mine site will include: the diversion channel system and sediment control are also discussed in Sections 5.9.2 and 5.9.3, respectively. The channels are illustrated in Figure 5.9-1. The utility of the channel system in retaining near-natural flow rates, temperatures and sediment levels in the creek downstream will ensure optimum conditions in the creek and in the Scud and Stikine rivers further downstream; and	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.12.3
311	The specific, construction-related fish habitat protection measures associated with the mine site will include: • generous use of geotextile lining, polyethylene sheeting, silt fencing and other runoff and sediment control measures within the overall workspace to direct sediment-laden water to the diversion channels.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.12.3
312	The proposed aerodrome in the Porcupine River valley is located between the river floodplain and the southeast-side mountains. Details on the location, construction and operation of the aerodrome are contained in Section 5.13.1.4. No streams or wetlands occur within the footprint of the proposed facility, including the airstrip and associated buildings, loading and storage areas. While the old airstrip from the early 1960's was in the floodplain of the river, the proposed new aerodrome will be located south of the floodplain in a fairly flat-bottomed area of cottonwood and spruce trees well removed from the active floodplain. To build the airstrip, considerable not-PAG material will be trucked from borrow areas along the road to the aerodrome site to provide a solid and level pad for the airstrip and associated structures on the valley floor.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3
313	Measures to protect fish and fish habitat in the Porcupine River system during construction of the aerodrome will include: • a perimeter ditch around the aerodrome project footprint to isolate the construction area and activities from surrounding terrain and drainages, and to capture any site water leaving the property during construction. The perimeter ditching will lead to a sedimentation pond immediately down the valley from the aerodrome area. The decants from the settling pond will exit via standpipe and channel to the forested area farther down the valley and away from the river and tributaries. The sedimentation pond will be sufficiently large and long and will have baffles to provide several days of detention time and sediment retention before the release of surface water to vegetated terrain. It is recognized from the fisheries fieldwork that sensitive sockeye and coho salmon populations, as well as resident char and whitefish, occupy the river and creek system immediately (~1 km) downstream of the proposed aerodrome site. It is not expected that any sediment from the aerodrome development will enter any fish habitat, especially as the airstrip will be well removed from the main channel of the river to the north and from the south-side tributaries along the mountain wall to the south;	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3
314	Measures to protect fish and fish habitat in the Porcupine River system during construction of the aerodrome will include: • as an alternative to perimeter ditching, berms could be created around the work-site(s) at the aerodrome to contain all surface runoff within the work areas. Surface runoff would percolate to ground and any solids would be retained in the matrix of gravels and sand in the substrates, as in a settling pond. A combination of berms and diversion channels around work sites will ensure no sediment transport to surface waters and fish habitat;	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3
315	Measures to protect fish and fish habitat in the Porcupine River system during construction of the aerodrome will include: • the approach road to and from the aerodrome will cross the active Porcupine River channel as well as part of the semi-active floodplain on the south side of the river where the aerodrome will be built. The access road will cross an active channel along the south perimeter of the floodplain that is known to contain salmonids and which feeds directly into salmon spawning and rearing habitat about 1.5 km downstream, the main area for salmon spawning in the Porcupine River. That crossing will be constructed with very careful water and sediment control, and the riparian vegetation along the south side of the river floodplain will be retained, except at the road crossing site and for aircraft safety. The site is level and the side channel flows low in summer, such that sediment control will be entirely possible and no sediment from the floodplain crossing will reach the salmon habitat downstream;	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3

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Commitment Number	Commitment Text	Source Document File Name	Section
316	Measures to protect fish and fish habitat in the Porcupine River system during construction of the aerodrome will include: the timing of any work in or near streams or side-channels will be confined to the period of least risk to the salmon and resident fish species in the area. As there are several anadromous and fluvial species present, the construction window for work affecting watercourses would normally be April 1 to May 31 for salmon, and June 15 to August 31 for char and whitefish. However, as the fisheries studies in 2004 and 2005 indicated abundant juvenile sockeye and coho salmon in the side channels and mainstem Porcupine River just below the proposed aerodrome site, the mid-summer dry season will be better for the protection of all species in that area. The final window will be discussed with regulatory agencies. Many ephemeral surface flows and side channels that are wet in spring are typically dry in mid-summer, and the location for the aerodrome was very dry in mid-2004 and 2005; and	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3
317	Measures to protect fish and fish habitat in the Porcupine River system during construction of the aerodrome will include: all fuel and chemical storage at the aerodrome will be contained within a bermed and lined containment area of sufficient volume to hold all of the material in the event of complete tank or valve failure. The ground in the area of the proposed aerodrome is comprised mainly of cobbles, gravel and sand of glaciofluvial origin that is porous and allows for considerable shallow interstitial groundwater flow. It is recognized that any spill of petroleum products or other toxic chemicals to the ground in the vicinity of the aerodrome would likely re-emerge from the gravel farther downstream where fish are present. For that reason, particular care and attention will be used in planning and constructing the fuel and chemicals storage facilities, and in handling and managing the storage facility at the aerodrome site.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.12.3
331	The transmission line, distribution lines and supporting structures will be designed to minimize the risk of direct mortality to birds through electrocution. The transmission line design will allow approximately 10 ft (120") between energized wires and a minimum of 5 ft (60") between energized wires and a grounded structure (Ian Haywood International, personal communication). These dimensions will reduce the risk of bird electrocution and are in accordance with guidelines established by the Avian Power Line Interaction Committee (APLIC) and the U.S. Fisheries and Wildlife Service (APLIC and USFWS, 2005).	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.13.5
334	[Transmission line] Where it is not feasible to separate the conductors and grounding structures by 60" the following guidelines (APLIC and USFWS, 2005) will be incorporated into the design: - separation of between 32" and 60": use insulator covers; or - separation of less than 32": use bird perch guards such as metal triangles or spikes mounted on the top of poles and cross-arms to prevent birds landing and nesting.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.13.5
335	[Transmission line] The distribution lines between substations and facilities within the mine site, Porcupine Aerodrome and the filter plant will also adhere to the APLIC and USFWS guidelines (APLIC and USFWS, 2005). Other equipment and wires present on the structures, including transformers, cutouts and jumper wires at junction poles, will be covered to minimise the risk of bird electrocution where necessary.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.5
336	To minimize potential bird collisions with transmission lines in the project area, marking devices that increase visibility to birds will be employed where the transmission line crosses anticipated bird movement corridors, or in areas with high concentrations of birds. These will include the crossing of major streams or rivers, wetlands, areas of open water and the access road which itself may become a movement corridor. Where possible, markers will be spaced at 5 m (16 ft) intervals at these crossings to minimize potential bird collisions (Sundararajan and Gorur, 2005). Wire marking devices may enlarge the surface area of transmission lines and act as windcatching objects that can encourage icing in winter. This could increase line tension and stress loads increasing the possibility of power breaks (Sundararajan and Gorur, 2005). The choice of marker used will need to take potential line tension and stress loads into consideration.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.5
337	Osprey Nesting During baseline studies osprey were found nesting on an island in Devil Lake, in the Bob Quinn Lake area between Highway 37 and the Iskut Canyon. Osprey are known to quickly take advantage of artificial nesting sites, including towers for radio, cell-phone and utility lines, and also nesting poles erected specifically for this species (Poole et al., 2002). Therefore, additional precautions will be included in the design of the transmission line along the following sections: - between the connection from the provincial electric power grid (anticipated to be in the vicinity of Bob Quinn Lake) to the filter plant; and - between the connection from the provincial electric power grid to Iskut Canyon. Nesting on transmission line poles will be prevented in the above locations by the installation of perch guards on poles and cross-arms to discourage landing and nesting. Perch guard s may include rounded plastic on top of poles, stick deflectors, pieces of wood, and metal triangles. Alternative nesting sites will be provided where required by installing dummy poles with platforms.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.13.5
339	As construction progresses along the transmission line alignment, potential raptor nesting habitats and previously identified cliff nesting sites will be surveyed for raptor nesting activity ahead of construction activity. In the event that active nests are encountered the B.C. Ministry of Environment will be consulted for further guidance. In accordance with B.C.'s best management practices for raptors (BC WLAP, 2005), a buffer zone free of human disturbance of greater than 200 m may be established around occupied nests.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.13.5
340	Disturbance of Wildlife Habitats or Behaviours During the construction of the Porcupine Aerodrome disturbance may occur to wildlife feeding, nesting, denning, and breeding habitats or behaviours. Of particular concern are nesting birds and salmon spawning habitats where grizzly bears feed. Construction will be timed, where feasible, to avoid these critical habitats during sensitive periods as outlined in the general management practices (Section 8.13.2.7). Where this is not possible construction will avoid and mitigate potential damage or disturbance to these critical habitats.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.6
344	To prevent collisions between wildlife and aircraft the aerodrome and airstrip will be fenced to exclude wildlife. The aerodrome operator will inspect the runway for wildlife prior to giving permission for any aircraft to land or take-off.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.6

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Commitment Number	Commitment Text	Source Document File Name	Section
345	The final fence design will take into account local conditions at the Porcupine Aerodrome, including the presence of grizzly bears and the possibility of heavy snow fall raising the ground level by several feet. Options for the final fence design include the following, based on the findings of a report commissioned by Transport Canada (Transport Canada, 2000): - galvanized steel chain-link: 2.4 m high woven steel mesh supported by well-anchored steel posts and topped by three strands of barbed wire using projection-arm supports; - high-tensile fixed-knot: designed for controlling a variety of wildlife including deer, elk, moose, wolves and coyotes. The fixed-knot fencing is typically 2.4 m high with extra strands of high-tensile smooth or barbed wire, supported by angled extensions above the woven fixed-knot mesh, extending the height to 2.8 m; and - high-tensile fixed-knot: 3.7 m high topped by smooth or barbed wire to provide additional protection if necessary.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.6
350	The lighting system will be designed with the following features to minimize the attractiveness to wildlife while ensuring operational safety: - retro-reflective markers rather than lights will be used wherever possible to delineate the runway, taxi-ways, heliport and other boundaries; - runway and other boundary lights will only be switched on when necessary for safe aircraft operation; - floodlights will only be used when it is a necessity for safe aircraft and aerodrome operations; and - lighting for on-ground facilities and equipment will be down-shielded to keep light within the boundaries of the site.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.6
351	Vegetation will be cleared in an area approximately 30 m wide around the prepared runway surface and graded shoulders (NovaGold Canada Inc, 2005).	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.13.6
352	All wildlife incidents associated with the aerodrome will be recorded and reported to environmental staff. Incidents include air strikes, wildlife attracted to the runway and surrounding vegetation and wildlife attracted to the aerodrome buildings. Records will be maintained and analyzed for high conflict areas, and management measures adapted accordingly	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.13.6
353	Prior to pre-stripping, wherever possible vegetation removal will be scheduled outside of the general bird breeding season as described in Section 8.12.2.7. Clearance of forested areas will primarily occur during the winter months. Nesting sites will be avoided if encountered during construction.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.13.7
373	If known acid-generating rock is encountered during pit development, additional precautions will be implemented consistent with the ARD Management Plan included in the application. These will include limiting the disruption of any additional material and backfilling to cover the acid generating rock, where possible. Drainage from the pit will be directed away from any stream, with passive or active treatment as required. Acid-generating rock will not be used for construction purposes. Any acid-generating rock uncovered during excavation work will be appropriately impounded.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3
378	Pipelines Where blasting is required for road construction, the pipeline trench will be excavated and then backfilled with granular material while awaiting pipeline construction. The granular material will be dug out during installation of the pipelines in 2009 after completion of the access road.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 151-309_RC	8.15.3
380	Tree removal will be required along the transmission line right-of-way to ensure that no trees fall onto the transmission line conductors. Generally, this results in clearing widths that extend beyond the right-of-way boundaries. The clearing widths will vary between 30 m and 65 m depending on the location and the pole type; details are provided in the IHI report. Appropriate permitting and permissions from the B.C. Ministry of Forests in the form of a "Licence to Cut" will be required prior to removal of any trees.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.15.3.2
388	Fuel-handling procedures, if and when required, would be developed and staff trained prior to commencement of any aerodrome operations.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.16.3.1
390	A Wildlife Management Plan will be developed for the Porcupine aerodrome during project permitting, consistent with the requirements of Transport Canada. It will incorporate the Template for the Development of a Airport Wildlife Management Plan for XXX Regional Airport as outlined in the Transport Canada website (http://www.tc.gc.ca/CivilAviation/menu.htm). The plan will become a part of the Aerodrome Operations Manual, which will be prepared prior to any air operations at the aerodrome. In the interim, a Wildlife and Wildlife Habitat Management Plan has been prepared as part of the EA that includes aspects related to the aerodrome and aircraft activity.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.16.4.5
391	The aerodrome and its facilities will have perimeter fencing and gates for security purposes and to exclude wildlife. The final fence design will take into account local conditions, including the presence of moose and grizzly bears and the possibility of heavy snowfall raising the ground level by several feet. Routine aircraft operations would also include air reconnaissance as well as drive-by clearings of any wildlife in the area of the airstrip before any flights in or out. All natural wildlife kills near to the aerodrome will be removed and buried to prevent carrion feeders becoming attracted to the area.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-351_RC	8.16.4.5
392	A 30 m wide strip will be cleared around the prepared runway surface and graded shoulders. Vegetation to be planted in this area will be selected and managed to reduce its attractiveness to wildlife.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.16.4.5
400	The mine production schedule will require that the high waste stripping for phase 4 is done before phase 3 mining cut off the bench access.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.5.3.1
401	Ore grade material is available near surface, and, from a mill supply perspective, requires very little pre-stripping to feed the plant at design rates. Mining activity in the start-up period at Galore Creek will instead be driven by infrastructure construction requirements and ultimately, will be further influenced by the design characteristics of the material required for these features.The main mining-related site features being constructed during start-up will be the coffer dams, main tailings dam, the freshwater diversion structure, aqueduct, diversion channels and spillway, and mining haul roads.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143	5.5.4.1
402	About 70 million tonnes of pre-stripping material will be used for construction of the main tailings starter dam. Much of the till will be used to construct the mill stockpile pad, discussed in Section 5.5.9. The remainder of the waste will be disposed of in a manner consistent with the project's waste rock storage strategy.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143	5.5.4.1

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403	Due to the requirement for reliable classification of ARD and ML potential for construction rock, all blast holes in the pre-strip areas will be sampled to define dig limits until sufficient data are available to reduce sampling. Blast hole chips from the pre-strip areas will be analyzed at the on-site laboratory in the following sequence: • Copper; • paste pH; • sulphur as sulphide determined by Leco furnace on a sample first leached with hydrochloric acid to remove sulphate; and • carbonate.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.5.5.2
404	Haul roads will be required between active pit faces, separate overburden, PAG and not-PAG dump and ore storage areas, the plant site crusher and dam sites. Roads will also be required parallel to diversion channels to permit access for maintenance. The length of required active haul roads on the site will vary over time from 20 to 50 km. Where possible, long hauls will be confined to the summer months, allowing shorter hauls and consolidation of equipment during the winter snow season.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.5.6
406	After lime addition, the filtrate water will be at pH 10.8. Provincial regulations state that the maximum allowable pH of an effluent is 8.5 so the pH must be adjusted before discharge. For a filtrate liquid design flow of 60 m3/h, it is estimated that approximately 39 L/d of concentrated H2SO4 will be required to neutralize the treated filtrate. Neutralization will be accomplished with a metering pump controlled by a downstream pH sensor and transmitter.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.5.7
408	NovaGold will review existing systems with SBTL and will work with SBTL to address any perceived deficiencies prior to initiating shipments.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.7.4.2
410	1. Storage of water within the tailings pond: For every year of operation, contingency will be provided to allow storage of all water inflows such as tailings supernatant, winter flows and freshet runoff for a nine month period (16th October to 15th July), if required. This will allow monitoring of water quality within the tailings pond before release. The dam is designed to contain the 1 in 200 wet year volumes. If water quality in the pond is acceptable for release, pumping will commence as soon as flow conditions in the Galore Creek Valley allow. Outflow from the tailings pond will be controlled by pumping. Pumped outflows from the impoundment will follow a paced discharge, simulating the natural flow hydrograph of Galore Creek. It is anticipated that pumping will only occur from 15th May to 15th October in each year, however, the pumping period will be extended if hydrological conditions allow. There will be no pumped outflow from the tailings pond during low flow periods during winter months.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.9.3.2
411	Tailings impoundment water (contact water) is assumed to not require treatment prior to release to the environment based on the water balance model. If this assumption proves incorrect, other mitigation measures will be investigated to address the problem.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.10.1
412	To determine the water storage requirements of the tailings pond during the early years of production (Yr +1) and size the starter dam, the following assumptions were made: • During the construction period of the starter dam (Yr -3 to -1) and first year of operation (Yr +1), all freshwater except approximately 5 km2 of catchment area above the starter dam will be diverted pass the tailings dam construction area (with the starter dam diversion channels and cofferdam); • immediately prior to the start of tailings deposition into the pond, all water will be pumped out of the pond; and • the starter dam has been sized to store water for a 1 in 100 wet year for the first 18.5 months of production (assumed from November 2010 to May 2012) in addition to tailings solids.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.10.1
413	Prior to construction of the East Fork aqueduct, the West Fork dissipater will carry water down slope from the bottom of the West Fork channel into the original Galore Creek channel. The channel will be 5 m wide and 5 m deep with an elevation varying from 700 to 750 m and will likely be lined.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.10.4.1
414	Main Diversion Channel: Conceptually the channel will be 10 m wide at its base and the flow section will be 4.5 to 5.5 m deep (Figure 5.10-2). With a longitudinal slope of 0.3%, the channel invert will vary from elevation 712 m at the East Fork diversion structure to 678 m at the main dam alignment. This diversion will be constructed over the initial years prior to commissioning but will be inaugurated at the end of Year +1 and will last for the entire mine life. At closure this channel will be decommissioned and reclaimed.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.10.4.5
415	Pre-stripping of the ore deposits and resultant development of waste dumps is not required prior to the start of mining at Galore Creek because ore is exposed on the surface. However, the tailings dam and much of the infrastructure for the overall waste management plan will be built of waste stripped to provide borrow.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.11.1.1
416	The soils and overburden waste will be placed in upper Galore Creek Valley in a variety of locations. Pre-stripped overburden from lower elevations will be placed adjacent to the main plant area where it can be reclaimed later for reclamation at closure. Overburden from higher elevations will be contained by dumps at higher elevations.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.11.1.2
426	Specific training and procedures will be addressed with the chosen carriers in regards to de-icing and other handling requirements of the carrier. Fuel handling procedures, if and when required, will be developed and staff trained prior to aerodrome start up.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.1.4
439	5.13.7.1 Power Requirements The 138 kV transmission line from the Bob Quinn switching station will terminate at the main mine substation. At this substation, two identical step-down transformers will each supply half the plant load during normal operating conditions, with each transformer rated for 75/100 MVA ONAN/ONAF operation (Appendix 5-L, Galore Creek Project Power Supply Pre-Feasibility Study North Route). The rating will allow one transformer to supply the entire plant load if required.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.7.1
445	All blast holes in the pre-strip areas will be sampled for analysis at the on-site laboratory to define shovel dig limits until sufficient data are available to reduce sampling.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	15.6
451	Changes to glacier extent will be calculated by comparing satellite images from pre-project with annual aerial mapping surveys undertaken during summer months during each year of operations.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	10.2

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454	Benthic community monitoring will provide a tool to assess any potential impacts to aquatic life due to mining activity, based on changes from baseline and reference data. Data will include density, species richness, diversity indices, and Bray-Curtis dissimilarity indices, as well as relative abundance and several diversity indices related to bioindicator groups including chironomids, mayflies, stoneflies and caddisflies. Benthic invertebrate sampling will occur in late summer when benthic communities are at their richest (prior to the majority of emergence) and will correspond to sediment and fish sampling periods. Samples will be collected at five replicate stations within each site, with each replicate station consisting of three field sub-samples that will be pooled in the field. Power analysis will be conducted to determine if five replicates is sufficient. A qualified contractor will sort and identify all invertebrates to the lowest possible taxonomic level (usually genus).	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	10.6.5
457	During the construction period water will be diverted around the main construction sites (e.g. plant site, dam, pre-stripping of pit areas). There will be local changes to flow pathways within Galore Creek Valley.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	7.5.2
458	The pits will be ringed by groundwater dewatering wells which will pump groundwater at a combined rate of around 30,000 m3/day. Groundwater will be used within the Process Plant before being discharged into the storage facility along with the tailings slurry. Water that is not captured by ditches or the dewatering pumps, as well as precipitation falling directly on the pit surface, will accumulate at the bottom of the pits. This sump water will be pumped to a settling pond and will either be used in the Process Plant or discharged into the storage pond.	Vol 2 - Ch 7 - Environment & Socio-Economic Effects Assessment - Pg 131-169_RC_10	7.5.2
459	During the open water season (May 15th – October 15th) water will be discharged from the waste rock and tailings storage facility. The pumped flows will be paced to attempt to mimic natural flows within the watershed. Pumping rates are expected to start low in early spring, before increasing through freshet. However, the total volume of water discharged during the pumping period will exceed natural conditions as water stored in the facility during winter is discharged during the summer months. The calculations show that under average runoff conditions and normal operations there could be up to 20 % difference in average monthly flow rates during summer months at the mouth of Galore Creek. This will produce a measurable difference in flow rates at the mouth of Galore Creek, however, changes in flow rates are likely to be within the range of natural variations. The impact of pumping decreases downstream with < 10 % difference within the Scud and	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	7.5.2
460	During operations, runoff from all areas disturbed by mining activity and from areas flanking the storage pond, will flow to the tailing storage facility. Runoff from non-disturbed areas will flow through a series of diversion channels before discharging into Galore Creek downstream of the main dam. Under normal operating conditions, water levels within the storage facility will be maintained at as low a level as possible, with excess water discharged from the facility by pumps. At all times the target water level within the facility will be substantially lower than the emergency spillway level, so that there will always be a substantial storage volume available within the facility in case of pump failure or problems with water quality in the pond.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	7.5.2
488	Where blasting is required, the trench for the pipeline will be excavated during the road construction and backfilled with granular material. The granular material will be dug out for installation of the pipeline in 2009 after completion of the road.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.4
498	In these cases, using a conservative assumption of depth of channel scour, the proposed design burial depth of 1.6 metres could lead to pipeline rupture. Mitigation in the form of deeper burial would lead to a 99% risk reduction.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.6
556	8.15.2.4 Concentrate and Diesel Pipelines The diesel and concentrate pipelines will be buried over the entire road length to a depth in compliance with the ASME Codes, as described in the design report by Pipeline Systems Inc. (PSI, 2006). Depths will range from 1.6 to 3.0 m depending upon geotechnical risks along each section, with deeper burial for areas such as at potential debris flow channels carrying elevated risk. The alignment will generally be under the access road roadside ditch, but minor diversions will be required to maintain appropriate grades to avoid the settlement of solids in the slurry line in low points during shutdowns.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.4
557	Generally, at all bridge crossings, the pipelines will run along the length of the bridge. One proposed method to protect the pipelines on the bridge crossings would be a concrete coating.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.4
558	At typical minor water crossings, there will be a minimum of 1.2 m between top of pipe and river bottom bed in rock material and 2.0 m below in earth material. At installations undertaken using an excavated trench across the watercourse, the pipeline will be bedded in select fine material and covered with riverbed material and riprap. For special situations, more extensive engineering and installation efforts will be required.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.4
559	In potential washout zones, the top of pipe will be a minimum of 1.5 m below the surface for the complete length of the area identified as a potential washout zone. The pipe will be appropriately protected and provided with either concrete pipe saddles or concrete coating.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.15.2.4
560	Most areas of avalanche hazard will be made secure through careful placement of wood poles and spanning areas of concern (e.g., avalanche chutes, rock slide zones). However, some areas will require steel [power] poles for avalanche protection. It is anticipated that a portion of the line will be buried through the length of the Scotsimpson Creek tunnel.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.4
561	Other criteria for the transmission line include: • following the access road or other right-of-ways, wherever possible • avoiding areas with adverse soil conditions, difficult terrain or prone to heavy snow pack, avalanches or ice build-up • avoiding crossings of large bodies of water • designing the components to reduce the risk of direct mortality to birds through electrocution or collisions.	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 150-309_RC	8.15.2.4
587	The Porcupine Aerodrome will be a 1,500 to 1,800 m long by 50 m wide gravel-surfaced airstrip designed to accommodate a Hercules L-100 aircraft (Appendix 5-K, Galore Project Aerodromes Concept).	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.1
588	In order to accommodate the weight of a Hercules on an all-season basis the airstrip will require a 600 mm sub-base of gravel or stone, a 230 mm base of crushed stone or crushed gravel and a 135 mm surface of crushed stone or crushed gravel. The crushed material is necessary to provide long term stability.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.1
589	Preliminary location and layout drawings have been prepared for the Porcupine Aerodrome (Figures 5.13-1 and 5.13-2).	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.1

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
590	Aerodromes are governed under the Canadian Aviation Regulations (CARs), under the Aeronautics Act, and other regulations. The most significant regulations include: • Canadian Aviation Regulations, especially: • CAR 301 Aerodromes; • CAR 302 Airports; • CAR 303 Aircraft Fire Fighting at Airports and Aerodromes; and • CAR 308 Aircraft Emergency Intervention at Airports. • Transport Canada TP312, Aerodrome Standards and Recommended Practices; • Transport Canada TP2586, Heliport and Helideck Standards and Recommended Practices; or TP12977, Exemption for Heliport Standards, Appendix 1 (CAR Standard 325); • Transport Canada TP1247, Land Use in the Vicinity of Airports.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.1
591	The proposed long term Porcupine Aerodrome will: • be registered and designed in accordance with the requirements of TP312, TP1247 and TP2586; • be inspected by Transport Canada; • meet Transport Canada's nationally accepted safety levels; • be included in Canadian Aviation Information Publications; and • be available to other pilots in emergencies.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.1
592	5.13.1.1 Commercial Airlift Strategy Requirements for air support will change over time and aerodrome design will allow for the appropriate phasing.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.1.1
593	The aerodrome design will include provision of designated areas for rotary wing operations in the long term.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.1.1
594	The runway length required to safely operate the proposed aircraft is a primary consideration in aerodrome design. Transport Canada requires that an aircraft must be able to accelerate to takeoff speed, abandon the take-off and stop (i.e.: accelerate-stop distance - ASD) within the available runway distance under the weather, loading and pressure altitude conditions prevailing. The aircraft with the most critical performance characteristics from among the candidates is designated the design aircraft, or critical aircraft. Analysis indicates that the critical aircraft for runway length for the Porcupine Aerodrome will be the L100-30 Hercules for cargo operations, and the de Havilland DHC 8-100 for all passenger operations (Table 5.13-2).	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.1.2
595	No re-fuelling of fixed wing aircraft is anticipated. Since air carrier operations may occur during inclement weather conditions, equipment and facilities for de-icing of aircraft will be required. This issue may require additional environmental permitting, depending on the projected quantities of fluid, which in turn will depend in part on the aircraft type and air service characteristics.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.1.2
596	It is proposed that the Porcupine Aerodrome will be classified as Code 3D-NP for design and classification purposes.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286_RC	5.13.1.2
606	The recommended aerodrome classification and summary dimensions are provided in Table 6-1. [Runway Parameter Porcupine River Aerodrome Round Lake Aerodrome Aerodrome Code 3D-NP 1B-NP Runway Length 5,000' / 1,525 m 2,500' / 762 m Runway Width 150' / 45 m 60' / 18 m Shoulder Width 75' / 22.5 m 45' / 14 m Taxiway Width 18 m 10.5 m]	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	6.3
607	The minimum apron accommodation requirements affect the apron size. For the two aerodromes, the minimum recommended apron dimensional criteria are as follows: [see Table 6-1 : Minimum Apron Dimensions] [Factor Porcupine River Aerodrome Round Lake Aerodrome Critical aircraft L100-30 Hercules de Havilland DHC-6 Apron Accommodation 2 Hercules + manoeuvring 2 DHC-6 + manoeuvring Nominal Apron area 10,000 m2 3,000 m2 Nominal Apron dimensions 100 m x 100 m 60 m x 50 m Distance from nearest apron edge to runway centreline 157 m 86 m Preferred location 1,100 m from the western runway threshold 550 m from the western runway threshold Distance between apron edge and nearest object 15 m 7.5 m Taxiway width 18 m 10.5 m]	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	6.3

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
608	The conceptual location and orientation for the two aerodrome runways is shown in Table 6-3. [see also Table 6-2 Aerodrome Location and Orientation]	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	6.3
609	Airport security and safety is of critical importance. The principal aim of all Transport Canada regulatory actions is system safety and a major goal of corporate management must be risk mitigation. It is for this reason that the basic design philosophy has been to design the aerodrome such that all regulatory requirements are met and the aerodrome could be certified as an airport.	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	6.8
610	Among the issues that must be considered in developing a new aerodrome are the following: • operations safety (TC Regulations) on the aerodrome; • physical and electronic zoning, and protection from obstructions in the protected airspace; • animal fencing to ensure no large animals can access the runway surface; • crash / fire / rescue capability; • personnel access control and safety on the runway surface; • personnel security on departing flights to destination airports; • corporate security on departing flight with respect to theft or dangerous materials etc.; • corporate security in incoming passengers with respect to alcohol, drugs etc. and • co-ordination of road vehicles operating in close proximity to the runway. There are aspects of safety, security and risk management that must be addressed during the detail design of the aerodrome.	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	6.8
611	Porcupine River Aerodrome Specification: Permanent airstrip: 5,000 – 6,000 ft x 150 ft. – Gravel Surfacing Design aircraft: Hercules L-100-30; Operating Weight: 693 KN; Tire Pressure: 0.74 MPa Subgrade soil: assume gravelly, poorly graded silty sand – SM; assume Spring Reduced Subgrade Strength: 65 KN	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	7.3.1
612	Round Lake Aerodrome Specification: Temporary airstrip: 2,500 ft. x 100 ft. – Gravel Surfacing Design aircraft: DHC6 Twin Otter; Operating Weight: 56 KN; Tire Pressure: 0.26 MPa Subgrade soil: assume gravelly, poorly graded silty sand – sm; assume Spring Reduced Subgrade Strength: 65 KN	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	7.3.1
613	All the pavement material and the placement of the material [for the aerodromes] should be in accordance with Transport Canada Specifications to ensure stability and reliability under the loads and aircraft operation frequencies projected	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	7.3.1
614	In order to determine the actual pavement design, after the selection of the Design Aircraft is confirmed, a detailed Soils and Materials Survey should be carried out to determine the Subgrade Soil Conditions, the ground water table elevation and the availability of Construction Materials.	Appendix 5-K: Aerodromes Concept	7.4
615	To provide the level of detail required, bore holes should be drilled for the Porcupine Aerodrome as a minimum in a 200 metre grid covering the construction area to the depth of a minimum of 2 metres, or as soil conditions indicate.	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	7.4
624	5.5 Fuel Uplift Requirements It is assumed that there will be minimum aviation fuel uplift into the aerodromes and that there will be only emergency supplies stored at the aerodromes. Construction fuel uplift will be very extensive and a very large storage capability is required near the aerodrome for ease of unloading. Similarly, heating and other vehicle fuel uplift will be required in significant quantities, and a large storage capability will be required near the aerodrome. The fuel storage area will not be part of the aerodrome design but will be part of the laydown area planning, and must be clear of all aerodrome operations, safety and security zones.	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	5.5
625	A slurry pipeline will transport copper concentrate to a filter plant near Highway 37 where it will be de-watered for transport by truck to Stewart. A small diameter diesel pipeline will transport diesel fuel from the filter plant to the mine site, paralleling the concentrate pipeline.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.2.1
627	NovaGold will design the Galore Creek EMS to achieve the following: • Compliance with the ISO 14001 EMS Standard NovaGold will, in accordance with the international standard, develop and maintain a monitoring system to ensure that the Galore Creek EMS is meeting all expectations of the Environmental Policy. This monitoring system will include regular audits of the EMS and a documented corrective action procedure to ensure that improvements are made where needed. Also, NovaGold will develop and monitor procedures for ensuring that all contractors and suppliers involved with the project meet NovaGold’s environmental policy in accordance with the standards. • Compliance with Regulations, Licences, Permits and Authorizations NovaGold will monitor to ensure the project is complying with all regulatory requirements, such as regulations, terms set out in the discharge permits and other provisions of any other approval or authorization issued in relation to the project. • Measure Effectiveness of Mitigation Effectiveness of the mitigation measures proposed for each component of the EA will be monitored through the EMS. In cases where implementation of the mitigation measures produces an effect that differs from the predicted effect, monitoring will provide a basis for changing the mitigation measures. • Monitor for Project-related Effects Where a high level of uncertainty surrounds an impact predicted in the EA, NovaGold will monitor to confirm the accuracy of predictions of project-related socio-economic and bio-physical effects. Monitoring can confirm or refute the prediction.	Chap 15 - Summary of Corporate Commitments	15.6
628	The Galore Creek EMS will be independently audited annually. Audits will be shared first with the Tahltan Nation and then with regulators. They will also be made available to the public.	Chap 15 - Summary of Corporate Commitments	15.6
638	Provide emergency response plan and mine rescue team.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
645	Provide mine rescue and safety ongoing training.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
687	Ongoing training including apprenticeship training throughout operations phase.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
698	Support for the development of a bypass around residential and downtown Stewart.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
699	Limit the use of Porcupine airstrip for mine operations and emergency purposes.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
731	Tailings mostly under water cover throughout operation.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
732	Complete submergence of tailings on closure.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
733	A quarterly composite of tailings will be prepared for analysis of sulphide sulphur, neutralization potential and metal scan	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
734	An annual composite of the quarterly samples will be submitted for mineralogical analysis using optical and XRD methods.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
735	Seepage from the impoundment will be sampled bi-annually and analyzed for pH and major and trace cations and anions.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
736	The project will use state of the art technology using radio and high precision global positioning systems linked to a central computer controlled by a dispatch operator to combine blast hole locations, blast hole sample analyses, mine plans and waste rock disposal [during ARD Minesite management].	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
737	All blast holes in the pre-strip areas will be sampled for analysis at the on-site laboratory to define shovel dig limits until sufficient data are available to reduce sampling [during ARD Minesite management].	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
738	Dig limits will be specified to ensure that PAG rock does not become incorporated into not-PAG waste rock. In blasts showing both high and low reactivity, conservative shovel dig limits will be established [during ARD Minesite management].	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
739	Rock that is not ore and has NP/AP <3 or paste pH <6 will be disposed under water in the impoundment.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
740	Dam construction rock will be below ore grade, have NP/AP >3, paste pH >6 and a value of Cu/S greater than a yet to be determined number.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
741	For borrow materials to be used outside the containment area, every 10,000 m3 will be sampled and characterized with respect to ARD potential [during ARD Minesite management].	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
742	Overburden used outside the containment area will have NP/AP >3 and rinse pH >7. Overburden that does not meet these criteria will be submerged in the impoundment.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
743	Waste oxide rock that is not ore, has rinse pH <7 or leachable copper >0.005 mg/L will be disposed under water in the impoundment.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
744	Waste oxide rock that is not ore, has rinse pH >7 and < 0.005 mg/L leachable copper will be managed the same as unoxidized waste rock.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
745	All waste rock will be placed within the catchment area of the impoundment. PAG rock will be place for permanent underwater disposal. Not-PAG rock will be placed in upland dumps [during ARD Minesite management].	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
746	Disposal locations will be monitored to ensure that wastes are appropriately dumped.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
747	testing will consist of: maintaining a database of analytical results, truck counts and disposal locations to provide an inventory of rock management; continuing the existing column tests on pre-strip material initiated during the EA phase; conducting bi-annual seep surveys to check for seepage from upland disposal areas and the dams; quarterly sampling and analysis of rock size fractions to evaluate partitioning of carbonate and sulphide minerals in dam construction materials; and conducting bi-annual evaluation of mineralogy using optical and Rietveld methods; annual auditing of management practices.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
748	Seeps in overburden disposal areas will be surveyed bi-annually to determine water chemistry and the need to modify the management approach. A database of analytical results, truck counts and disposal locations will be maintained to provide an inventory of overburden management.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
749	Initial waste rock blasts will be treated as PAG and tested to evaluate the possible preferential enrichment of sulphide minerals in the fine fraction of blasted rock. Whole rock and the -2 mm fraction will be analyzed to determine whether adjustment to the ICCa,Mg/AP is needed. An annual program will be designed to continually re-evaluate this distribution [during ARD Minesite management].	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
750	Use of concentrate and diesel pipelines to reduce truck traffic along access road.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
756	Monitor the mass balance and melt of glaciers within the Galore Creek Valley on an annual basis.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
760	Provide air pollution control equipment at the primary crusher to control fugitive dust.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
762	Enclose the ore stockpile in an "A" frame building to control fugitive dust.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
766	Use large haul trucks for ore and waste to minimize number of trips.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
767	Use concentrate and diesel pipelines to reduce number of haul trucks on the access road.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
768	Monitor dust deposition at various distances from the mining operations; analyze for total, soluble and insoluble dustfall and metals	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
791	Where possible, schedule flights at Porcupine aerodrome at regular and consistent intervals to allow wildlife to habituate.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
799	Monitor groundwater levels and quality within Galore Creek Valley at wells/boreholes: DH-BGC05-10 A&B, DH-BGC05-13, DH-BGC05-21, DH-BGC05-21, DH-BGC05-34, DH-BGC05-26, RES01-BR&OB, proposed capture wells below the main tailings dam, proposed wells RES-GAL-11, RES-GAL-12, RES-GAL-13 (see Table 13.7-4). Monitoring to be conducted four times/year according to MOE standards.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
801	Hydrological database will be maintained and upgraded with more infrastructure.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
802	Measure flow in diversion channel and effluent discharge into Galore Creek.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
804	Glacier recedence in East Fork and West Fork Valley.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
805	Monitoring flows in Galore Valley, Reference Creek and Scud River; also in Iskut River near filter plant diffuser.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
806	Monitoring climatic condition on a continuing basis; long-term monitoring of glacier recedence.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
807	Discharge from main dam paced to follow natural hydrograph.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
808	Diversion structures and channel designed to convey Q200 without overtopping; main dam designed to convey the PMF without overtopping.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
809	Avalanche control to reduce chance of main diversion channel blockage to avalanches.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
810	Mine vehicles on site to clear main diversion channel in case of blockage.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
811	Diversion channel designed to allow easy access for clearance in case of blockage.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
812	Potential for discharge from tailings and waste rock storage facility during extreme winter low flow periods as long as water quality in facility is within permit limits and will not adversely affect downstream aquatic habitat	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
815	During operations, monitor discharge in the main diversion channel, at the pumped outflow from the main dam, at the mouths of Galore Creek and Reference Creek, along the access road in Sphaler Creek and More Creek, in the Porcupine River downstream of the aerodrome, in the Iskut River downstream of the filter plant outfall, and in the Scud River downstream of Galore Creek	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
816	During construction, also monitor discharge within Galore Creek Valley in the East Fork, West Fork and main stem of Galore Creek	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
820	A berm or other protective barrier to be placed upslope of the aerodrome, following a more detailed flood risk assessment.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
828	Tailings Management Plan [will be developed].	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
829	Filter Plant Management Plan [will be developed].	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
830	Scheduled release of tailings discharge at high flow periods for 5 months from May to October.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
831	Overconstruction of dam to contain 1-in-100 year storm event, or extra 3 months of flow.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
833	Pipeline pressure sensors, shut-off valves, drainage sump, deeper pipe burial at high-risk areas.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
839	Monitoring of fish health and tissue quality in Galore Creek as part of the AEMP.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
841	Filter plant effluent monitoring.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
842	Regular inspection of pipeline, especially at above-ground stream crossings.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
846	Water from tunnel and mine site will enter tailings facility.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
852	Monitoring of fish health and tissue quality in Galore Creek and other potentially affected rivers as part of the AEMP.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
853	Periodic reminders to staff.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
855	Conduct closure procedures so that final topography and site conditions are similar to other ecological units of the same type in the area.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
859	Monitor success of revegetation efforts throughout operations and decommissioning / reclamation.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
867	Report and record all wildlife incidents at aerodrome, including air strikes and wildlife attracted to the runway or surrounding vegetation and aerodrome buildings.	Vol 3 - (FR) - Chap 15 - Summary of Corporate Commitments_RC	Table 15.1-2
873	Increase visibility of transmission line to birds by employing marking devices where the line crosses anticipated movement corridors or in areas with high bird concentrations.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
885	Monitor transmission line structures for evidence of bird collisions, mortalities and perching or nesting sites.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
886	Monitor open pits and associated structures early in the breeding season (i.e., March 01 to June 15 for raptors) for the presence of nests or nesting activity.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
894	Implement ISO 14001.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
895	Implement Loss Control and Risk Reduction System.	Chap 15 - Summary of Corporate Commitments	Table 15.1-2
899	Table 8.16-3: Federal and Provincial Authorizations, Licences and Permits Required for Aerodromes [detailed list of permits required to build and operate an aerodrome].	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-3519_RC	8.16.3
900	Table 8.16-4: Construction Phase Aerodrome Components [outlines construction components, durations, and other details].	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-3519_RC	8.16.3
901	Conceptual layout of the aerodrome is shown in two figures: 8.16-3 and 8.16-4. [these figures show the dimensions, orientation, and locations of key components of the aerodrome].	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-3519_RC	8.16.3

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
902	Under the Canadian Aviation Regulations (2005-2 Subpart 2, s.302.08), an airport operations manual is to be prepared and submitted to the federal Minister. The Aerodrome and Aircraft Operations Environmental Management Plan is one component of a comprehensive management program required for all aerodromes in Canada. Typical contents for the aerodrome operations manual are outlined below: • description of facilities • staffing plan, including staff responsibilities and job descriptions • passenger operations, including passenger and baggage handling • cargo operations, including transfer to and from storage locations • equipment operating procedures • security • materials management plans • winter maintenance plan • wildlife management plan • other standard operating procedures, including: • apron management plan (including all manoeuvring parameters) to be developed later in design process to ensure that all contingencies, normal and emergency can be accommodated • poor weather operations • contingency and emergency response plans including fires, spills, and search and rescue; • MSDS binder for products used (or handled en route to/from site) at aerodromes • any additional information necessary to comply with all applicable standards set out in the aerodrome standards and recommended practices publications (ref: CAR 302.08 (4)(c)).	Vol 3 - (FR) - Chap 8 - Environment Mgmt & Mitigation Measures - Pg 310-3519_RC	8.16.3
904	10.2 Climate Change and Glacier Monitoring [Program] [See Section 10.2 of the EAC Application for further details; the following is an excerpt only.] Climate change monitoring for the Galore Creek Project will have three components: • collecting meteorological and hydrological data collection and comparison to regional normals • monitoring of changes to glaciated areas • documenting greenhouse gas emissions from the project. Specific climate change indices that will be available from the meteorological program include: • mean annual and seasonal air temperature • annual and seasonal precipitation • winter snowpack accumulation/ SWE • frequency and magnitude of storms. Site data will be compared to baseline conditions and other regional normals. Data will also be collected from nearby Environment Canada meteorological stations, and annual data will be compared to long-term averages at these sites. Specific climate change indices that will be extracted from on-site hydrological data include: • annual runoff • distribution of monthly runoff • length of open-water season • timing of freshet • frequency and magnitude of extreme flow events. As for the meteorological data, the site hydrological data will compared to baseline conditions and other regional normals. Data will also be collected from nearby Water Survey of Canada hydrological monitoring stations, and annual data will be compared to long-term averages at these sites. During mine operations it is proposed that the mass balance of the main glaciers within Galore Valley be monitored annually using the methods outlined in Kaser et al. (2003). To relate changes in glacier dynamics in the Galore Valley to patterns of regional glacier fluctuations, mass balance monitoring will be compared with monitoring by the World Glacier Monitoring Service (WGMS). Results from glacier mass balance monitoring will be coupled with surface water quantity monitoring data to provide estimates of stream flow derived from glacial melt. The impact of changes in glacier area will also be modelled using the UBC Watershed model of Galore Creek.	Environmental Effects Monitoring and Follow-Up Program	10.2

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
905	10.2.1 Climate Change and Glacial Monitoring Follow-up [See Section 10.2.1 of the EAC Application for further details; the following is an excerpt only.] A summary of the data collected in the monitoring programs outlined in section 10.2 will be included in an annual report. Trend analysis of these data will be conducted for the detailed report completed every three years. Adaptively managing the effects of the environment on the Project will require utilizing the results of the monitoring program. The analysis will provide an early warning to changes in glacier dynamics that differ from the predictions of the EA, and those that may influence the functionality and safety of the project. To accompany the environmental monitoring programs within the Galore Valley; monitoring of the marginal contribution of the Project to climate change in terms of greenhouse gas (GHG) emissions will also be undertaken. An audit of GHG emissions will be undertaken consistent with the requirements of the 1999 Canadian Environmental Protection Act. Under this act facilities that generate GHG emissions greater than 100 kt of carbon dioxide equivalents (CO₂e) per year are required to report their emissions to Statistics Canada. Annual Project GHG emissions are projected to range from 70 to 145 kt CO₂e per year. GHG emission reporting for the Project will be consistent with the Greenhouse Gas Emissions Reporting: Technical Guidance on Reporting Greenhouse Gas Emissions document prepared by Environment Canada (2006).	Environmental Effects Monitoring and Follow-Up Program	10.2.1
906	Air quality monitoring is planned for both the ambient and workplace environments. The air quality guidelines are different for ambient and workplace environments. The air quality monitoring for the ambient environment will consist of dustfall monitoring, whereas the air quality monitoring for the workplace will consist of control measures in the process plant and open pit mining areas. A dust deposition monitoring program will be established to measure dust/chemical deposition from mining activities. The monitoring program will: • identify the total particulate material (PM) deposition rates at various distances from the project footprint. • identify the physical and chemical characteristics of particulate material that may be deposited into the surrounding area from mining activities, especially metals but also sulphate and nitrate that may be associated with acid deposition. The monitoring program will be used to identify any locations of high air emission concentrations or particulate dust deposition. Indoor air quality control measures will be established during both the construction and operations phases of the project. The workplace air quality guidelines for the Galore Creek Project will include provisions for: • conducting periodic monitoring of workplace air quality for air contaminants relevant to employee tasks and equipment operations. • providing good ventilation systems. • providing air pollution control equipment such as scrubbers • maintaining protective respiratory equipment and air quality monitoring equipment in good working order • ensuring that employees use personnel protective equipment (PPE) when the exposure levels for various contaminants, including welding fumes, solvents and other materials present in the workplace, exceed local or internationally accepted standards.	Environmental Effects Monitoring and Follow-Up Program	10.3
908	10.4 Noise Monitoring [See Section 10.4 of the EAC Application for further details; the following is an excerpt only.] Noise monitoring in the workplace will consist of applying the best practical hearing protection equipment for the process plant and open pit mining work areas based on the maximum equivalent noise levels associated with each work area. The best practical hearing protection for different noise levels is determined by the Health, Safety and Reclamation Code for Mines in British Columbia (BC MEM 2003). A summary of results from the noise monitoring program will be provided annually and in a detailed report every three years. These results will provide a tool to assess the EMS's ability in maintaining a safe working environment. If the levels or extent of noise are greater than predicted in the EA, the noise source and attenuation models used in the EA will be updated. The necessity for, and type of, adaptive response strategy to address noise will be determined in consideration of these results.	Environmental Effects Monitoring and Follow-Up Program	10.3.1
912	10.5.2.2 Aerodrome and Air Traffic [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Wildlife interactions with air traffic and behaviour of wildlife around the Porcupine Aerodrome and at heliports will be monitored through all project stages. Locations of all direct interactions and wildlife observations in the immediate locality of the aerodrome will be reported to environment staff. This will help identify whether management strategies need to be reviewed or amended. The effectiveness of wildlife exclusion fencing and vegetation management to reduce the attractiveness of the Porcupine Aerodrome to wildlife will be a particular focus.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.5.2.2
913	10.5.2.3 Transmission Line [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] The monitoring of wildlife observations and interactions along the access road corridor will therefore also encompass the transmission line ROW. Where the ROW deviates from the access road it will be monitored separately to assess wildlife use. The transmission line structures will be monitored for evidence of bird collisions, mortalities, and perching or nesting sites.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.5.2.3
914	10.5.2.4 Pit Walls [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Open pits and associated structures will be monitored early in the bird breeding season (i.e., March 01 to June 15 for raptors) for the presence of nests or nesting activity. The objective of monitoring will be to prevent birds from nesting within pit walls. Where possible, mine activities will be organized to minimize disturbance to active nests and nesting success will be monitored by environmental staff. The movement of nests of species protected under the B.C. Wildlife Act, for example gyrfalcon, peregrine falcon and golden eagle, will only be done with a permit to be obtained from the B.C. Ministry of Environment.	Environmental Effects Monitoring and Follow-Up Program	10.5.2.4
916	10.5.2.6 Tailings Facility [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Wildlife activity in and adjacent to the tailings facility will be monitored to determine whether the tailings facility has the potential to pose a risk to wildlife. Although a risk to wildlife is not anticipated, environmental staff will survey the facility at regular intervals and respond to reports from other employees of wildlife interacting with the facility. If evidence emerges that the facility is posing a potential risk to wildlife, further work will be undertaken to characterize and assess the risk.	Environmental Effects Monitoring and Follow-Up Program	10.5.2.6

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Commitment Number	Commitment Text	Source Document File Name	Section
921	10.5.4.1 Footprint Expansion and Reclamation [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Mine construction and development will alter habitat in the direct footprint of the mine. Much of the altered habitat will be subsequently restored upon reclamation. The loss and ensuing reclamation of habitat will be monitored and reported on a yearly basis. By overlaying the changing project footprint on the baseline habitat maps the amounts of vegetation classes and soil types which are disturbed and reclaimed each year will be tracked. This will allow the actual habitat impacts to be compared with the impacts predicted in the EA enabling an assessment of project environmental performance. A summary of the data collected in the monitoring programs outlined in section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report.	Environmental Effects Monitoring and Follow-Up Program	10.5.4.1
922	10.5.4.2 Plant Establishment [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] As areas are reclaimed, the success of plant establishment will be monitored and assessed to allow the reclamation plan to be developed through a process of adaptive management. Procedures for monitoring and assessing plant establishment will be detailed in the operationsphase/ reclamation plan. A summary of the data collected in the monitoring programs outlined in section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report.	Environmental Effects Monitoring and Follow-Up Program	10.5.4.2
923	10.5.4.3 Soil Movement [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Soil movement (i.e., soil salvage, stockpiling, and replacement) associated with mine construction, operation and closure will be tracked to facilitate reclamation. Soil movement monitoring will assess quality and quantity of replaced soils and will be detailed in the reclamation plan. A summary of the data collected in the monitoring programs outlined in section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report.	Environmental Effects Monitoring and Follow-Up Program	10.5.4.3
924	10.5.4.4 Soil Erosion [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] Erosion associated with mine developments and activities will be monitored to assess mine impacts to soil and to facilitate an adaptive management approach to controlling and minimizing soil loss. Monitoring will be conducted in association with surficial water quality monitoring. Efforts will be focused during significant thaw and heavy rainfall events. Findings will be assessed and reported on an annual basis. A summary of the data collected in the monitoring programs outlined in section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report.	Environmental Effects Monitoring and Follow-Up Program	10.5.4.4
925	10.5.4.5 Metals and Chemicals of Potential Concern in Soils and Plants [of the Wildlife and Wildlife Habitat Monitoring and Follow-up Program] The levels of metals and other chemicals of potential concern identified in the Chemical Hazards assessment (Section 7.6.4.1) in water, mine disturbed soils and vegetation growing on mine disturbed soils will be monitored. Levels will be compared to baseline values and suitable reference areas to assess any changes in availability to wildlife. Monitoring will be conducted when there is reason to suspect elevated levels of metals and other chemicals. Most of this work will be associated with reclamation and will be detailed in the reclamation plan. A summary of the data collected in the monitoring programs outlined in section 10.5.3 to 10.5.4 will be included in an annual [WEMP] report.	Environmental Effects Monitoring and Follow-Up Program	10.5.4.5
929	10.6 Aquatic Effects Monitoring Program An Environmental Effects Monitoring (EEM) program will be established as a requirement of the permits and licenses under which the Galore Creek Mine will operate. The proposed Aquatic Effects Monitoring Program (AEMP) will be implemented to: • ensure regulatory compliance with respect to discharge limits and other criteria to be set at the permitting stage • verify the predictions of environmental effects assessments • detect any unforeseen impacts as measured against the baseline established as part of the initial environmental assessment • help identify cause-effect relationships between project activities and environmental impacts. The AEMP has been designed in accordance with guidelines set by the Ministry of the Environment and also those published by Environment Canada (2002) to ensure that requirements outlined in the Metal Mine Effluent Regulations (MMER) of the Fisheries Act are met. The guidelines require initial monitoring to establish a baseline and periodic monitoring to evaluate environmental effects. Figure 10.6-1 shows the location of proposed long-term stream monitoring sites while Table 10.6-1 presents a breakdown of the variables to be monitored and the frequency of sampling at each site. Monitoring during the pre-construction phase has largely been completed, with the results being published in two annual baseline reports (Aquatics, 2004, 2005). Further baseline data collection is proposed for the 2006 field season. Long-term monitoring will follow the format outlined in this document during the construction, operation and closure phases. In addition to surface water monitoring, sediment, benthic invertebrates and fish will be monitored as part of the AEMP. Under MMER regulations, sediment sampling is required for total organic carbon (TOC) and particle size and recommended for metals analysis. All sediment variables will be analyzed as part of the AEMP because sediment acts both as a sink for deleterious substances and an important resource for benthic invertebrates.	Environmental Effects Monitoring and Follow-Up Program	10.6
930	10.6 Aquatic Effects Monitoring Program Other organisms that are often monitored for long-term environmental impacts, such as periphyton, phytoplankton and zooplankton, will not be monitored for the Galore Creek AEMP.	Environmental Effects Monitoring and Follow-Up Program	10.6
931	10.6 Aquatic Effects Monitoring Program In addition to the Aquatic Effects Monitoring Program required under MMER, groundwater elevation and water quality will also be monitored to assess the effects of project activities on groundwater (see Section 10.6.7).	Environmental Effects Monitoring and Follow-Up Program	10.6
934	10.6.3 Toxicity Testing (Acute and Chronic) [a component of the Aquatic Effects Monitoring Program] Toxicity testing will be conducted in accordance with the guidance within the MMER and adapted to fulfil the requirements set by the Ministry of Environment to determine whether the effluent has the potential to affect aquatic life based on tests with fish, invertebrates, algae and plants. Acute toxicity tests will initially be conducted monthly using rainbow trout fry (<i>Oncorhynchus mykiss</i>) and the waterflea, <i>Daphnia magna</i>. Chronic toxicity tests will be conducted twice a year on rainbow trout embryos, spiny waterflea (<i>Ceriodaphnia dubia</i>), common duckweed (<i>Lemna minor</i>), and a species of green algae (<i>Selenastrum capricornutum</i>). All toxicity tests will be conducted in accordance with procedures described by Environment Canada (1992a, 1992b, 1999, 2000). A summary of the data collected in the monitoring programs outlined in section 10.6.1 to 10.6.6 will be included in an annual [AEMP] report.	Environmental Effects Monitoring and Follow-Up Program	10.6.3

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Commitment Number	Commitment Text	Source Document File Name	Section
935	10.6.4 Sediment Quality [a component of the Aquatic Effects Monitoring Program] Sediment will be sampled once annually, in conjunction with benthic invertebrate and fish sampling, to monitor the potential accumulation of deleterious substances with respect to baseline conditions and to assess TOC and particle size for potential habitat differences important to the benthic invertebrate communities. Sampling will take place at all but four of the sites that are being sampled for water quality. A list of sediment test variables is presented in Table 10.6-3. A summary of the data collected in the monitoring programs outlined in section 10.6.1 to 10.6.6 will be included in an annual [AEMP] report.	Environmental Effects Monitoring and Follow-Up Program	10.6.4
936	10.6.5 Benthic Invertebrates [a component of the Aquatic Effects Monitoring Program] Benthic invertebrate communities will be sampled in the Mine Area and the area surrounding the Filter Plant because these are the two areas where effluent will be discharged into the aquatic environment. Waterbodies along the Access Corridor and near the Aerodrome will not be sampled because no discharges are planned, therefore no effects on the benthic invertebrate communities are expected. Benthic invertebrate sampling will occur in late summer when benthic communities are at their richest (prior to the majority of emergence) and will correspond to sediment and fish sampling periods. A summary of the data collected in the monitoring programs outlined in section 10.6.1 to 10.6.6 will be included in an annual [AEMP] report.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.6.5
937	10.6.6 Fish [a component of the Aquatic Effects Monitoring Program] As is the case for benthic invertebrates, fish will only be sampled in watersheds that receive effluent discharge and their corresponding reference watersheds. Fish sampling will therefore not take place at sites associated with the Access Route and Aerodrome, since no significant effects to the fish communities are expected from activities in these areas. Fish sampling will occur on an annual basis at Gal-3, Ref-2, Isk-0 and Isk-1 in late summer. Fish sampling will not occur in the Scud Watershed because no resident species exist in the main channel. Fish community surveys will determine whether the mine is affecting fish in terms of growth, condition, reproduction or survival by comparing results with baseline data. Data will be collected on fish size (length and weight), age (scale, fin ray and otolith analysis), catch-per-uniteffort (CPUE), sex, gonad weight, egg size, fecundity, liver weight, external condition and tissue metal analysis. Studies will concentrate on Dolly Varden (<i>Salvelinus malma</i>), which were found at all four sites, and mountain whitefish (<i>Prosopium williamsoni</i>), which were found at Isk-0 and Isk-1 (Rescan, 2005b). Fish communities will be sampled using a combination of backpack electrofishers, minnow traps and beach seining. Under MMER guidelines, mines do not have to conduct fish tissue analysis if levels of mercury in the effluent are less than 0.1 ?g/L, as determined during the effluent characterization and water quality monitoring program (see Section 10.6.2). A summary of the data collected in the monitoring programs outlined in section 10.6.1 to 10.6.6 will be included in an annual [AEMP] report.	Vol 3 - (FR) - Chap 10 - Environment Effects Monitoring & Follow-up Program	10.6.6
938	10.6.7 Groundwater Monitoring [a component of the Aquatic Effects Monitoring Program] Groundwater samples and elevations will be collected from the existing and proposed monitoring wells. Table 10.6-4 summarizes the locations of the existing groundwater monitoring sites and lists the proposed monitoring wells. A summary of the data collected in the monitoring programs outlined in section 10.6.1 to 10.6.6 will be included in an annual [AEMP] report.	Environmental Effects Monitoring and Follow-Up Program	10.6.7
939	10.6.8 AEMP Follow-up A summary of the data collected in the monitoring programs outlined in section 10.6.1 to 10.6.6 will be included in an annual [AEMP] report. Trend analysis of these data will be conducted for the detailed report completed every three years except in situations where a more frequent analysis is prescribed by permitting requirements.	Environmental Effects Monitoring and Follow-Up Program	10.6.8
940	[This is a nice list of all the Management Plans] The environmental management system is comprised of a series of written plans outlining the scope of environmental management proposed for the Project. Specific plans will be finalized for: • Air Emissions and Fugitive Dust; • Water Management; • Tailings and Waste Rock; • Pipelines; • Filter Plant and Concentrate Loadout; • ML/ARD Prediction and Prevention; • Access Corridor Preliminary Acid Rock Drainage; • Materials Management; • Erosion Control and Sediment; • Spill Contingency and Emergency Response; • Fish and Fish Habitat; • Wildlife Management; • Domestic and Industrial Waste; • Access Road; • Aerodrome and Aircraft Operations; and, • Archaeological and Heritage Site Protection.	2007_CompStudyReport_CEEA (follow-up references)	4.2
941	4.3 ISSUES RAISED AND PROPONENT RESPONSE In response to comments, the Proponent prepared a report to update long-term water quality predictions for the pit (see discussion above in section 4.2). The Proponent will develop a long-term water quality management program at closure during the permitting stage, which will ensure compliance with discharge permits and address long-term closure goals. Water quality will continue to be monitored until regulatory agencies determine that the site conditions are stable and predictable.	Galore Creek Copper-Gold-Silver Project Assessment Report /CSR	4.3

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942	4.3 ISSUES RAISED AND PROPONENT RESPONSE..con't. U.S. federal and Alaska State agencies support adding an additional monitoring site downstream on the Stikine River. The Proponent has committed to add an additional monitoring site downstream on the Stikine River in Alaska at a depositional site to be determined during permitting. U.S. federal and Alaska State agencies will be invited to review and comment on the Proponent's permit applications when specific details on monitoring will be discussed.	Galore Creek Copper-Gold-Silver Project Assessment Report /CSR	4.3
943	4.3 ISSUES RAISED AND PROPONENT RESPONSE..con't In response to comments from government agencies and the Tahltan Heritage Resource and Environmental Assessment Team, the Proponent has committed to assess during the permitting stage potential water treatment options (including, but not limited to, a water treatment plant) for operations and post closure, which are currently not expected to be necessary.	Galore Creek Copper-Gold-Silver Project Assessment Report /CSR	4.3
944	4.3 ISSUES RAISED AND PROPONENT RESPONSE..con't In response to comments from U.S. federal agencies, the Proponent has committed to monitor for polycyclic aromatic hydrocarbons in the lower Galore drainage and on the Stikine River below the mouth of the Scud River on an annual basis. In the event of an uncontained spill, the Proponent will implement a more frequent polycyclic aromatic hydrocarbons sampling program and report its results.	Galore Creek Copper-Gold-Silver Project Assessment Report /CSR	4.3
980	2.1 System Description The slurry pipeline system will transport an average of 2000 dry metric tonnes per day (t/d) of copper concentrate. The proposed system has a 135 km long, 7.625 inch outside diameter steel pipe with 0.25 inch high density polyethylene (HDPE) liner. One pump station with a single piston diaphragm slurry pump (plus one standby) will provide the motive power to transport the slurry at a rate of 108 cubic meters per hour (m3/hr) at concentration of 57 weight percent (wt%). The pipeline has been oversized (i.e., its full-flow operating capacity is ~2600 t/d) in order to decrease the operating pressure sufficiently to eliminate the booster pump station. The table below summarizes the developed system design. The sections below provide a more detailed comparison of the proposed key elements of the system design. Parameters Value Pipeline Design Throughput (t/h) 87.7 Pipeline Design Flow Rate (m3/h) 108 Design Slurry Concentration (wt% solids) 57 Slurry Agitated Tank1 Capacity at the Mine (m3) 570 x 2 Slurry Agitated Tank1 Capacity at the Filter Plant (m3) 570 Pipe Outside Diameter (mm) 194 (7.625") Pipe Material Steel Average Pipe Wall Thickness (mm) 6.9 (0.271") HDPE Liner Thickness (mm) 6.35 (0.25") Pipe Length (km) 135 Quantity of Pipe Steel (tonnes) 4,360 Flange Rating (ANSI Class) 2500/1500/150 Number of Pump Stations 1 Number of Pumps per Pump Station 1 operating 1 standby Maximum Pump Station Discharge Pressure 300 Bar Total Pump Operating Power (kW) 1100 Total Water Use per Year (m³/y) 816,000	novaGold_2006_Overland Pipelines Detailed Feasibility Study by PSI	2.1 System Description
981	Constructability Construction of the pipeline will be performed in an environmentally conscious manner and, as discussed herein, special construction techniques will be applied to environmentally sensitive areas. These techniques will be established during the detailed design phase of the project and embodied in the contract documents. Compliance with relevant project standards will be ensured through the presence of an environmental coordinator during the pipeline construction.	novaGold_2006_Overland Pipelines Detailed Feasibility Study by PSI	2.6 Constructability
982	Constructability Scheduling the construction of the proposed concentrate pipeline system will be difficult with a narrow single-lane access road and the mine also under construction. The need to keep the road open to traffic and restricted camp capacity are of particular concern. However, with early recognition of the degree of difficulty and with proper planning, including refinement of the route selection, the pipeline can be constructed within a predictable cost and schedule while mitigating impacts to the environment.	novaGold_2006_Overland Pipelines Detailed Feasibility Study by PSI	2.6 Constructability
983	2.7 Conclusions The Galore Creek copper concentrate pipeline is considered to be technically feasible. Existing mineral slurry pipelines have operated successfully and have demonstrated that, with qualified personnel and adherence to operating procedures and maintenance programs, high reliabilities can be achieved in comparison with other transportation methods such as railroad or trucking. The selected systems are adequately conservative, such that they should be able to withstand normal design changes as the project advances.	novaGold_2006_Overland Pipelines Detailed Feasibility Study by PSI	2.6 Constructability

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985	3.0 ROUTE DESCRIPTION The route of the pipeline will essentially follow the Northern route developed by PSI during the previously completed pipeline conceptual study, although the route has changed somewhat to avoid geo-hazards and to maintain the slopes required. Key parameters of the developed profiles include: Variable Selected Route Start Elevation 672 masl End Elevation 645 masl Lowest Elevation 186 masl (KM 25.9) Highest Elevation 1267 masl (KM 60) Net Difference in Elevation -27 m Distance 135 km The overall pipeline is “flat” (i.e., negligible static head), so all of the head requirement will need to be provided by the mainline pump. The dominant feature of the pipeline route is the 1000m deep valley between KM 8.5 and KM 60.4. While the valley will cause high operating pressures at the bottom of the valley and transients as batches move through the valley, this is not unusual for long distance slurry pipelines. The final route represents a reasonable basis for the ±15% cost estimate compromises construction and environmental issues to produce a conservative selection. (Note: The pipeline route distances used in this report are based on distance from the main pump station. These should not be confused with the road distances, which are measured from highway 37.)	novaGold_2006_Overland Pipelines Detailed Feasibility Study by PSI	3.0 Route Description
989	9.2.4.3 Pipeline Crossings Cased crossings will not be used. At river or major aerial stream crossings, a low design factor (72% of SMYS) will be used (thicker pipe wall thickness). Preliminary route review has resulted in the selection of aerial crossings for some of the rivers, buried crossings for some of the rivers, and possibly a horizontal direction bore for a few river crossings. Guidelines will be prepared for the buried and direction drilling crossings.	novaGold_2006_Overland Pipelines Detailed Feasibility Study by PSI	9.2.4.3 Pipeline Crossings
990	9.2.4.6 Cover The pipeline will be buried with minimum cover of 1.6 m (frost depth) except in areas requiring deeper burial for geo-technical reasons.	novaGold_2006_Overland Pipelines Detailed Feasibility Study by PSI	9.2.4.6 Cover
991	10.1 Environmental Issues 10.1.1 General Long-distance transportation of mineral slurry via pipeline is a commercially proven, reliable delivery method. As with oil and gas pipelines, the total environmental impact and risk of impact is less than alternate transportation methods (i.e., rail or truck hauling). The proposed Galore Creek copper overland pipelines will create less impact and lower risk exposure than the practical alternates. The narrow (single lane) winding access road and weather conditions exacerbates the problems related to trucking. It is anticipated that an Environmental Impact Assessment (EIA) or risk assessment for the project will demonstrate that the pipeline is the preferred transport method. (Note that the EIA for Galore Creek is currently underway but was not available for review during the development of this report.) Against this backdrop, a key design/construction objective for the project is to mitigate the impact of all project activities. Specific issues and methods are discussed below.	novaGold_2006_Overland Pipelines Detailed Feasibility Study by PSI	10.1.1 General [Environmental Issues]
992	5.2.1 Location Plan with Site Layout NovaGold proposes to develop the Galore Creek copper-gold-silver resources by using conventional truck and shovel mining methods and crushing/grinding/flotation processes to extract copper and precious metals to a bulk concentrate for shipment to an off-site smelter. A slurry pipeline will transport copper concentrate to a filter plant near Highway 37 where it will be de-watered for transport by truck to Stewart. A small diameter diesel pipeline will transport diesel fuel from the filter plant to the mine site, paralleling the concentrate pipeline.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.2.1
999	5.4.5 Total Resource Overall, the known mineralized zones at Galore Creek have a measured and indicated resource, at a copper equivalent cutoff of 0.35%, of 516.7 million tonnes grading 0.596% copper, 0.358 g/t gold and 4.54 g/t silver. At a copper price of US\$0.90/lb, a gold price of US\$375/oz and a silver price of US\$5.50/oz this resource has an in situ contained value of 8.8 billion dollars. The inferred resource at a copper equivalent cutoff of 0.35% contains 413.5 million tonnes grading 0.433% copper, 0.371 g/t gold and 3.24 g/t silver. The current mine plan is based on extracting 493.9 million tonnes of these resources.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.4.5
1000	5.5.1 Geotechnical Evaluation BGC Engineering Inc. provided NovaGold with feasibility level open pit slope design parameters based on historical reports and field data collected in the 2004 and 2005 field seasons. The current data sources and resultant information are: • NovaGold geology interpretation from the drill hole database used to create the mineralized zones and host rock types; • structural mapping to model regional faults, local bedding, sills, intrusions, and contacts; • geology logs and core samples for rock analysis and testing including petrographic analysis, point load and uniaxial compressive strength testing and direct shear testing; • oriented core measurements (Ezy-mark, Ball mark and acoustic televiewer) for down hole structural mapping; • 11 specific geotechnical boreholes as described in Table 5.5-1 and Figure 5.5-1; • geophysical surveys including two shear wave lines and seven seismic refraction lines; • airphoto interpretation / geohazard assessment of the mine site; • 10 piezometer installations for groundwater monitoring; • 26 hydraulic tests (rising head, falling head, and constant flow packer tests for ground water flow; and estimates of hydraulic conductivity.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.5.1
1001	5.5.1.1 Pit Slope Stability Current designs assume both vertical and horizontal dewatering wells and drains will be installed as part of mining operations.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.5.1

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Commitment Number	Commitment Text	Source Document File Name	Section
1004	5.5.4.1 Pre-Stripping Ore grade material is available near surface, and, from a mill supply perspective, requires very little pre-stripping to feed the plant at design rates. Mining activity in the start-up period at Galore Creek will instead be driven by infrastructure construction requirements and ultimately, will be further influenced by the design characteristics of the material required for these features. The main mining-related site features being constructed during start-up will be the coffer dams, main tailings dam, the freshwater diversion structure, aqueduct, diversion channels and spillway, and mining haul roads. About 70 million tonnes of pre-stripping material will be used for construction of the main tailings starter dam. Much of the till will be used to construct the mill stockpile pad, discussed in Section 5.5.9. The remainder of the waste will be disposed of in a manner consistent with the project’s waste rock storage strategy.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.4.1
1005	5.5.5.2 PAG and Not-PAG Segregation [under subheading "Ore Grade and Waste Control", which mostly speaks to ARD management during pit development]. Using fairly conservative criteria, approximately half the designated waste rock is expected to be not potentially ARD generating (not-PAG or NPAG) and half will be PAG (potentially ARD generating). Work to date suggests that PAG waste rock occurs in large blocks in well-defined areas. It is therefore possible that waste rock can be segregated based on acid generation potential. Not-PAG and PAG rock will be separated to allow subaqueous disposal of the PAG and use of the not-PAG for tailings dam and other facilities construction. Substantial quantities of not-PAG rock will be available early in the life of the project for dam construction.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.5.2
1006	5.5.6 Mine Road Construction and Maintenance Haul roads will be required between active pit faces, separate overburden, PAG and not-PAG dump and ore storage areas, the plant site crusher and dam sites. Roads will also be required parallel to diversion channels to permit access for maintenance. The length of required active haul roads on the site will vary over time from 20 to 50 km. Where possible, long hauls will be confined to the summer months, allowing shorter hauls and consolidation of equipment during the winter snow season.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.6
1007	Pit ramps will be designed for maximum grades of 8%.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.5.6
1008	Haul roads will be constructed to meet the requirements of the Health, Safety and Reclamation Code for Mines in British Columbia, including a travel width for single lane traffic of at least two times the width of the widest haulage vehicle used on the road and for dual lane traffic a travel width of not less than three times the width of the widest haulage vehicle used on the road (Figures 5.5-17 and 5.5-18).	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.6
1009	Shoulder barriers along the edge of the haulage road will be at least 3/4 of the height of the largest tire on any vehicle hauling on the road wherever a drop-off greater than 3 m exists. The width of the barrier is excluded from the travel width. The design basis uses the following data: Largest Vehicle Overall Width (CAT 797B) 9.8 m Maximum Tire Height (59/80R63) 4.0 m Minimum Haul road outside berm height 3.0 m Minimum Shoulder / Berm Width 4.9 m Double lane highwall haul road allowance 34.2 m Double lane external haul road allowance 39.0 m Single lane highwall haul road allowance 24.4 m Single lane external haul road allowance 29.3 m	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.6
1012	The project mill feed target is an average 65,000 t/d or 23,725,000 t/a.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.5.10
1013	Mining Equipment An electric blast hole drill was selected as the primary drill on the basis of discussions with manufacturers and suppliers with reference to experience in mines with similar rock conditions. A diesel blast hole drill is proposed for the satellite pits due to their mobility and flexibility. A track drill will be used for controlled blasting and development of initial upper benches.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.11
1014	Mining Equipment The primary shovel will be a large electric rope shovel suitable to meet the high throughputs requirements of the Central pit. A diesel hydraulic shovel will be used for the smaller pits. A wheel loader will be used primarily for stockpile retrieval, but will be available to assist the shovels as required.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.11
1015	Mining Equipment Haul trucks with 345 tonne payload capacity were selected to haul all materials from the pits.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.5.11
1016	5.5.12 Explosives Storage, Handling and Use Table 5.5-12 provides an estimate of the annual explosives use at the Galore Creek mine over mine years -2 to 20. Explosive type will likely be ammonium nitrate (AN) base emulsion. Ignition systems will likely include Cordtex AP detonating cord, Pentex AP 16 boosters, Exel MS detonators and Exel MS connectors.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.12

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
1018	Table 5.5-12 Estimate of Annual Explosives Consumption Project Year Explosives (Kg) Year -2 4,091,998 Year -1 4,091,998 Year 1 6,478,923 Year 2 9,810,075 Year 3 12,062,357 Year 4 11,775,036 Year 5 10,489,922 Year 6 13,602,326 Year 7 10,266,131 Year 8 10,758,528 Year 9 12,646,380 Year 10 15,240,221 Year 11 14,914,148 Year 12 9,039,014 Year 13 13,029,111 Year 14 9,926,086 Year 15 7,681,613 Year 16 4,229,189 Year 17 13,669,742 Year 18 9,342,216 Year 19 13,484,570 Year 20 4,740,228	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.5.12
1020	NovaGold has chosen to construct a concentrate slurry pipeline from the mine to a filter (or dewatering) plant near the junction of the mine access road and Highway 37 and to haul dewatered concentrate by truck from that point to Stewart. Although this alternative adds significant capital cost to the project, it has a lower life of mine operating cost than other alternatives, reduces dependency on the access road during difficult winter weather periods, reduces traffic on, and environmental impacts of, the access road and greatly reduces the risk of accidents on the road.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7
1021	A second pipeline, to transport diesel fuel to the mine site from Highway 37, will be constructed parallel to the concentrate pipeline to further reduce the mine's dependence on daily road access. This small pipeline will eliminate the requirement for diesel tanker truck traffic on the access road, reduce the weekday traffic volume on the road by a further 10%, reduce the potential for diesel spills due to accidents and improve project safety.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7
1022	5.7.1 Concentrate Pipeline Pipeline Systems Inc. (PSI) was engaged to perform a conceptual study of the slurry pipeline transportation system to assess technical feasibility and develop order of magnitude cost estimates for the system. The design criteria used by PSI for the study were: • throughput of 1,000 to 2,000 t/d (design hourly throughput of 87.7 t/h at 95% availability); • pipe length about 130 km.; • specific gravity 4.2; • solids concentration 52 to 58%; • pH 10; and • slurry temperature 15°C at the pipe inlet and minimum 5°C in the pipe.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.1
1023	The pipeline system will incorporate concepts, equipment and operating conditions proven in currently operating slurry pipelines. Design of the system from a safety standpoint will be guided by the latest American Society of Mechanical Engineers (ASME) B31.11 Slurry Transportation Piping Systems code.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.1.1
1024	The slurry will be pumped using large piston diaphragm pumps. There will be two pump stations; one at the plant site plus a booster station near the headwaters of Sphaler Creek. Two pumps will be installed at each site, one for operation and a second for standby.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.1.1
1025	The pipeline will be buried over its entire length to a depth in compliance with ASME B31.11. Depths will range from 1.6 to three metres depending upon the geotechnical risks at each site, with deeper burial proposed for sites, such as potential debris flow channels, with higher risk. The alignment will generally be under the access road ditch, but minor diversions will be required to maintain appropriate grades to avoid the settlement of solids in low points during shut downs. Directional drilling will be used to install the pipeline under four streams and it will be attached to bridges for another 19 crossings (Table 5.7-1). Elsewhere it will be buried in a trench under the crossing. Where the pipeline is attached to bridges it will be insulated to prevent freezing.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.1.1

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1026	At expected normal production levels slurry will be pumped through the pipe using large piston diaphragm pumps in batch mode with three batches in the pipeline at any time. Over 660,000 cubic metres of water will be used each year in the slurry and as batch water and will be discharged, after treatment, from the dewatering facility. The pipe will be high density polyethylene (HDPE) lined welded carbon steel with a nominal 7.625-inch (168.3 mm) outside diameter and varying wall thickness.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.1.1
1027	In a planned short-term shutdown, or in an emergency shutdown, the pipeline will be assumed to be full or partially full of slurry. The pumps will be stopped and the terminal valve closed. The shutdown sequence will be programmed in the Supervisory Control and Data Acquisition (SCADA) system software, such that this action can be quickly and safely executed (emergency stop).	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.1.1
1028	However, commercial operating experience indicates that slopes less than 15% do not present a risk to pipeline plugging during shutdowns.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.1.1
1029	5.7.1.2 Protection System [for the pipeline] The pipe would have five pressure monitoring stations, one at the mine pump station, three at intermediate monitoring stations and one at the terminal station to support pipeline operations and for leak detection. The monitoring stations will be powered by independent propane-fuelled generators (2 kW each). The leak detection system will issue a warning and predict the location of a leak within 2 to 15 minutes of an occurrence. The principles of leak detection are a comparison of the flow rates, pressures and densities along the pipeline based on the flow regime in the line and the position of the pipeline valves.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.1.2
1030	Isolation valves will not be installed along the line. Experience elsewhere has shown that isolation valves in concentrate slurry pipelines disturb the flow pattern of the slurry, causing extensive scouring and abrasion leading to pipe failures	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.1.2
1031	The pipeline will be equipped with a full cathode protection system supplementing the external corrosion protection pipe coating. The system will consist of rectifiers at each pump station and at the terminus of the line. Sacrificial anodes will be used to supplement the anti-corrosion system. The pipeline will be insulated at exposed creek and river crossings. The buried sections of the line will not require insulation.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.1.2
1032	A 1,200 m3 internally supported covered tank will be constructed near km 115 of the access road at the low point of the pipeline in the Lower Sphaler Creek area to provide an emergency drain point in case the pipeline has to be shut down (Figure 5.7-2).	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.1.2
1033	5.7.2 Filtration, Storage and Loadout Facility 5.7.2.1 Location The filter plant will be located at the terminus of the concentrate slurry pipeline, adjacent to the access road approximately three kilometres west of Highway 37 (Figure 5.2-4).	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.2.4
1034	5.7.2.2 Plant Layout and Process The filter plant will be equipped to de-water the concentrate and treat all water received at the plant through the slurry pipeline prior to discharge. Consequently, the filter plant will include water treatment facilities to ensure that the discharge water is clean and readily meets discharge criteria.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.2.2
1035	5.7.2.3 Water Treatment and Discharge The federal Metal Mine Effluent Regulations state that the maximum total copper concentration must not exceed 0.3 mg/L at the discharge point (end of pipe). The provincial objectives state that the dissolved copper concentration must not exceed 0.05 mg/L. Thus, additional treatment is necessary to depress the dissolved copper concentration from 0.21 mg/L to below 0.05 mg/L by raising pH. Laboratory tests were conducted to determine the effect of raising the pH and the quantity of lime required. For a design flow rate of 60 m3/h (16.7 L/s), it has been determined that approximately 113 kg/day of lime needs to be added to the agitated filtrate tank prior to the clarifier/thickener to raise pH from 7.5 to 10.8. If lime treatment is necessary a reaction time of 15 to 30 minutes will be required. After lime addition, the filtrate water will be at pH 10.8. Provincial regulations state that the maximum allowable pH of an effluent is 8.5 so the pH must be adjusted before discharge. For a filtrate liquid design flow of 60 m3/h, it is estimated that approximately 39 L/d of concentrated H2SO4 will be required to neutralize the treated filtrate. Neutralization will be accomplished with a metering pump controlled by a downstream pH sensor and transmitter. After neutralization, the treated filtrate will meet the Provincial (end of pipe regulations) for pH. The proposed water treatment process and treated water discharge system are described in more detail in Appendix 5-H, Conceptual Water Treatment Design for Concentrate Filter Plant Water. The clean water will be pumped through a 15 cm diameter HDPE pipeline, buried for much of its length alongside the concentrate pipeline, to the Iskut River where it will be discharged through a pipeline and diffuser system. To meet the receiving water quality criterion of 0.002 mg/L during the critical low flow period, a dilution of approximately 120:1 is required for an effluent at 0.02 mg/L.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 1-143_RC	5.7.2.3
1036	A site for the diffuser has been identified at a relatively straight and narrow reach of the river approximately five kilometres upstream of the confluence of the Iskut River and More Creek and two kilometres downstream of the Iskut River Hot Springs (Figure 5.7-6). This point is advantageous because it is: • a relatively high velocity reach providing good mixing; • less important fish habitat than areas downstream because the bottom materials are less suitable for spawning in comparison with the areas downstream; • located in close proximity to the filter plant requiring a short pipeline; and • relatively easy access providing a feasible route for the pipeline and access road.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.7.2.3

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1037	Diffuser design was undertaken with the United States Environmental Protection Agency’s “PLUMES” suite of models to assess combinations of port size, port spacing and vertical angle. A maximum diffuser length of 24 m, one half the low-flow river width, is allowable. A selection of the diffuser configurations modelled and the results are presented in Table 5.7-2. Preliminary calculations for a 20 m long diffuser with 40 ports spaced at 0.5 m intervals show that in average flow conditions the diffuser will provide a dilution of 256:1 within 25 m of the diffuser. A dilution of 144:1 will be attained within 7 m downstream of the diffuser at annual low flow conditions – in excess of the 120:1 target. Target dilution (120:1) for the 7-day Q10 will be achieved within 700 m downstream. The diffuser will be fabricated of steel and will be installed below the stream bed with risers to minimize hydrodynamic forces on the structure. The diffuser will discharge within, and span less than one half of, the low flow channel.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.7.2.3
1038	5.7.2.4 Concentrate Storage The concentrate storage shed (Figure 5.7-4) will have a capacity to hold up to 12,100 t of concentrate or approximately 7 days of production. It will have a concrete floor to prevent soil and groundwater contamination by the concentrate.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.7.3
1039	5.7.3 Concentrate Truck Haul Concentrate will be hauled by trucks to Highway 37 and along Highways 37 and 37A to the Port of Stewart. The junction of the mine access road with Highway 37 will be designed to meet Ministry of Transportation requirements for safe ingress and egress of heavy vehicles to/from the public highway. The number of truck loads per day over the life of the project will range from 25 to 50 depending on concentrate production.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.7.3
1040	A wash-down system will be provided to ensure that no concentrate spillage is tracked out of the facility by the trucks, regardless of which loading system is selected. Concentrate trucks and trailers will have tarpaulin or composite covers to reduce loss of concentrate due to dusting while underway.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.7.3.2
1041	5.7.3.3 Highway and Stewart Traffic Evaluation The Galore Creek mine production will add 25 to 50 additional heavy duty two way truck trips along the Highway 37/37A corridor and through the community of Stewart each day for concentrate transportation alone. A further 20 two way truck trips will be required for reagents, grinding media, explosives components and other supplies. Most of this latter traffic will bypass Stewart.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.7.3.3
1042	5.7.4 Port of Stewart Stewart Bulk Terminals Ltd. is located in the community of Stewart at the head of the Portland Canal. It is a privately owned and operated facility with a berth length of 244 m and a maximum depth alongside of 12.2 m. It is equipped with a fixed conveyor swing boom loader capable of a loading rate of 750 t/hour of concentrate and 800 t/hour of rock. The boom height is 19.1 m above high water level and 21 m above low water level. The boom's reach is 15.2 m from dockside.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.7.4
1043	5.7.4.1 Operation The existing terminal at Stewart has two concentrate storage sheds with a capacity of 25,000 t and 15,000 t. The Eskay mine, which currently uses the port, has announced that it will cease production within 2 years. Various plans to transport concentrate from the Kemess mine and bcMetals’ proposed Red Chris mine and coal from Fortune Minerals’ proposed Klappan mine have been suggested, but there are no definite plans as yet. On this basis, it has been assumed that it will not be necessary to construct additional concentrate storage facilities at Stewart. Preliminary discussions with the terminal owner indicate that there is space available for currently projected production and that approval is in place to construct an additional concentrate storage shed if required. It is likely that additional truck wheel wash and containment facilities will be installed prior to Galore’s start-up.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.7.4.1
1044	5.7.4.3 Shipping Schedule At a production level of 65,000 t/d and expected ore grades, the Galore Creek mine will produce between 1,500 and 1,900 t/d of concentrate. Parcel sizes for shipments from Stewart will vary between about 6,000 tonnes to about 26,000 tonnes, requiring two to four ships per month.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.7.4.3
1048	5.8.2.1 Supply and Storage Fire water for the plant site will be stored in the dedicated lower section of the 15 m diameter x 15 m high steel freshwater tank (Figure 5.8-1). The upper section of this tank will provide the supply for the gland service and fresh water system. The fire water portion of the tank will provide a two hour capacity consistent with the National Fire Protection Association (NFPA) guidelines. The fire water system will consist of the supply pumps, including a self-contained diesel-powered unit, and a system of hydrants and fire hoses distributed throughout the plant site. The system will be consistent with National Fire Protection Association (NFPA) guidelines and Canada fire protection regulations.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.8.2.1
1049	5.8.2.2 Fire Water Protection Against Freezing Fire water supply pipes leading from the freshwater tank will be buried below the frost line to protect against freezing.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.8.2.2
1050	5.8.3 Process Water Process water will be made up from water pumped from the pit perimeter and in-pit dewatering wells, and concentrate and tailings thickener overflow (Figure 5.8-1). Tailings water will be recycled to the process if required to make up volume. Process water will be stored in a 17 m diameter x 19 m high steel tank and supplied to the distribution points by pumps. In addition, a small process water reservoir will be constructed near the mill and equipped with a reclaim pump.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.8.3
1051	5.8.3.1 Freshwater Requirements and Storage Freshwater requirement will be in the order of 1,250 m3/h. Freshwater for firewater and gland seal water will be supplied from the process water reservoir. Freshwater will be stored at the plant site in the 15 m diameter x 15 m high, steel freshwater tank, from whence it will be distributed.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.8.3.1
1052	5.8.3.2 Reclaim Water Concentrate and tailings thickener overflow will be recycled within the plant as process water via the process water reservoir or process water tank (Figure 5.8-2). Tailings water will be reclaimed as required for process water make up.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.8.3.2

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Commitment Number	Commitment Text	Source Document File Name	Section
1053	5.9.3 Design Criteria 5.9.3.1 Geotechnical Design Criteria Table 5.9-1 lists some of the important design criteria and assumptions which form the basis for feasibility level geotechnical designs of the tailings and waste impoundment (including the diversions and plant site). Additional general assumptions are as follows: • Tailings will be stored in a cross-valley impoundment; • tailings will be retained behind a tailings dam to be built using the downstream method of construction; • the tailings dam will be a rockfill dam with a bituminous liner on the upstream face, a central impervious core and filters. The dam shells will be built of waste rock hauled and placed by the mine fleet; • at the end of the mine life, the tailings impoundment is sized to store all 475 million tonnes of tailings and 489 million tonnes PAG waste rock such that this waste will be flooded at the end of the mine life; • the PAG and not-PAG can be separated for the purpose of using not-PAG for dam construction; • volume elevation curves for the tailings pond area, waste dump area and the entire tailing/waste impoundment area were based on a 5 m contour interval map based on 2004 Eagle Mapping Topography; and • tailings dam crest elevations were determined assuming no beaching losses but elevations are generally controlled by water levels.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.9.3
1054	5.9.3.2 Hydrologic Design Criteria The hydrological design criteria are based primarily on the Canadian Dam Safety Guidelines for water storage facilities, the Canadian Dam Safety Association (1999) Guidelines, and the Province of BC regulatory requirements. The following hydrologic design criteria were used for this project. 1. Storage of water within the tailings pond: For every year of operation, contingency will be provided to allow storage of all water inflows such as tailings supernatant, winter flows and freshet runoff for a nine month period (16th October to 15th July), if required. This will allow monitoring of water quality within the tailings pond before release. The dam is designed to contain the 1 in 200 wet year volumes. If water quality in the pond is acceptable for release, pumping will commence as soon as flow conditions in the Galore Creek Valley allow. Outflow from the tailings pond will be controlled by pumping. Pumped outflows from the impoundment will follow a paced discharge, simulating the natural flow hydrograph of Galore Creek. It is anticipated that pumping will only occur from 15th May to 15th October in each year, however, the pumping period will be extended if hydrological conditions allow. There will be no pumped outflow from the tailings pond during low flow periods during winter months. During the first year of operations additional storage will be provided, to allow extra time for ongoing monitoring of the pond water quality. During the first year of operations the starter dam will be designed to provide the capacity to store all inflows for a 19 month period (i.e. storage from start-up of the mill on 1st November 2010 until 12th May 2012), covering two winter periods and summer flow season. Runoff volumes are designed for a 1 in 200 wet year condition. 2. Sedimentation ponds. Ponds will be sized to remove suspended sediment down to fine/medium silt sizes for the 10-year return period 24-hour flow. Emergency spillways for the sedimentation ponds will be designed for the 200-year return period event. 3. Diversion Channels. Channels will be designed for average flows from a 200-year 24 hour event with some allowance for snowmelt. Diversion channel sizes will allow snow clearance. 4. Tailings pond emergency spillway. The emergency spillway will be designed to pass the routed flow from a Probable Maximum Flood (PMF). Inflows will conservatively assume runoff due to failure of all diversion channels except those that will discharge directly into the open pits. The PMF was assumed to result from a Probable Maximum Precipitation (PMP) estimated to be 535 mm of rainfall in 24 hours with 375 mm occurring in the maximum 6 hour period. The inflow hydrograph derivation assumed wet antecedent conditions and included an allowance for snowmelt. A minimum 3 m emergency freeboard above the maximum calculated reservoir level will be required during the PMP.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.9.3.2
1055	5.9.3.3 Seismic Design Criteria The Galore Creek Project is situated in a seismically active area. The consequences of failure of the main tailings dam have been estimated as very high, using a scale recommended by the Canadian Dam Association (CDA). The CDA recommends that the usual minimum criteria for design of very high consequence dams be taken as the Maximum Credible Earthquake (MCE) if derived deterministically, or the 10,000-year return period event if derived probabilistically. The design of the main tailings dam was therefore based on an estimate of the Maximum Credible Earthquake. The waste dump slopes will be designed to resist earthquake forces without allowing catastrophic failures while allowing deformations.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.9.3.3
1056	5.9.4 Main Tailings Dam 5.9.4.1 Location The main tailings dam will be located in a relatively narrow section of the valley about 7 km north of the Central pit with a cross-valley placement. The left abutment is relatively steep with natural slopes ranging from 23 to 38 degrees from the horizontal. The right abutment has a slope angle of 40 degrees up to elevation 550 m and then flattens to 13 degrees above this elevation. This location, upstream of a deposit of lower Permian karstic limestone, has been optimized to achieve the maximum storage capacity with the least amount of embankment fill material.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.9.4.1
1057	5.9.4.3 Main Tailings Dam Design The Main Tailings Dam has been sized such that all the tailings solids and PAG waste rock will be flooded at the end of the mine life, creating a lake approximately 8 km long and 1.5 km wide within the Galore Creek valley. The dam slopes have been selected to meet or exceed recommended safety factors outlined by the Canadian Dam Association - 1999 Dam Safety Guidelines. The dam has also designed to allow some deformations, and prevent overtopping under the maximum credible earthquake, thus preventing loss of the freeboard. A cross section of the main tailings dam is depicted in Figure 5.9-3.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.9.4.3
1058	The tailings dam is a rockfill structure with an impervious (i.e. clay till) central core and a synthetic liner on the upstream face. A 369 m wide starter dam with a central core and upstream liner will be constructed initially. Once the starter dam is completed, the main dam will be raised in lifts of 3 to 26 m in a downstream direction, with the ultimate dam having a 30 m wide crest.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.9.4.3

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1059	5.9.4.4 Emergency Spillways To protect the integrity of the tailings dam, a series of emergency spillways will be constructed on the right abutment during the mine life. All spillways have been designed to pass the routed flow from a Probable Maximum Flood (PMF). Spillways constructed on the right abutment are intended to intersect the main diversion channel so that only one outlet to Galore Creek is needed. Spillways have not been considered in the left abutment because of steep topography (slopes up to 45 degrees).	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.9.4.4
1060	All spillways will have a 20 m wide channel invert. The spillway control section will either be excavated into rock or riprap and slush grout will be used to armour the control section of the spillway. Riprap will be used to armour the active flow part of any channel not cut into rock. The channel side slopes will be confirmed during final design.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.9.4.4
1061	5.9.4.5 Geomembrane Liner The main tailings dam will be constructed as a water retaining structure built in the downstream direction. The dam is designed with rockfill shells and an impervious central core (i.e. clay till) placed by contractor or mine haul fleet, spread and compacted.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.9.4.5
1062	5.9.4.6 Dam Height At the beginning of construction, a main starter dam will be constructed of waste rock materials. The main starter dam will be sized to contain the first two years of tailings production. The main tailings dam will be built progressively by downstream construction. To provide stability and resistance to earthquake forces the top of the dam will be 30 m wide and the base will be 1.2 km wide. The main tailings dam height over the life of the mine is depicted in Table 5.9-2.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.9.4.6
1063	5.9.4.7 Tailings Dam Construction The main tailings dam requires the placement of over 66 Mm3 of material over the life of the min. As with most tailings facilities, a construction strategy has been developed to progressively build the dam over the course of the mine life. An initial starter dam will be constructed and will be sized to accommodate two years of tailings. Lifts will be added to the starter dam incrementally until the maximum height of 275 m is achieved. The final dam height includes the requirement to ensure perpetual flooding of all potentially acid generating (PAG) waste placed in the Galore Creek Valley.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.9.4.7
1064	5.9.4.8 Borrow for Dam Construction Till borrow will be collected within the footprint of the tailings and waste rock area for the use as borrow in the impervious core of the main tailings dam and in some cases may be obtained from the overburden stripping from the open pit. Glacial till and glaciolacustrine deposits are widespread through the valley and in some locations are up to 80 m thick on the lower western slopes. Material for the sand and gravel filter zones and blanket drain will come from screened glaciofluvial deposits from the valley slopes. Mine pit waste sources from the Central pit will provide the not-PAG waste rock for the construction of the embankment shells. Larger not-PAG waste rock will be used as riprap armour.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.9.4.8
1065	To further reduce seepage out of the tailings impoundment, a grout curtain will be constructed under the impervious core of the dam. A 10 m wide, 100 m deep grout curtain was modelled assuming the curtain extends along the dam alignment. The results of these analyses showed that this cutoff reduced seepage to 146 L/s, or by 67%. Any seepage out of the tailings impoundment (from the dam and foundations) will be captured by the seepage collection system located immediately downstream of the main railings dam. All collected water will be pumped back to the pond, or released to the environment if water quality is met.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.9.4.10
1066	5.9.5 East Fork Diversion Structure [text not pulled in]	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.9.5
1067	5.9.6 West Fork Diversion Structure [text not pulled in]	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	NA
1068	5.9.7 Closure Concepts In concept, all the tailings and PAG waste rock within the tailings and waste impoundment will be flooded as well as the open pits below the pit lower lip in Galore Creek Valley (Figure 5.9-6). The approximate elevation of the flooded surface is 674.0 m, equivalent to the spillway invert elevation at closure. All not-PAG waste rock, located above the PAG waste or as higher elevation waste dumps above water will be reclaimed.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	NA
1069	5.10 Mine Area Water Management [text not pulled in]	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.1
1071	To support a safe and environmentally sound long term closure plan, the waste rock and tailings waste stream will be placed in a tailings and waste impoundment in the Galore Creek Valley. The tailings and waste rock will be stored separately, but adjacent to each other, and will be submerged behind an impermeable earth fill dam to form a lake approximately 8 km long and 1.5 kilometres wide upon closure (Figure 5.11-1). The intent will be to leave all the potentially acid generating (PAG) waste in a flooded condition for perpetuity.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.11
1076	5.11.1.2 In-Valley Dump The proposed in-valley rock dump will be located in the middle and upper valley of Galore Creek. The main dump will be immediately south of the proposed tailings pond, which will be contained by the main tailings dam. The dump will contain material originating from the rock stripping required during mine operation. At the end of the mine life, the waste dump will be approximately 4.2 km long, 1.4 km wide and range from 100 to 200 m above the existing valley bottom.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.11.1.2
1077	[within the in-valley waste dump] The PAG waste rock will be placed in the valley bottom below 674 m elevation, the ultimate spillway invert elevation or ultimate water level, so all PAG waste will be flooded at the end of the mine life. The not-PAG dumps will rise up the valley walls as required. The waste rock will be kept separate from the tailings and will not be 'co-mingled' with tailings. Waste rock lifts will be constructed upwards from the bottom of the valley.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.11.1.2
1078	Conceptual Design of In-Valley Dump A haul road will initially be built from the pit down to the plant site using waste rock, and down the valley to the main tailings dam area. The road to the tailings dam will advance down the west side of Galore Creek then cut across the valley to the east side before heading north into the tailings dam foundation area. The road fill across the valley is referred to as the waste dump divider and will eventually separate the tailings area from dump area.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.11.1.2

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
1079	5.11.1.3 North Junction Not-PAG Waste Dumps A series of not-PAG waste dumps have been proposed on the natural side slopes below the North Junction Pit. The dumps will be built as side hill structures on slopes varying between 0 to 45 degrees. The dumps will be built as wrap around dumps from the bottom up.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.11.1.3
1080	This monitoring should be initiated when the dumps are built on the glaciolacustrine deposits. Piezometers placed in the foundation soils will be used to monitor foundation pore pressures and the response to loading.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.11.1.3
1081	5.11.1.4 Tailings Handling and Storage Over the twenty year life of the Galore Creek Project, it is estimated 475 million tonnes (351.9 million m3) of tailings will be produced (Figure 5.11-3). At the end of the mine life, the tailings impoundment will be approximately 2.6 km long, 1.5 km wide and 200 m above the existing valley bottom.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.11.1.4
1084	Passenger buses will be used to transport workers from the mine to the Porcupine Aerodrome, or to Bob Quinn when the Aerodrome is not available due to inclement weather. A traffic study suggests that maximum supply traffic on the road will be about 19 vehicles each way per day once the mine is in operation. There will be additional traffic for maintenance and monitoring.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 144-235_RC	5.12.1.1
1104	Tunnel Closure The tunnel will be decommissioned on closure of the mine and decommissioning of the access road. If the quality of discharge waters would have adverse impacts on the water quality in the Galore Creek the portals will be plugged. Otherwise the portals will be made inaccessible to ensure the safety of humans and animals, but the overall integrity of the tunnel will be retained in case it is required for future use.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.1.10
1107	Provisioning campaigns will be considered prior to the onset of winter in order to ensure adequate supplies are on hand to continue normal operations if the road is closed for up to two weeks.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.12.2.2
1114	NovaGold proposes to construct a permanent aerodrome in the Porcupine River watershed to support road and tunnel construction and to provide ongoing air support for operation of the mine. A heavy lift heliport will be constructed near the West More Camp in the headwaters of West More Creek to support a road construction camp. Initial development of both sites will require use of heavy lift helicopters.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.1
1115	Detailed siting and construction of the Porcupine Aerodrome will attempt to avoid potential fisheries and wildlife impacts along the floodplain. Where such impacts cannot be avoided, mitigation and compensation measures will be initiated. The assessment to date suggests that the proposed location can avoid fish habitat.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.1
1116	Construction and operations plans will specifically address the management of fuel and de-icing fluids. Fencing may be required to avoid conflicts between aircraft and wintering moose.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.1
1117	The Porcupine Aerodrome will be a 1,500 to 1,800 m long by 50 m wide gravel-surfaced airstrip designed to accommodate a Hercules L-100 aircraft (Appendix 5-K, Galore Project Aerodromes Concept). In order to accommodate the weight of a Hercules on an all-season basis the airstrip will require a 600 mm sub-base of gravel or stone, a 230 mm base of crushed stone or crushed gravel and a 135 mm surface of crushed stone or crushed gravel. The crushed material is necessary to provide long term stability. Preliminary location and layout drawings have been prepared for the Porcupine Aerodrome (Figures 5.13-1 and 5.13-2).	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.1
1119	5.13.1.4 Aerodrome Operations The defined role for the Porcupine Aerodrome will be: • short and medium term passenger, cargo and heavy lift air support for road construction; • capability of use by large cargo aircraft with several arrivals per day; • long term role as passenger and high priority cargo support for mine operations; • combined fixed wing and rotary wing use for support of ongoing work; and • target availability at least 90%, with 95% preferred.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.1.4
1120	5.13.2 Bulk Fuel Storage and Handling It is estimated that the Galore Creek mine will consume about 481,000 to 881,000 litres (127,000 to 233,000 US gallons) of diesel fuel per week for mining equipment, processing and ancillary facilities depending on the stage of the operation. Average consumption is expected to be about 655,000 L/wk. Diesel fuel will be delivered to the site by a 130 km long pipeline with a design capacity at 85% availability of 881,000 L/wk from the filter plant near Highway 37. Diesel will be delivered to the filter plant by tanker truck in B-train configurations, averaging two deliveries per day.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.2
1121	5.13.2.1 Diesel Pipeline The diesel pipeline will be welded carbon steel pipe designed to American Society of Mechanical Engineers pipeline standards B31.4-02 Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids, and American National Standards Institute/Canadian Standards Association ANSI/CSA Z662S1-05 Supplement No. 1 to CAN/CSA-Z662-03, Oil and Gas Pipeline Systems. Pipeline diameter will be 8.89 cm (3.5 inch) with a design throughput of 46,000 cubic metres per year.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.2.1
1122	The diesel pipeline will be laid in the same trench as the concentrate slurry pipeline and will be equipped with leak detection systems similar to the slurry pipeline and remotely operated and automatic shut off safety valves. The leak detection system should detect a diesel leak within 1 to 10 minutes of occurrence. The two pipelines will share a state of the art cathodic protection system. Safety provisions will be consistent with regulations governing petroleum products pipelines, which use conventional and proven technologies. Control and monitoring of the pipeline will be from the filter plant central control room.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.2.1
1130	NovaGold assumes that Coast Mountain Hydro Corp. (CMHC)'s facility will be an integral part of the region's electrical power infrastructure and that the Galore Creek Project will acquire power from the BC Hydro grid from an interconnection point near Highway 37 and CMHC's plant.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.7

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
1131	Substation compensation will consist of a shunt reactor. The reactor will have switching capability, allowing it to regulate voltage when desirable during light plant loading. Additional compensation will consist of power factor correction and harmonic filtering banks, which will primarily compensate for the mill drive cycloconverters.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.7
1132	For a plant running load of 85-100 MW, 34.5 kV was selected for the primary distribution voltage, as standard 2,000 A switchgear allows for a capacity of up to 120 MW. The two step down transformers will supply the plant 34.5 kV switchgear line-up. All feeder circuit breakers will be 1,200 A rated.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.7
1133	In the concentrator building, large motors (225 kW and up) and large variable speed drives (450 kW and up) will be supplied at 4.16 kV via four 7.5/10 MVA transformers.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.7
1134	Smaller motors, variable speed drives (VSDs) and other power loads will be supplied at 600 V. There will be two main 34.5 kV circuit breaker feeds for 600 V distribution, and each feed will be split between three 1.5/2 MVA transformer supplies via fused disconnect switches.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.7
1135	Each transformer will supply a 600 V 2,000A distribution board comprising 1,200A feeders that feed a range of motor control centres (MCCs), VSD line-ups and power distribution centres (PDCs). The MCCs will supply all 600 V motors and contain all VSDs rated 75 kW and below. Larger VSDs are supplied separately in standalone panels.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.7
1136	Control system and building service power will be supplied from PDCs, comprising several 100 A and 200 A fused switches, and several 30 kVA transformer units supplying 208/120 V. The PDCs will be independent of process motor loads. This arrangement will allow motor faults to clear at the MCCs reducing the likelihood of interruption to the control system and building services power supplies.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.7
1137	Site power distribution will be supplied via three separate 34.5 kV overhead line systems. The three circuits will be mining, process loads and infrastructure/utilities, and each will be fed from a separate 34.5 kV switchgear circuit breaker. This configuration will allow for separate fault clearing for each system. Transmission line services to three separate pits have been allowed.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.7
1138	Site locations external to the concentrator building will have power delivered by the 34.5 kV transmission line network, which will supply skid mounted substations and containerized switchgear. Skid mounted substations will distribute power to the movable mine site equipment, and will be inclusive of all switchgear and transformers. There will be three different types of skid-mounted substation, one type for mining equipment, another for mine and borehole dewatering, and a third type for borehole dewatering only. The first two types will be present at all mine sites, and the additional borehole dewatering substation will be present at the Central pit. 'Fixed' equipment locations, including the crushing area and several remote pumping stations, will have power distributed by local containerized switchgear.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.7
1139	5.13.7.2 Transmission Line and Corridor The transmission line will generally follow the access road corridor from Highway 37 to the mine, with several exceptions. The most noticeable variance from the road alignment is the section between Highway 37 and the mouth of More Creek where the transmission line will take a straight line westerly route several kilometres south of the start of the access road. Other areas are an 11 km section in the lower More Creek area where the transmission line will follow the north side of the valley while the road will be on the south side, and potentially in the upper Sphaler Creek area where terrain may again separate the road and transmission line.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.7.2
1140	A secondary 25 kV transmission line will parallel the main transmission line along Highway 37 and will continue north to the filter plant complex past the point where the main transmission line turns west to More Creek.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	5.13.7.2
1141	Substations will be required near Bob Quinn Lake and at the Galore Creek mine site. The Bob Quinn substation will have the capacity to isolate the transmission line from both the BC Hydro system and the Forrest Kerr generation facility and will step down voltage for the transmission line to the filter plant. Step down substations will also be required near the Round Lake concentrate pipeline booster pump station and near the Porcupine Aerodrome, with distribution lines.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.7.2
1142	The transmission line will generally be a 138 kV line using 37 strand, 26 mm "Arbutus" aluminum conductor. Stronger conductors may be required in situations with longer than normal spans or higher than normal snow and ice loadings. Support structures will vary depending upon the location. Most commonly single wood pole structures (Figure 5.13-4) will be used, but Hframe wood pole structures (Figure 5.13-5) and steel towers (Figure 5.13-6) may be used where greater spans or avalanche resistance are required.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.7.2
1143	The transmission line will be constructed subsequent to road construction, with the poles being installed as soon as possible after road access was established and the conducting being strung in 2008.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.7.2
1144	Tree clearing width will equal two times the dominant tree height plus the distance between the outside line phase conductors. Assuming that the general tree height is 20 m and that tree height in the Porcupine River area is 30 m, the estimated clearing widths are: General Porcupine River Single wood pole section 45 m 65 m; Single wood pole section adjacent to road 30 m 40 m; H-frame wood pole 65 m -	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.7.2
1145	5.13.7.3 Emergency Power Two separate standby generation systems will serve the mine site. These systems will consist of several containerized diesel engine driven alternators. Each system will be able to be synchronized with the grid supply for routine testing purposes. The first system will be a 5 MW generator at 4.16 kV and will provide standby power to the main 34.5 kV network via a step-up transformer. The standby system will be intended to supply power in the event of site incoming power loss, for safe shut down of plant operations while providing power for essential services (excluding the camp facility). The second system will be a 750 kW unit dedicated to providing standby power to the camp facility 600 V system. Smaller systems will provide low level emergency power to allow orderly shutdown of the filter plant machinery (1 MW) and support of the filter plant camp (250 kW), slurry pipeline booster pump (200 kW), Porcupine Aerodrome (200 kW) and other facilities.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.7.3
1146	5.13.8 Manpower and Employment The Galore Creek Project is expected to directly employ about 553 people during its operations phase. Conceptual direct employment levels for each component of the operation are summarized in Table 5.13-5, and do not include personnel for operating the camp, materials haulage, periodic tailings dam expansion or mill relining, all of which are assumed to be contracted services.	Vol 1 - (FR) - Chap 5 - Project Description - Pg 236-286	5.13.8

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
1157	Isba Camp (aka Sphaler Camp in the EAC Application) location has moved ~1.2 km east of the camp location identified on the map appended to NovaGold's November 2, 2006 letter. The camp was moved because ENV requested it be moved out of goat winter range and NovaGold committed to explore moving the Camp (Note: Permit S24637 authorizes the new camp location). NovaGold identified an alternate location further east, which is now the current location of the Isba Camp that was preferred by ENV over the initially proposed location. Although confirmed in the SUP that was ultimately issued, the EAC was not amended to include this new location. While this location was included in the SUP as a result of a subsequent revision, the EAC was not amended to include this new location (until this amendment was approved by the BC EAO in 2018).	GCMC_2018_amend3_application.pdf	2.1
1158	The Sus Staging area (aka the main staging area in the EAC Application) site was relocated along with the Filter Plant to km 8.7 because the site was not large enough for the plant. However, it was not communicated to the BC EAO that the Main Staging area would also move locations. Consequently, the BC EAO C&E staff determined that the Main Staging Area, as constructed, did not comply with the EAC as it was not depicted on Figure 8.15-10 in the 2006 EAC Application. Amendment #3 corrected this situation and now the Sus Staging area is aligned in the EAC.	GCMC_2018_amend3_application.pdf	2.2
1159	ENV commented that the Main Staging Area is located in critical grizzly bear habitat. NovaGold committed to fence the area with high voltage, 5 strand wire (Note: Permit S24766 includes this requirement).	GCMC_2018_amend3_application.pdf	4
1162	Measures will be implemented to reduce potential downstream sediment loadings. Improvements may be achieved by avoiding specific areas for development, or through the use of effective measures for mitigating potential impacts resulting from the mine development.	Environmental Assessment Certificate Application for the Galore Creek Copper-Gold-Silver Project submitted by NovaGold Canada Inc.	8.10.3
1168	4.5 Future Aircraft Types Aircraft both available and suitable for supporting the Galore Mine Project are changing. New regulations have made it more difficult to certify and use aircraft in combi (passenger and maindeck cargo) mode. The following aircraft are among the most likely candidates for air support: • There are a number of B-737-200 aircraft operated by Canadian operators, configured for up to 112 passengers, or combinations of passengers and cargo pallets for use in the north. These aircraft are certified for use on gravel runways. However, these aircraft are not new and some are close to the end of their design life. Newer generation B-737-300/400 aircraft are being converted to combi capability (eg: Alaskan Airlines) but will not be gravel certified. • For pure cargo operations, there is only one commercial Hercules (L-100-30) licenced for operations in Canada. Additional aircraft will be difficult to locate, import and certify. Foreign aircraft could only be used with the co-operation of a Canadian operator. The newest version of the Hercules has been found to be less reliable and to require more maintenance than earlier generations. • Aircraft such as the HS-748 and DC-3 are used in passenger, cargo and combi modes but they too are facing retirement. Replacements such as the ATR-42 and Dash-8 regional turboprop aircraft are gravel-capable but have poorer performance on short runways. Other aircraft types that may be of use in the Novagold application in the future may include: • British Aerospace BAe-146, a high wing, 4-engine passenger jet that has seen extensive use in remote airports but which is not currently in operation in Canada. A number of these aircraft are currently in storage at Calgary International Airport. • CASA C-295, a new cargo aircraft similar in form to the Hercules but smaller with a large rear loading cargo ramp. It is not currently in use in Canada but is being actively marketed to northern air carriers by EADS Canada. • Convair 580, a venerable aircraft operating courier cargo services and forest fire attack operations in Canada by Kelowna Flightcraft. • CASA 212 is a smaller version of the C-295 and can provide cargo operations. • Shorts 330 and 360 aircraft are older unpressurized aircraft which have operated in western Canada for many years originally with Time Air out of Lethbridge, Alberta.	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	4.5
1169	Analysis indicates that the critical aircraft for runway length for the Porcupine River Aerodrome will be the L100-30 Hercules for cargo operations, and the de Havilland DHC-8-100 for all passenger operations.	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	4.7
1170	4.12.1 Design Aircraft Requirements The recommended design aircraft for each aerodrome and its critical design characteristics are described in the following table. Table 4-4 Recommended Design Aircraft Characteristics	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	4.12
1171	1.2 Aerodrome Design Process The aerodrome design and implementation is a structured process that takes into account all relevant aspects of the terrain, weather, regulation and planned usage for the prospective aerodrome. The design process is a sequential process in which later steps depend on the results of earlier steps and the related analysis. While it is counter-productive to skip any intermediate steps, at any point in the process the analysis should advance to a specific level of detail. Further detail will be developed at a later date as the overall project progresses. Plans and assumptions during the development of the Galore Mine Project are expected to change as the project evolves. Recommendations, particularly in the earliest phases of the project, should include conservative planning assumptions to minimize adverse impacts of later project amendments. The 30 main steps in the development of a resource aerodrome are shown in Table 1-1 on the following page. Each step can be further divided into more detailed data collection and assessment items. The design concept of an aerodrome includes steps 1 through 6. This report is structured in accordance with these six steps and the detailed sub-steps. A basic philosophy carried through the initial studies stage is to define all critical aspects of the aerodromes as if they are intended to be certified by Transport Canada as airports. The actual decision to certify or not can, however, be made at a later date. It is feasible to operate the aerodrome as a Registered aerodrome, similar to the operation at Bob Quinn Lake. The design intent is to support risk reduction, company liability reduction and overall system safety. [see "Table 1-1 Aerodrome Development Tasks" on next page of commitment.]	Vol 9 - Final Report (FR) - Appendices - App 5-K - Aerodromes Concept	1.2
1178	Once the mine is operational, the road will be used to provide supplies and equipment, and crew transport but is not intended for continuous concentrate hauling.	Vol 8 - Final Report (FR) - Appendices - App 5-J - Mine Access Road - Pt 1	2.3.1

Table A3. EAC Application Commitments not Relevant to Access-Development.

Commitment Number	Commitment Text	Source Document File Name	Section
1196	The Amendment Application #3 also includes identifying a gravel pit that was moved due to the repositioning of the Isb? Camp to its current location. An alternate [and uncomtemplated in the EAC Application] location for the gravel pit was identified approximately 110 m southwest of the Isb? Camp at approximately 57° 2' 9" N, 131° 13' 53" W (Figure 2.1-1 and Plate 2.1-1). While this location was included in the SUP as a result of a subsequent revision, the EAC was not initially amended to include this new location. The gravel pit with access trail Project Change occupies 3.4 ha and has since been amended in the EAC via Amendment #3 (meaning that the gravel pit is now an authorized Project Component).	GCMC_2018_amend3_application.pdf	2.1

Appendix B. List of Relevant Studies

Year	Author	Report Title	Reference	Information Summary
Aquatic Biology				
2004	Rescan	Galore Creek 2004 Aquatic Baseline Studies Report	Rescan. 2005. 2004 Galore Creek Aquatic Baseline Studies Report. Prepared for NovaGold Canada Ltd. by Rescan Environmental Services Ltd. November 2005.	2004 Aquatic Biology baseline monitoring report
2004	Rescan	Galore Creek 2004 Aquatic Baseline Studies Report: Appendices	Rescan. 2005. 2004 Galore Creek Aquatic Baseline Studies Report: Appendices. Prepared for NovaGold Canada Ltd. by Rescan Environmental Services Ltd. November 2005.	2004 Aquatic Biology baseline monitoring data
2005	Rescan	Galore Creek 2005 Aquatic Baseline Studies Report	Rescan. 2005. Galore Creek 2005 Aquatic Baseline Studies Report. Prepared for NovaGold Canada Inc. by Rescan Environmental Services Ltd. December, 2005.	2005 Aquatic Biology baseline monitoring report
2005	Rescan	Galore Creek 2005 Aquatic Baseline Studies Report: Appendices	Rescan. 2005. Galore Creek 2005 Aquatic Baseline Studies Report: Appendices. Prepared for NovaGold Canada Inc. by Rescan Environmental Services Ltd. December, 2005.	2005 Aquatic Biology baseline monitoring data
2006	Rescan	Galore Creek Project 2006 Aquatic Baseline Studies Report: Appendices	RTEC. 2007. Galore Creek Project 2006 Aquatic Baseline Studies Report: Appendices. Prepared by Rescan Tahltan Environmental Consultants. October, 2007.	2006 Aquatic Biology baseline monitoring data
Wildlife and Wildlife Habitat				
2006	Rescan	Galore Creek Mountain Goat Baseline Report 2004-2005	Rescan. 2006. Galore Creek Mountain Goat Baseline Report 2004-2005. Prepared for NovaGold Canada Ltd. by Rescan Environmental Services Ltd. and Rescan Tahltan Environmental Consultants: Vancouver and Dease Lake, British Columbia.	Mountain goat aerial surveys were conducted in summer 2004 and winter and summer 2005 in the RSA. Objectives were to: 1) Estimate baseline population size; 2) Assess elevational distribution and habitat use; 3) Identify kid-to-adult ratios (herd composition); 4) Determine relationship between summer and winter population sizes.
2006	Rescan	Galore Creek Moose Studies Baseline Report 2005	Rescan. 2006. Galore Creek Moose Studies Baseline Report 2005. Prepared for NovaGold Canada Ltd. by Rescan Environmental Services Ltd. and Rescan Tahltan Environmental Consultants: Vancouver and Dease Lake, British Columbia.	Moose aerial surveys and a calving survey were conducted in winter and summer 2005 in the RSA. Objectives were to: 1) Estimate population size; 2) Characterize population composition; 3) Evaluate winter habitat suitability; 4) Characterize moose calving habitat.
2006	Rescan	Galore Creek Grizzly Bear Study Baseline Report 2004/2005	Rescan. 2006. Galore Creek Grizzly Bear Study Baseline Report 2004/2005. Prepared for NovaGold Canada Ltd. by Rescan Environmental Services Ltd. and Rescan Tahltan Environmental Consultants: Vancouver and Dease Lake, British Columbia.	Grizzly bear hair snag surveys were conducted in 2004 and 2005 in the RSA. Objectives were to: 1) Estimate population size and density for coastal, interior, and northern populations; 2) Assess bear movements and distribution; 3) Assess diet of coastal and interior populations; 4) Provide recommendations for future long-term monitoring. Also reviewed human-caused mortality (distribution and average numbers of bears killed/year).
2006	Rescan	Galore Creek Small Mammals, Bats and Herptiles Baseline Report 2005	Rescan. 2006. Galore Creek Small Mammals, Bats and Herptiles Baseline Report 2005. Prepared for NovaGold Canada Ltd. by Rescan Environmental Services Ltd. and Rescan Tahltan Environmental Consultants: Vancouver and Dease Lake, British Columbia.	Field inventories of small mammals (rodents, insectivores), bats, and herptiles were conducted July-Sept 2005 to characterize species composition, identify species at risk, and evaluate distribution and abundance by habitat type. Study area included the proposed northern access road to the mine (1 km buffer on either side of road centreline), proposed airstrip on Porcupine River, and mine development footprint.
2006	Rescan	Galore Creek Bird Studies Baseline Report 2004-2005	Rescan. 2006. Galore Creek Bird Studies Baseline Report 2004-2005. Prepared for NovaGold Canada Ltd. by Rescan Environmental Services Ltd. and Rescan Tahltan Environmental Consultants: Vancouver and Dease Lake, British Columbia.	Avian studies were conducted in the RSA in 2004-05 to characterize use of the Project area by waterfowl, waterbirds, shorebirds, riverine birds, raptors, songbirds, and marbled murrelets. Objectives were to: 1) Compile list of avian species at risk or of concern; 2) Characterize waterfowl biodiversity and identify habitats and locations used for breeding, migration staging, and overwintering; 3) Establish baseline estimate of relative abundance of focal species of riverine birds; 4) Characterize raptor biodiversity and identify nests that may be impacted by development; 5) Characterize songbird diversity; 6) Assess marbled murrelet presence.
2006	Rescan	Harlequin Duck and Waterfowl Survey 2006	Rescan. 2006. Harlequin Duck and Waterfowl Survey 2006. Prepared for NovaGold Canada Ltd. by Rescan Environmental Services Ltd. and Rescan Tahltan Environmental Consultants: Vancouver and Dease Lake, British Columbia.	Surveys were conducted along the More Creek section of the northern access road to: 1) Determine presence and location of harlequin duck pairs, with focus on proposed bridge crossing locations; 2) Characterize waterfowl diversity and habitats used during spring migration
2006	Rescan	Galore Creek Wildlife Habitat Ratings and Enhanced Habitat Suitability Models for Six Focal Species, 2004 to 2005	Rescan. 2006. Galore Creek Wildlife Habitat Ratings and Enhanced Habitat Suitability Models for Six Focal Species, 2004 to 2005. Prepared for NovaGold Canada Ltd. by Rescan Environmental Services Ltd. and Rescan Tahltan Environmental Consultants: Vancouver and Dease Lake, British Columbia.	Habitat suitability mapping was conducted at the LSA- and RSA-scale for six species: mountain goat, moose, grizzly bear, American marten, hoary marmot, and Western toad. Two sets of habitat suitability models and ratings were developed: 1) Wildlife Habitat Ratings, which were based PEM and TEM products alone, and 2) Enhanced Habitat Suitability Models, which were based on PEM/TEM products along with other data (e.g., topography, thermal cover, shelter).
2006	Rescan	Galore Creek Mountain Goat DNA Study 2004-2005 (draft/work suspended)	Rescan. 2006. Galore Creek Mountain Goat DNA Study 2004-2005 (draft). Prepared for NovaGold Canada Ltd. by Rescan Environmental Services Ltd. and Rescan Tahltan Environmental Consultants: Vancouver and Dease Lake, British Columbia.	The potential for using DNA-based mark-recapture survey methods to estimate mountain goat population size and trends was assessed, since aerial surveys cannot account for sightability of goats. Rescan developed and tested field survey and lab methods to inventory mountain goats by collecting hair and/or fecal pellets. Incomplete draft.
Fisheries				
2005	Rescan	Galore Creek Project: 2004 Aquatic Baseline Report.	Rescan. 2005a. Galore Creek Project: 2004 Aquatic Baseline Report. Consultant's report prepared for NovaGold Canada Inc. by Rescan Environmental Services Ltd. November 2005. Dease Lake, BC.	Year 1 of baseline studies focused on potential receiving environments of the proposed Project as well as three potential mine access corridors. Studies included: 1) Habitat (FHAP) assessment and fish sampling (multiple methods), in July and again in September at receiving environment sites (including reference sites) in the Galore Creek, Reference Creek, Scud River, Stikine River, More Creek and Iskut River watersheds, 2) Habitat (RISC 1:20,000) assessment and fish sampling (electrofishing) in July or September at stream crossing sites along the potential mine access corridors in the Iskut River, More Creek, Stikine River, Jack Wilson Creek, Porcupine River, Sphaler Creek and Scotsimpson River watersheds. 3) Fish tissue metals and diet composition analysis from fish in Galore Creek, Reference Creek and More Creek and from fish, shrimp and crabs in the Stikine delta in the U.S. 4) DNA analysis of fish collected in Galore Creek, Oksa Creek and More Creek to differentiate between Dolly Varden and Bull Trout 5) Spawner surveys in October targeting Coho Salmon in the Scud River and Porcupine River. 6) Habitat assessment and fish sampling in Round Lake (July and September) and in Newmont Lake (September)

Year	Author	Report Title	Reference	Information Summary
2005	Rescan	Galore Creek Project: 2005 Aquatic Baseline Report	Rescan. 2005b. Galore Creek Project: 2005 Aquatic Baseline Report. Consultant's Report prepared for NovaGold Canad Inc. by Rescan Environmental Services Ltd. December 2005. Dease Lake, BC.	Year 2 of baseline studies focused on potential receiving environments of the proposed Project as well as the proposed road/ powerline corridor. Studies included: 1) Habitat (RISC 1:20,000) assessment and fish sampling (multiple methods), between July and October at 40 receiving environment sites (including reference sites) in the Galore Creek, Reference Creek, Scud River, More Creek, Iskut River, Porcupine River and Sphaler Creek watersheds. 2) Habitat (RISC 1:20,000) assessment at 596 stream crossing sites in June and July, with fish sampling (electrofishing) at 120 of these sites along the proposed road/ powerline route in the Iskut River, More Creek, Porcupine River, Sphaler Creek and Scotsimpson River watersheds. 4) Habitat assessment and fish sampling in 21 wetlands and 18 lakes along the proposed road route 3) Habitat assessment and fish sampling in and around the Aerodrome in the Porcupine River floodplain in July and October. 3) Fish tissue metals and diet composition analysis from fish in Galore Creek, More Creek, Oksa Creek, the Scud River, the Stikine River and the Iskut River and from fish, shrimp and crabs in the Stikine delta in the U.S. 4) DNA analysis of adipose fins from fish collected across the study area to differentiate between Dolly Varden and Bull Trout 5) Spawner surveys in September and October targeting Sockeye Salmon and Coho Salmon in the Scud River and Porcupine River. 6) Habitat assessment and fish sampling in Round Lake (July and September) and in Newmont Lake (September)
1999	Schell, C.	Overview (1:50,000) Inventory of the Middle Iskut River Watershed Atlas Group (ISKR).	Schell, C. 1999. Overview (1:50,000) Inventory of the Middle Iskut River Watershed Atlas Group (ISKR). Prepared for Ministry of Environment, Lands and Parks by Chris Schell Consulting. March 1999.	Barrier assessment, habitat assessment and fish sampling in More Creek in 1998.
Terrestrial Ecosystems, Vegetation, and Soils				
2006	Rescan	Appendix 6-H Galore Creek Wetland Classification and Assessment Baseline Report 2005.	Rescan. 2006. Galore Creek Project Application for Environmental Assessment Certificate Appendix 6-H: Galore Creek Wetland Classification and Assessment Baseline Report. Prepared for NovaGold Environmental Services Inc. by Rescan Environmental Services Ltd. January 2006.	A wetland survey was conducted during the 2005 growing season (June-Sept). Objective was to determine the environmental characteristics, quantity, and location of wetlands within the Project area, and to assess their functional value. 1:20,000 Terrain Resource Information Management (TRIM) maps and aerial surveys were used to identify the locations of wetlands; 108 wetlands covering 293 ha were identified, ground-truthed, classified, and mapped. 2.9 ha of wetland occurred on the proposed road route, and 16.9 ha of wetland occurred within the mine footprint. Floodplains were not included in wetland survey.
2006	Rescan	Appendix 6-J Galore Creek Ecosystem Mapping and Vegetation Baseline Report 2004-2005.	Rescan. 2006. Galore Creek Project Application for Environmental Assessment Certificate Appendix 6-J: Galore Creek Ecosystem Mapping and Vegetation Baseline Report. Prepared for NovaGold Environmental Services Inc. by Rescan Environmental Services Ltd. March 2006.	PEM and TEM maps of the Project area were produced, along with descriptions of the ecosystems and plant communities present. At-risk/rare ecological communities and rare plants were identified. Tissue samples were collected from plants, and metal concentrations in plants were subsequently analysed.
2006	Rescan	Appendix 6-K Galore Creek Environmental Baseline Soil Survey Report	Rescan. 2006. Galore Creek Project Application for Environmental Assessment Certificate Appendix 6-K: Galore Creek Environmental Baseline Soil Survey Report. Prepared for NovaGold Environmental Services Inc. by Rescan Environmental Services Ltd. April 2006.	Field soil surveys were conducted during field trips in 2004-05 in conjunction with TEM field verification. The focus was on the areas of the Galore Creek Watershed that were expected to be impacted by the development of mine infrastructure. Objectives were to provide an inventory of soil resources to inform reclamation planning, and to provide a foundation from which to develop TEM. 174 soil samples were taken from 86 sites from one or more of topsoil, subsoil, and humus layers. Metals analysis was performed on all samples to provide a baseline for the range of soil metal concentrations prior to development.
2006	Rescan	Appendix 6-T Galore Creek Country Foods Baseline Assessment	Rescan. 2006. Galore Creek Project Application for Environmental Assessment Certificate Appendix 6-T: Galore Creek Country Foods Baseline Assessment. Prepared for NovaGold Environmental Services Inc. by Rescan Environmental Services Ltd. March 2006.	Metal concentrations in 'country foods' or culturally important species were assessed to provide a baseline from which assess effects or risks associated with the Project. Interviews were conducted with Tahltan community members in Nov–Dec 2005 to identify country foods. Interview results were compared with baseline assessments to determine which species were found within the Project area. Plants, wildlife and fish were assessed. Caribou weed and blueberries were identified as important plant species. Results were uncertain as caribou weed was not collected at all, and only three samples of blueberries were collected.
2012	MacKenzie, W.H.	Biogeoclimatic Ecosystem Classification of Non-forested Ecosystems in BC	MacKenzie, W.H. 2012. Biogeoclimatic Ecosystem Classification of Non-forested Ecosystems in British Columbia. Prov. B.C., Victoria, B.C. Tech. Rep. 068.	Describes non-forested ecosystems in BC and the coding to be used for them when describing ecosystems in BC
2021	BC Government	Biogeoclimatic Ecosystem Classification (BEC) Zone/Subzone/Variant/Phase map (version 12, September 2, 2021)	Government of British Columbia. 2021. BEC Map. Forest Analysis and Inventory. Available online at: https://catalogue.data.gov.bc.ca/dataset/f358a53b-ffde-4830-a325-a5a03ff672c3	Identified some changes that have been made to the BEC subzones in the area, mainly being that all the ESSF is now called unclassified.
2020	BC Ministry of Environment and Climate Change Strategy	Terrestrial Ecosystem Information (TEI): Coding Updates for Non-Vegetated, Sparsely Vegetated, and Anthropogenic Units	Terrestrial Ecosystem Information Section. 2020. Terrestrial Ecosystem Information (TEI): Coding Updates for NonVegetated, Sparsely Vegetated, and Anthropogenic Units. Version 1.1. Ministry of Environment and Climate Change Strategy, Knowledge Management Branch, Ecosystem Information Section.	Updates the standard coding to be used for TEM mapping in BC for Non-Vegetated, Sparsely Vegetated, and Anthropogenic Units.
2021	Lilles <i>et al.</i> 2021	Field guide to site identification and interpretation within the Engelmann Spruce - Subalpine Fir Woodland subzones of the Skeena Region; Supplement 2 to Land Management Handbook 26: A field guide to site identification and interpretation for the Prince Rupert Forest Region	Lilles, E.B., R. Trowbridge, and W.H. MacKenzie. 2021. Supplement 2 to Land Management Handbook 26: A field guide to site identification and interpretation for the Prince Rupert Forest Region. Prov. B.C., Victoria, B.C.	Describes new ecosystem classifications for the ESSFwww and ESSFwww, subzones that were not mapped at the time of the previous ecosystem mapping in the Project area. Woodland not mapped in this area yet but may occur.

Year	Author	Report Title	Reference	Information Summary
Human Health				
2005	Rescan	Appendix 6-E Galore Creek 2005 Aquatic Baseline Studies Report	Rescan (Rescan Environmental Services Ltd.). 2005. Galore Creek Project Application for Environmental Assessment Certificate, Appendix 6-E: Galore Creek 2005 Aquatic Baseline Studies Report. Consultant's report prepared for NovaGold Canada Inc. by Rescan Environmental Services Ltd. and Rescan Tahltan Environmental Consultants. December 2005.	Site location and availability of 2006 EA water quality and aquatic resource data.
2005	Rescan	Appendix 6-D Galore Creek 2004 Aquatic Baseline Studies Report	Rescan (Rescan Environmental Services Ltd.). 2005. Galore Creek Project Application for Environmental Assessment Certificate, Appendix 6-D: Galore Creek 2004 Aquatic Baseline Studies Report. Consultant's report prepared for NovaGold Canada Inc. November 2005.	Site location and availability of 2006 EA water quality and aquatic resource data.
2006	Rescan	Galore Creek Country Foods Baseline Assessment	Rescan (Rescan Environmental Services Ltd.). 2006. Galore Creek Project Application for Environmental Assessment Certificate, Appendix 6-T: Galore Creek Country Foods Baseline Assessment. Consultant's report prepared for NovaGold Environmental Services Inc. by Rescan Environmental Services Ltd. and Rescan Tahltan Environmental Consultants. March 2006.	Country foods baseline assessment methodology, results, conclusions, and uncertainties; Country foods interview results.
2006	Rescan	Canada Inc. Inc., January 2006.	Canada Inc. Inc., January 2006.	Data tables for 2006 noise.
2006	Rescan	EA Volume 1 - Chapter 6	Rescan (Rescan Environmental Services Ltd.). 2006. Galore Creek Project Application for an Environmental Assessment Certificate. Consultant's report prepared for NovaGold Canada Inc. June 2006.	Settings for air quality, noise, water quality.
2006	Rescan	Appendix 6-J Galore Creek Ecosystem Mapping and Vegetation Baseline Report 2004-2005	Rescan (Rescan Environmental Services Ltd.). 2006. Galore Creek Project Application for Environmental Assessment Certificate, Appendix 6-J: Galore Creek Ecosystem Mapping and Vegetation Baseline Report. Consultant's report prepared for NovaGold Environmental Services Inc. by Rescan Environmental Services Ltd. and Rescan Tahltan Environmental Consultants. March 2006.	Sampling locations for soils and plants, availability of data, and data quality for soil and tissue metals.
2006	Rescan	Appendix 6-K Galore Creek Environmental Baseline Soil Survey Report	Rescan (Rescan Environmental Services Ltd.). 2006. Galore Creek Project Application for Environmental Assessment Certificate, Appendix 6-K: Galore Creek Environmental Baseline Soil Survey Report. Consultant's report prepared for NovaGold Environmental Services Inc. by Rescan Environmental Services Ltd. and Rescan Tahltan Environmental Consultants. April 2006.	Field soil surveys were conducted during field trips in 2004-05 in conjunction with TEM field verification. Objectives were to provide an inventory of soil resources to inform reclamation planning, and to provide a foundation from which to develop TEM. 174 soil samples were taken from 86 sites from one or more of topsoil, subsoil, and humus layers. Metals analysis was performed on all samples.
Additional Sources				
2022	Haugrud, K. and K. Jollymore	Final Report for Archaeological Impact Assessments carried out for the Galore Creek Project Between 2021 and 2022, Heritage Inspection Permit 2021-0143.	In Press. Final Report for Archaeological Impact Assessments carried out for the Galore Creek Project Between 2021 and 2022, Heritage Inspection Permit 2021-0143. Prepared for Galore Creek Mining Corp. by Kleanza Consulting Ltd. Terrace, BC.	
2019	Jollymore and Walker	Galore Creek Project – Archaeological Potential Model.	Galore Creek Project – Archaeological Potential Model. Memorandum dated September 6, 2019, prepared for Galore Creek Mining Corporation by RTEC: Vancouver, British Columbia.	