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BHP Diamonds Inc.

BOSTON GOLD PROJECT, AIMAOKTAK LAKE, N. T.

ABANDONMENT AND RESTORATION PLAN

Prepared for:

Nunavut Water Board
Gjoa Haven, N. T.

Prepared by:

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Vancouver, B.C.

September 1998

BHP

Table of Contents

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BOSTON GOLD PROJECT, AIMAOKTAK LAKE, N.T.

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TABLE OF CONTENTS

List of Tables

List of Figures

List of Plates

1. Introduction

1. INTRODUCTION

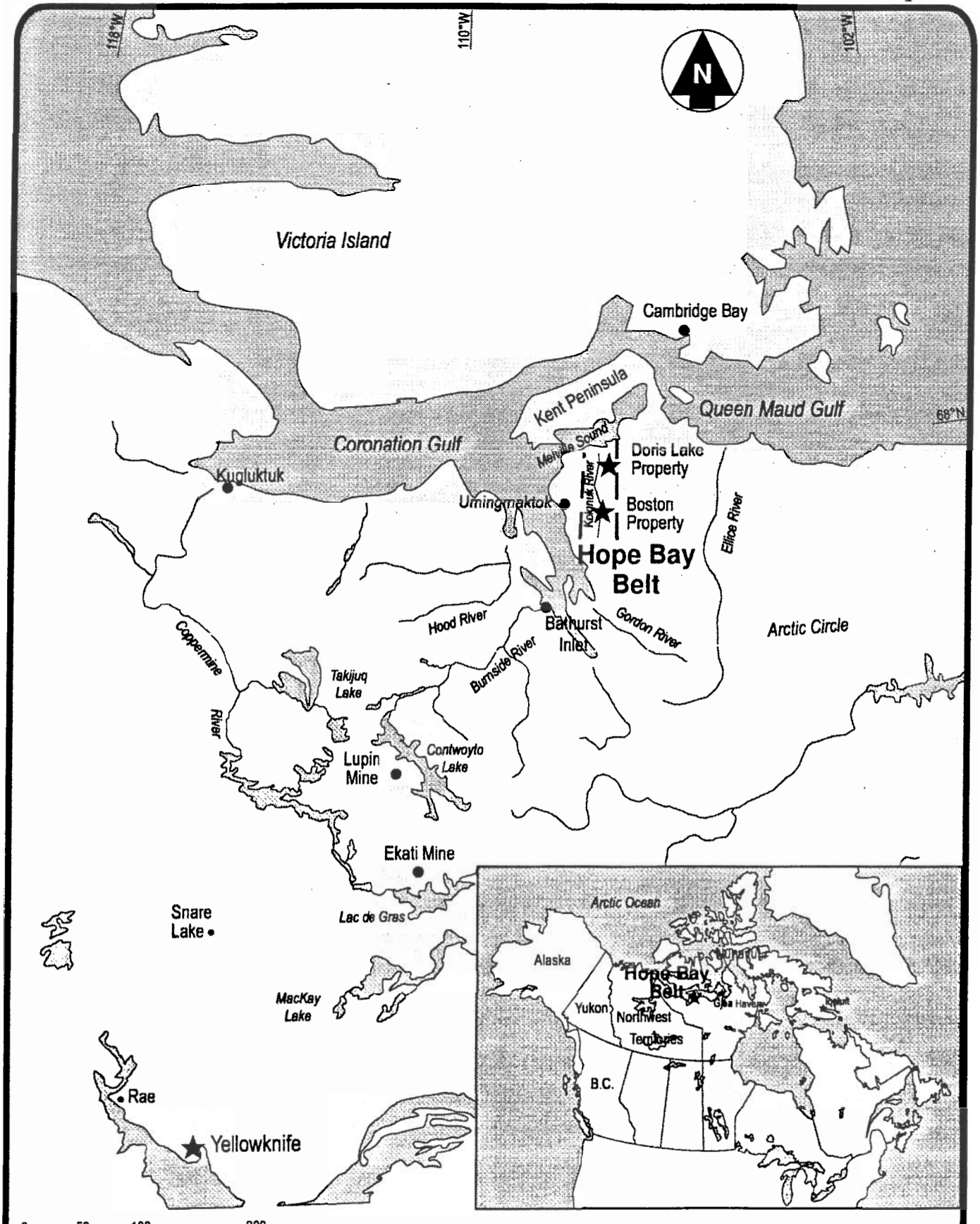
BHP Diamonds Inc. (BHP) is a subsidiary of the Broken Hill Propriety Company Ltd., a global resource company headquartered in Melbourne, Australia. BHP, headquartered in Vancouver B.C., is involved in mining and exploration activities across Canada including Nunavut.

The Boston Gold Project has been organized to explore and evaluate areas of gold mineralization on the Southeast shore of Aimaoktak Lake, approximately 450 km west southwest of Gjoa Haven (Figure 1-1).

In accordance with Nunavut Water Board Licence #NWB1BOS9801, Part I, BHP has prepared the following revised Abandonment and Restoration Plan (ARP) for the BHP Boston Gold Property. The plan outlines BHP's general commitments to reclaim the disturbed areas described by the current water licence and land use permit issued for the Boston Gold Property operations.

The plan has been kept general to maintain flexibility as the exploration and bulk sampling operations progress. New information generated, through site-specific studies and from other reclamation research projects will be incorporated into the ARP as appropriate in future years.

Progressive reclamation and on-going restorative work is designed to minimize surficial disturbances by returning disturbed lands to a productive state where practicable. The ARP is structured in three levels. Each level is designed to deal with the major stages of reclamation. The stages are defined as: initial reclamation, operational reclamation and planned shutdown. Initial reclamation deals with exploration and bulk sampling disturbances. Details of the initial reclamation program are described in this document. Operational and planned shutdown programs shall be submitted to the Nunavut Water Board as the project develops.



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Project Location Map

FIGURE 1-1

1.1 Project Description

The Boston Gold Project is located on a small peninsula projecting into Aimaoktak (Spyder) Lake (Figure 1-2). The surficial geology in the area is characterized by washed glacial till and unconsolidated marine clays with some weathered bedrock outcroppings in the vicinity (Rescan, 1998). The dominant vegetation cover in the project area is representative of the Typic Betula-Ledum-Lichen Unit comprised of Arctic shrubs, herbs, mosses and lichens. Detailed terrestrial ecosystem mapping of the area has been completed and is presented in Rescan, 1998.

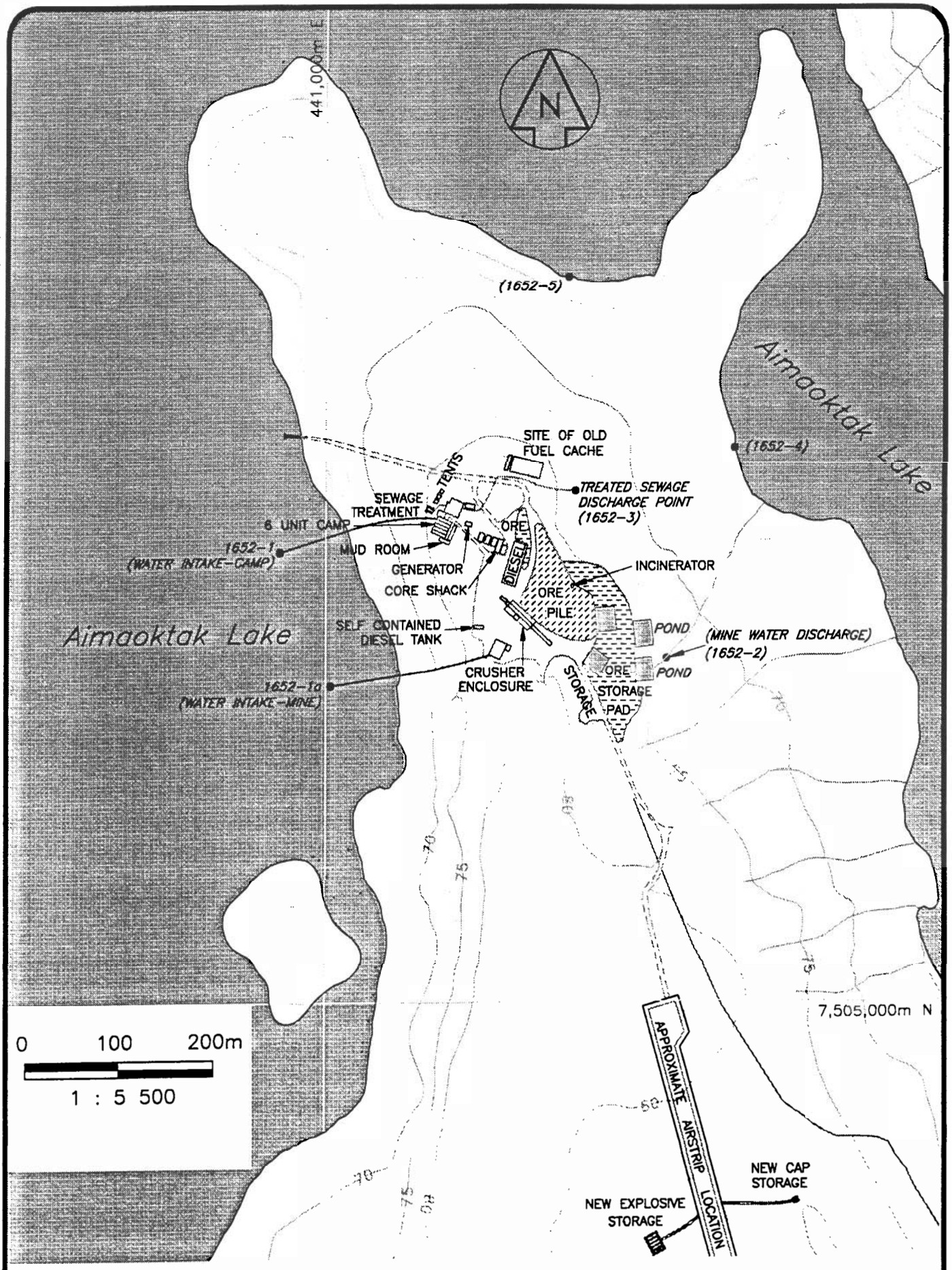
The present footprint of the Boston Gold Project covers approximated 5.32 hectares (Table 1-1). Figure 1-2, Plate 1-1 and Plate 1-2 illustrate current land use at the Boston Gold Project Site.

The 1997 bulk sampling program generated approximately 9,000 tonnes of ore material and 75,000 tonnes of development rock. Approximately 1,400 metres of underground development was undertaken in unmineralized rock and along the mineralized veins. Much of the development rock generated from the operation was used on roadways and the airstrip after appropriate testing to ensure that the rock is non-acid generating.

Table 1-1
1998 Boston Gold Project Footprint

Component	Area (m^2)
Camp	6,000
Industrial Area	11,600
Ore Storage	14,500
Airstrip	15,600
Roads	4,700
Total	**53,200 m^2 (5.32 hectares)**

The treatment of the mineralized samples from the bulk sampling program was, and in the future will continue to be performed off-site. Composite samples will continue to be transported off-site by air. Bermed stockpile pads for ore and potentially acid generating rock have been situated north and east of the portal



Boston Gold Project Site Land Use Plan

Figure 1-2

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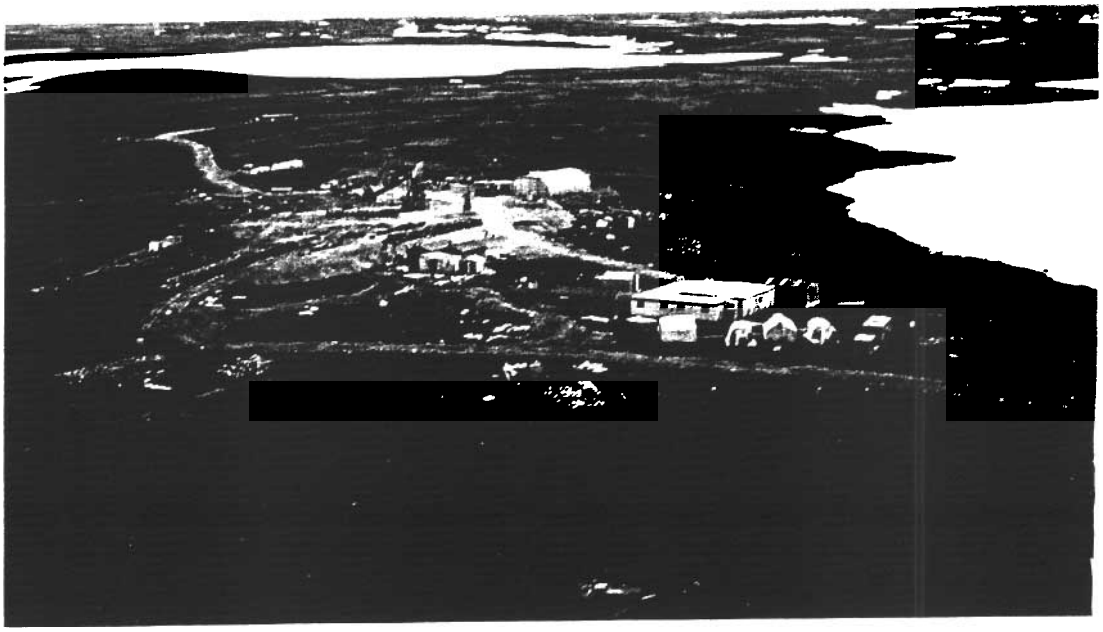

Plate 1-1 Boston Gold Project Site – June 1996.

Plate 1-2 Boston Gold Project Site – August 1998.

entrance, as shown in Figure 1-2. Development rock with high NNP was used to construct the stockpile pads, to store and neutralize potential acidic runnoff. Development rock that is not acid generating was used as road/pad building to minimize additional terrain disruption.

During 1997 two water lines from Aimaoktak (Spyder) Lake were installed to service the underground workings and camp. Underground water reporting to the mine intake line (south of camp) is recycled to the sumps for use at drilling locations. Water is not generally discharged above surface into the watershed unless flooding occurs. Sumps are located underground to settle solids (primary water sumps) from recycled water prior to being reused. Two settling ponds are located at the portal entrance on the east side of the roadway by the ore storage pads. The ponds have been designed to accommodate excess water generated in the underground workings. The ponds also act as settling basins to control the level of suspended solids prior to discharge. The pond berms have been built with suitable development rock. A bentonite/geotextile membrane lines the primary settling pond. The primary sump capacity is 112 m^3 and the secondary sump is 80 m^3. A similar membrane will also be installed in the second pond if more capacity becomes necessary.

1.2 Reclamation Restoration Objectives

BHP is committed to reclaiming the disturbed areas in accordance with the requirements of Section 18 of the Territorial Land Use Regulations, the "Guidelines for Abandonment and Restoration Planning for Mines in the Northwest Territories, 1990," and other requirements that may be imposed by Nunavut.

The primary objectives of the restoration program are to return affected areas to a state compatible with the original undisturbed conditions and to ensure that the facilities, wastes and tailings are abandoned in such a manner that the requirements for long-term maintenance and monitoring are minimal.

More specific objectives developed for the reclamation program include:

1. Protection of the environment through sound reclamation practices;
2. Restoration of the productive use of the land to its original condition or to an acceptable alternative through the growth of vegetation;
3. Restoration of the primary land use (wildlife) by creating habitat and/or promoting habitat recovery;
4. Minimization of water quality impacts, including acid mine drainage, by designing and implementing landscape features and proper drainage control measures; and
5. Ensuring that the abandoned areas do not pose safety problems or risks to the surrounding environment.

BHP has been aggressive in its reclamation efforts as demonstrated by our mining operations at other projects. Much has been learned at each site through site-specific studies, discussion with regulatory and environmental agencies, practical experience and the application of innovative technologies. The cumulative experience of BHP, combined with the expertise of the government agencies in the N.T., should provide a suitable foundation for the development of an effective reclamation strategy.

1.3 Overview of Potential Revegetation Challenges

A number of challenges will be faced in reclaiming disturbed tundra. The arctic environmental conditions pose significant challenges to the revegetation of disturbed areas. These conditions include short growing seasons, low soil and air temperatures, poorly developed soils, low soil nutrient levels, low moisture levels and limited microbial processes. The most significant influences are permafrost and the short growing season. Permafrost affects landscape stability and drainage patterns while the short growing season limits revegetation efforts. As a result, vegetation growth is slow and the recovery of disturbed areas will be prolonged. Revegetation assistance will be required to establish vegetation cover in erosion prone areas.

Other potential problems may affect revegetation. These include: lack of suitable topdressing material (root growth medium); limited native plant material (seed or rhizome sources); surface compaction; slope stability; and drainage control. For

these reasons BHP attempts, at all times, to minimize surface disturbance as much as possible.

Native Plant Material

The use of native plant species for revegetation will be encouraged but is limited as these are not commercially available and their establishment rate is very slow. Native plants will be ideal because of their ability to adapt naturally to the environment as compared to introduced species. Lessons learned from BHP's ongoing revegetation studies at the Ekati Mine (ABR, 1998) will be applied as appropriate to the Boston Gold Project site. The pilot studies being carried out at Ekati include:

1. use of soil topdressings;
2. planting of native-grass cultivars, native forbs and other local species;
3. fertilizer management; and
4. surface manipulation.

At the Boston site, knowledge gained from current efforts to revegetate the 1997 all-track burn site and to remediate hydrocarbon spill sites in the area of the Boston Camp will also be applied to future revegetation planning and implementation.

Surface Compaction

Surface compaction may pose problems in some areas of the site and may need to be scarified. Compaction reduces root penetration and water infiltration. Reduction of water infiltration may, in turn, increase surface runoff and overall reduction in vegetation establishment. Scarification loosens the soil surface and provides a more favorable substrate for plant establishment. Scarification may be considered for certain areas, however, it would present logistical challenges and caution would have to be exercised to prevent disturbance in adjacent natural areas.

Slope Stability

The recontouring of steep slopes poses special challenges. A potential problem may arise with the topdressing material which will likely be limited to glacial till. In addition, the permafrost may present stability problems, particularly with regard to erosion and settlement. Locations that may be impacted are the development rock disposal areas and settling ponds. Recontouring of slopes will be undertaken as appropriate to stabilize them and to blend them into the existing natural landscape. In areas where high erosion potential may exist, enhanced revegetation methods will be employed to provide expedited surface protection and insulation for the permafrost. Filter cloth or tackifiers may need to be employed to temporarily stabilize erosion prone slopes prior to the re-establishment of natural vegetation.

Drainage Control

Surface disturbances alter natural drainage patterns, and may cause erosion problems. After project completion, altered watercourses will be restored to their natural drainage patterns with the approval of the authorities. In addition, proper drainage control measures will be implemented where necessary to minimize downstream sedimentation.

2. General Abandonment and Restoration Approach

2. GENERAL ABANDONMENT AND RESTORATION APPROACH

Restorative measures prevent progressive degradation and the natural recovery of areas affected by mining. Returning affected areas to a state compatible with the original undisturbed condition and the prevention of acid rock drainage is a priority for BHP.

The following section outlines the general steps to be undertaken for abandonment of facilities, roadways, stockpiles and on-land impoundments and the restoration of pre-mining conditions.

2.1 Buildings and Other Surface Infrastructure

All buildings and surface structures including fences and gates will be dismantled and removed from the site. The materials will either be recycled, sold as scrap or disposed of at an authorized waste disposal site. Other options may include incineration and burial. Contaminated soil will be treated *in situ* or will be removed and treated prior to final disposal at an authorized facility. Areas where contaminated soil has been removed will be backfilled with replacement material or reclaimed contaminated soil. Erosion prone areas will be identified and revegetated, if necessary.

2.2 Water Supply Facilities

Both potable and mine water is supplied from Aimaoktak Lake via separate pipelines. All existing structures will be dismantled and removed. Restoration of the pipeline corridor will take place as necessary.

2.3 Fuel and Chemical Storage Area

All fuel drums and remaining fuel products will be removed from the site. All tank fueling facilities, pipelines, storage bins, and other support facilities will also be removed. All materials will be sold, recycled or disposed of at an approved disposal site depending on the product. Contaminated soils, if any, will be identified and removed or remediated. Chemicals, hazardous materials or contaminated soils will be removed or disposed of according to regulatory requirements.

2.4 Solid Waste, Sewage and Waste Storage Facilities

The practice of incineration for combustible wastes such as wood, cardboard, paper and food scraps will be continued throughout the exploration and bulk sampling program. Upon abandonment, the incinerator will be salvaged or sold. All steel, scrap metal, used equipment parts, buildings and building parts will be removed from the site and recycled, sold, and/or disposed of in authorized facilities. Combustible material generated during abandonment will be burned.

Sewage facilities (building, pumps, equipment, pipelines, *etc.*) will be dismantled and removed from the site. The material will either be sold, recycled, or disposed of according to accepted practices.

2.5 Roadways and Transportation Routes

Existing roads and the airstrip will be left in place. Alternatively, they can be scarified and recontoured as appropriate to encourage vegetation growth. Development rock from the bulk sampling program used for road construction, has been tested for its acid generating potential. Only material shown to exhibit low acid generating potential has been used for road building.

Where necessary, side slopes will be recontoured and stabilized with due consideration to proper drainage control. If necessary, the slope areas will be revegetated to establish plant cover to minimize erosion. In addition, any contaminated soil will be remediated if feasible and/or properly disposed.

2.6 Underground Openings

The portal developed for bulk sampling will be secured with a development rock plug designed to prevent human and wildlife entry into the decline. The rock plug will be constructed from development rock produced during the exploration program. The portal entrance and adjacent areas will be re-contoured to approximate the original ground slope.

2.7 Ore and Development Rock

The ore stockpiles generated from the bulk sampling program will be recontoured to ensure their long term stability and to minimize impacts on wildlife. The

contoured ore (rock) stockpiles will provide some relief to the terrain and will provide habitat for certain species of wildlife such as rodents and foxes. Currently there are no development stockpiles as all development rock produced has been used in the contruction of roads, pads, the airstrip and minewater impoundment structures.

2.8 Minewater Settling Ponds

Minewater in the settling ponds will be treated as necessary prior to dewatering in accordance with regulatory requirements. The ponds will be breached and recontoured to blend in with the pad area.

2.9 Monitoring

Environmental monitoring in compliance with Licence #NWB1BOS9801 will continue throughout the operating life of the Boston Gold Project to minimize and mitigate potential or progressive impacts. The monitoring program will continue until all objectives of the abandonment and restoration plan have been satisfied.

2.10 Closing Comments

The comments contained herewith are provided as a framework for closure activities following the bulk sampling program. BHP recognizes that design for closure will continue to be an iterative process which will reflect changes in the scope of work, extent of land disturbance, severity of impact and the application of evolving technologies.

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Rescan Environmental Services Ltd. 1998. *Hope Bay Belt Project, 1997 Environmental Data Report.* Report prepared for BHP World Minerals.