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Landfill Management Plan
Jericho Diamond Mine
Nunavut

Submitted to:

Tahera Diamond Corporation
Toronto, Ontario

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AMEC Earth & Environmental
Burnaby, BC

August 2004

VE51295

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LIST OF DRAWINGS

1.0 INTRODUCTION

1.1 Background

This report provides a management plan for landfill facilities to be constructed at the Jericho Diamond Mine pursuant to requirements for water licence application for the Project. The landfill will be operated as an industrial landfill and not a municipal solid waste landfill as detailed further in this plan.

The Jericho Diamond Mine will be located in the West Kitikmeot region of Nunavut, approximately 350 km southwest of Cambridge Bay, Nunavut. The mine is currently planned to operate as an open pit extracting kimberlite to produce diamonds for four to five years. At the end of this period mining methods may switch to underground for an additional two years, followed by processing of ore only for an additional two years. Ore processing may continue an additional two years past that. Decisions regarding the underground mining phase will be made after operational experience is gained.

A camp to accommodate 100 people will be established at the Jericho site. Mining will be under the supervision of the mining contractor. Tahera Corporation will operate the processing plant and retain overall responsibility for the site.

Drawing 1CT004.06-G13, site general arrangement end of December 2013 (end of report) is a general site layout as of July 2004.

The mine will generate a variety of wastes, both hazardous and non-hazardous. A landfill will be required to handle storage of non-hazardous wastes that cannot be recycled and is the subject of this management plan.

1.2 Tahera Environmental Policy

Tahera's environmental policy will apply to all activities undertaken at the Jericho site.

It is Tahera's policy to achieve a high standard of environmental care in conducting its business as a resource company contributing to society's material needs. Tahera's approach to environmental management seeks continuous improvement in performance by taking account of evolving knowledge and community expectations.

Specifically, it is Tahera's policy to:

- Comply with all applicable laws, regulations and standards; uphold the spirit of the law; and where laws do not adequately protect the environment, apply standards that minimize any adverse environmental impacts resulting from its operations;
- Communicate openly with government and the community on environmental issues, and contribute to the development of policies, legislation and regulations that may affect Tahera;
- Ensure that its employees and suppliers of goods and services are informed about this policy and are aware of their environmental responsibilities in relation to Tahera's operations;
- Ensure that it has management systems to identify, control, and monitor environmental risks arising from its operations and to prevent environmental impacts prior to their occurrence;

- Conduct research and establish programs to conserve resources, minimize wastes, improve processes and protect the environment;
- Take appropriate corrective actions should unexpected environmental impacts occur. Appropriate actions will be taken to prevent reoccurrence of such unexpected impacts.

For the Jericho Diamond Project, Tahera's environmental policy will apply, where appropriate, to all its contractors. Environmental clauses outlining contractor responsibilities will be included in contracts for the Jericho Mine.

2.0 REGULATORY SETTING

Waste management is regulated under the Nunavut *Public Health Act*, the Nunavut *Environmental Protection Act* and the federal *Environmental Protection Act*. In addition to mandatory requirements, a number of waste management guidelines are commonly used in the NWT. The most recent of these was developed for municipal solid waste, and is titled "Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the NWT" (Ferguson Simek Clark, April 2003, on behalf of the Department of Municipal and Community Affairs, Government of Northwest Territories). While all of the recommendations provided in this guideline may not necessarily be appropriate for the management of industrial waste such as that generated at the Jericho Diamond Mine, those principals that are considered applicable have been adopted in the proposed waste management plan contained in the current document.

3.0 LANDFILL LOCATION AND CONSTRUCTION

The landfill will be located adjacent to Waste Dump Site1 (see Drawing 1CT004.06-G13) through most of the mine life. In Year 1, the location will be as shown on Drawing 1CT004.06 – G10. As Waste Dump advances on the site the landfill will be moved to it's permanent location. The first landfill site will be covered with Waste Dump 1. The landfill site is in an area of rocky tundra and upslope from water bodies (Carat Lake and Lake C4). The area is well above any historical evidence of flooding from either Carat Lake or Lake C4.

The landfill design presented in this plan is based on the approach used at Ekati Diamond Mine™ whereby use is made of permafrost to provide an impermeable barrier to water leaching into the subsoil. Figure 1 shows a cross section and plan of the landfill.

The area for landfilling will be prepared by removing surface debris, large rocks, and brush. A pad of run-of-mine rock will be laid down. Crushed rock and or esker material will be spread over the landfill pad and levelled. The initial design will be for an area 100 m by 100 m (10,000 m^2) at the north end of Waste Dump 1. The area will be graded to slope toward a catchment area for runoff (the open pit). A ditch or berm will be used to direct any runoff water if required. Water quality will be monitored at the open pit and the water treated if necessary as discussed in the project water management plan (under separate cover). A layer of esker material or crushed rock will be placed on top of the pad. This will constitute initial construction.

The landfill area will be bermed with a one metre high berm and fenced by means of a chain link fence to prevent unauthorized or wildlife entry (large mammals, carnivores).

A cover stockpile of esker or stripped till from the overburden stockpile will be kept in one corner of the landfill to use as cover for waste and in particular incinerator ash. Till will be selected if available and not suitable or surplus to reclamation purposes.

[insert figure 1]

4.0 LANDFILL OPERATION

4.1 Types and Quantities of Waste

Table 4-1 provides a summary of the anticipated types of waste to be generated at the Jericho Diamond Mine.

Table 4-1: Tentative Annual Landfill Waste Types

Waste Type	Examples
Scrap metal	Structural steel, equipment guards, plate steel, steel pilings, tanks (decommissioned), bins, cladding, doors, rebar, filing cabinets, cable tray, metal furniture, wheels
Rubble	Broken concrete, masonry
Wood products	Timber dunnage, plywood and lumber from formwork and camp modules
Rubber products	Tires, conveyor belting, floor mats
Construction	Construction and demolition debris
Glass	Cleaned bottles, jars, plate glass and mirrors
Piping	Steel and plastic piping (fuel and glycol piping clean), including insulation, heat trace cable and support brackets
Fabrics and liners	HDPE liner, woven geotextile, insulation (liners cut into strips for burial to prevent water containment)
Electrical	Cabling, cable support systems, electrical panels, switchgear, transformers (except oil-filled units)
Equipment (non-recyclable)	Non-hydrocarbon-contaminated and cleaned equipment: electric motors, boilers, fans, heaters, bearings, gearboxes, pumps, screens, truck parts, conveyor idlers and pulleys, truck shop equipment, appliances
Incinerator ash	Ash from the kitchen incinerator

4.2 Recycling Opportunities

Recycling opportunities for non-hazardous wastes are limited at Jericho because of the remoteness of the site. However, the mine will have take advantage of any practical recycling opportunities available. This will be largely determined by what is practical to backhaul to Yellowknife over the winter road.

4.2.1 Hazardous Wastes

Hazardous wastes will not be landfilled. All hazardous wastes will be backhauled other than contaminated soil, snow and ice which will be treated on site as discussed in the Landfarm Management Plan. Temporary storage of hazardous wastes is discussed in the Hazardous Materials Management Plan.

4.2.2 Recyclables Stored On Site

The mine will establish a 'bone yard' adjacent to one of the laydown areas where equipment will be stored pending possible re-use at the mine site. The bone yard location will be determined at the time of mine construction and will be sited well away from water bodies and in a controlled drainage area.

Large tires (e.g. those for ore trucks) when no longer useable on trucks and, if not recyclable through truck tire dealers, could be used as roadside barriers which is typical of mine use for these items.

5.0 LANDFILL MANAGEMENT

5.1 General

Operation of the landfill will be under the direction of the mine operating superintendent and the process plant manager. Ultimate responsibility will rest with the senior Tahera employee on site. A waste control program will be implemented to avoid the disposal of inappropriate materials. Access will be limited by means of a fence and gated entrance so that dumping in the landfill will only be done by authorized personnel.

An area method of dumping will be used such that materials will be dumped in cells and covered as required by esker or wasterock. Wastes will be disposed directly on the ground and compacted with heavy equipment against the berm or existing filled cell. To the extent practical dumped materials will be segregated in the strips so that each major type occupies a subsection of the operating cell.

5.2 Kitchen Wastes and Incinerator Ash

All kitchen wastes will be incinerated prior to landfilling to prevent attraction of wildlife particularly foxes, wolverines and grizzly bears. Operation of the incinerator will be the responsibility of the camp-catering contractor who will report incinerator operation and maintenance issues to the environmental coordinator or designate. The incinerator will be sized to accept the anticipated food wastes from the 100-person camp. In the event that the incinerator needs repairs, food wastes will be incinerated at the exploration camp incinerator which may be relocated to the area of the mining camp incinerator. Excess kltchen wastes that cannot be handled by the exploration camp incinerator under these circumstances will be temporarily stored in a secure area where wildlife cannot access it.

Incinerator ash will be subject to wind erosion and thus will be covered with esker or waste rock material kept at the landfill immediately after being dumped.

5.3 Equipment

Only clean equipment that cannot be recycled or reused will be landfilled. Large equipment, such as unrepairable trucks, will not be placed in the landfill but will be stored for burial in the open pit or in waste rock dumps on mine closure. Burial on site of equipment that is drained of hydrocarbons is standard practice at mining operations. Should regulations change prior to Jericho Diamond Mine closure, provision will be made to backhaul such equipment on the winter road.

Equipment containing petroleum hydrocarbons will be drained prior to landfilling. The waste petroleum products will be disposed of in waste oil cubes for backhaul on the winter road to a licensed hazardous materials disposal contractor. If required, petroleum reservoirs in the equipment will be cleaned with solvent or steam prior to landfilling.

5.4 Clean Wood and Paper

Clean wood and paper will be burned at the landfill in a designated area where the fire can be controlled and well away from the perimeter of the landfill. Burning will only be done by authorized personnel of materials the senior site management or the environmental coordinator have approved for open burning. No petroleum-stained wood or paper will be burned at the landfill. Burning will only be conducted at times when winds are low or calm. A permit to open burn will be applied for from Department of Sustainable Development prior to commencement of

this activity. The mine environmental coordinator will be responsible for keeping the permit current.

5.5 Inspection

Inspection of landfill operation will be the responsibility of the mine environmental coordinator. The environmental coordinator will monitor landfill operation and report issues to senior management personnel who will have the authority to ensure issues are addressed. On going issues that need general cooperation at the mine to be resolved will be subject to discussion at health, safety and environment committee meetings.

Inspection by the environmental coordinator will include:

- berm integrity;
- fence and gate integrity;
- housekeeping;
- evidence of unauthorized use of the landfill;
- evidence of ponding of water on berms, mounds or unused areas;
- any other items that may indicate problems with safe operation of the landfill.

Problems will be reported to the appropriate mine management personnel (and if required to the health, safety and environment committee chair) for action. Issues will be addressed on a priority basis.

Annual volumes of waste will be estimated and recorded by the environmental coordinator. Records will be retained for management and government inspection purposes.

5.6 Closure

The landfill will be capped and closed progressively as final elevations are achieved. Final elevations will be field fit so that stability of the dump is maintained. Rounded tops will be established on all completed portions of the landfill so that water does not accumulate on tops and percolate through the waste piles. With increase in the perimeter berm height, additional lifts of waste may be stored.

Final closure of the landfill will be undertaken once the site can no longer be used dictated by site conditions (not anticipated) or when the mine closes as part of mine closure activities. Final closure will consist of pushing waste rock over the landfill to a depth to allow permanent freezing and encapsulation in permafrost. Pursuant to regulations in force at the time of closure of the landfill, notification will be provided to the Nunavut Water Board, Department of Sustainable Development and DIAND in advance of closure. KIA will be informed as a courtesy. Current requirements are for six months pre-notification for municipal solid waste landfills.

6.0 PLAN REVIEW AND CONTINUAL IMPROVEMENT

When the landfill is constructed, as-built drawings will be substituted for the drawings presented in this plan. The plan will be reviewed annually by the mine management personnel. Suggestions for improvements will be solicited from employees through the health, safety and environment committee on an on-going basis. Improvements suggested through these reviews

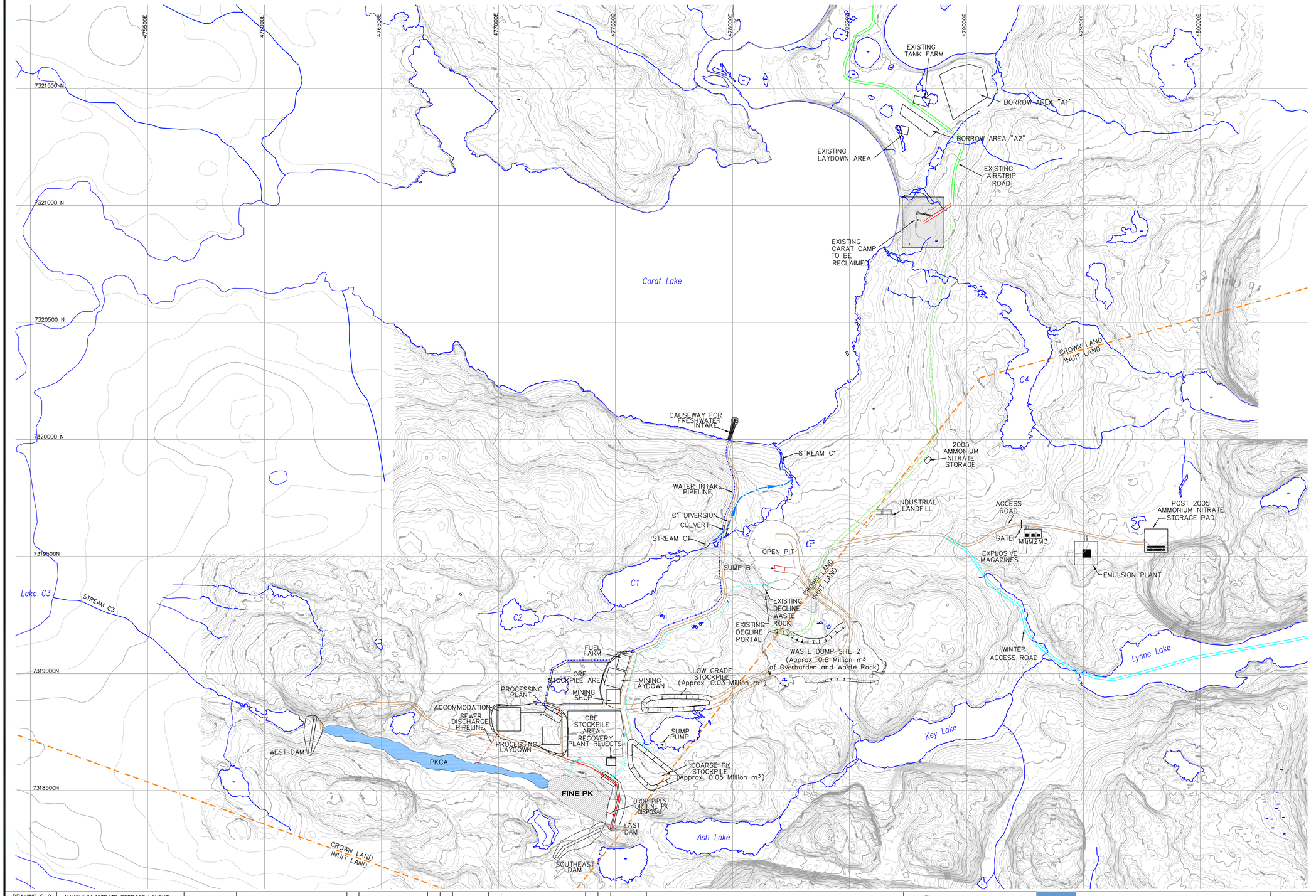
will be implemented in consultation with Nunavut Water Board, the Department of Sustainable Development, DIAND and Environment Canada inspectors. KIA will be provided a copy of amended plans as a courtesy.

REFERENCES

Kent, R., P. Marshall and L. Hawke. 2003. Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the NWT. Report prepared for Dept. Municip. and Commun. Affairs, GNWT by Ferguson Simek Clark.

DRAWINGS

SITE GAs



LEGEND

- EXISTING ROAD
- EXISTING ROAD (APPROXIMATE LOCATION)
- ROAD REQUIRED BY YEAR 1
- WINTER ROAD
- FRESH WATER PIPELINE
- MINE WATER PIPELINE
- FINE PK DISCHARGE PIPELINE
- RECLAIM PIPELINE
- SEWER PIPELINE
- DITCH

NOTES:

1. LAYOUTS ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL SIZE AND FOOTPRINT LOCATIONS
2. SHOULD THE GRADE OF THE LOW GRADE MATERIAL BE FAVORABLE, THIS MATERIAL MAY GET PROCESSED WHICH WOULD LEAD TO A REDUCTION IN THE SIZE OF THE STOCKPILE
3. THE TIMING OF THE CONSTRUCTION AT THE NORTH DAM, AND THE COMPLETION OF OF THE EAST AND SOUTHEAST DAMS WILL BE REVIEWED ANNUALLY UNTIL THE DAMS ARE CONSTRUCTED OR OPERATIONS CEASE.
4. SUMP PUMPS SHOWN DISCHARGE TO THE PKCA.

TAHERA CORPORATION
JERICHO LAKE SOUTHWEST EXTENSION

Date of Photography: August 5, 1995.
Scale of Photography: 1:10 000
Survey control supplied by: Canamera Geological Ltd.
Survey control based on: UTM Projection, NAD 27, Zone 12
Compiled by The ORTHOSHOP, Calgary, October 1995.
WO 7423

0 100 200 300 400 500 METRES
1: 8000

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE
DRAWING G-9	AMMONIUM NITRATE STORAGE LAYOUT		
DRAWING G-8	BORROW AREAS PLAN & SECTION		
DRAWING G-7	TERRAIN EVALUATION MAP		
DRAWING G-6	BEDROCK GEOLOGY MAP		
DRAWING G-5	QUATERNARY GEOLOGY MAP		
DRAWING G-4	EXISTING THERMISTOR INSTALLATION PLAN	DRAWING G-14	CLOSURE CONCEPTS
DRAWING G-3	SITE INVESTIGATION MAP	DRAWING G-13	GENERAL ARRANGEMENT APRIL 2013
DRAWING G-2	SITE VICINITY MAP	DRAWING G-12	GENERAL ARRANGEMENT APRIL 2008
DRAWING G-1	PROJECT LOCATION AND DRAWING INDEX	DRAWING G-11	GENERAL ARRANGEMENT APRIL 2007

REFERENCE DRAWINGS

No.	DESCRIPTION	CHK'D/APP'D	DATE

REVISIONS

REV.	ISSUE PURPOSE	AUTH. BY	DATE
A	WATER LICENSE APPLICATION	CCS	JULY 2004

ISSUE AUTHORIZATION

WATER LICENSE APPLICATION

SRK Consulting — Engineers and Scientists

DESIGNED BY: CCS	DRAWN BY: JM
DATE: JULY 2004	DATE: JULY 2004
CHECKED BY: CCS	DISCIP. ENGR.
DATE: JULY 2004	DATE:
PROJ. MGR:	PROJ. ENGR.
DATE	DATE

SRK PROJECT NUMBER: 1CT004.06

Tahera CORPORATION

Tahera Corporation

JERICHO PROJECT

DRAFT

GENERAL ARRANGEMENT AT END OF APRIL 2006

DRAWING NUMBER: 1CT004.06 – G10

REV.: A

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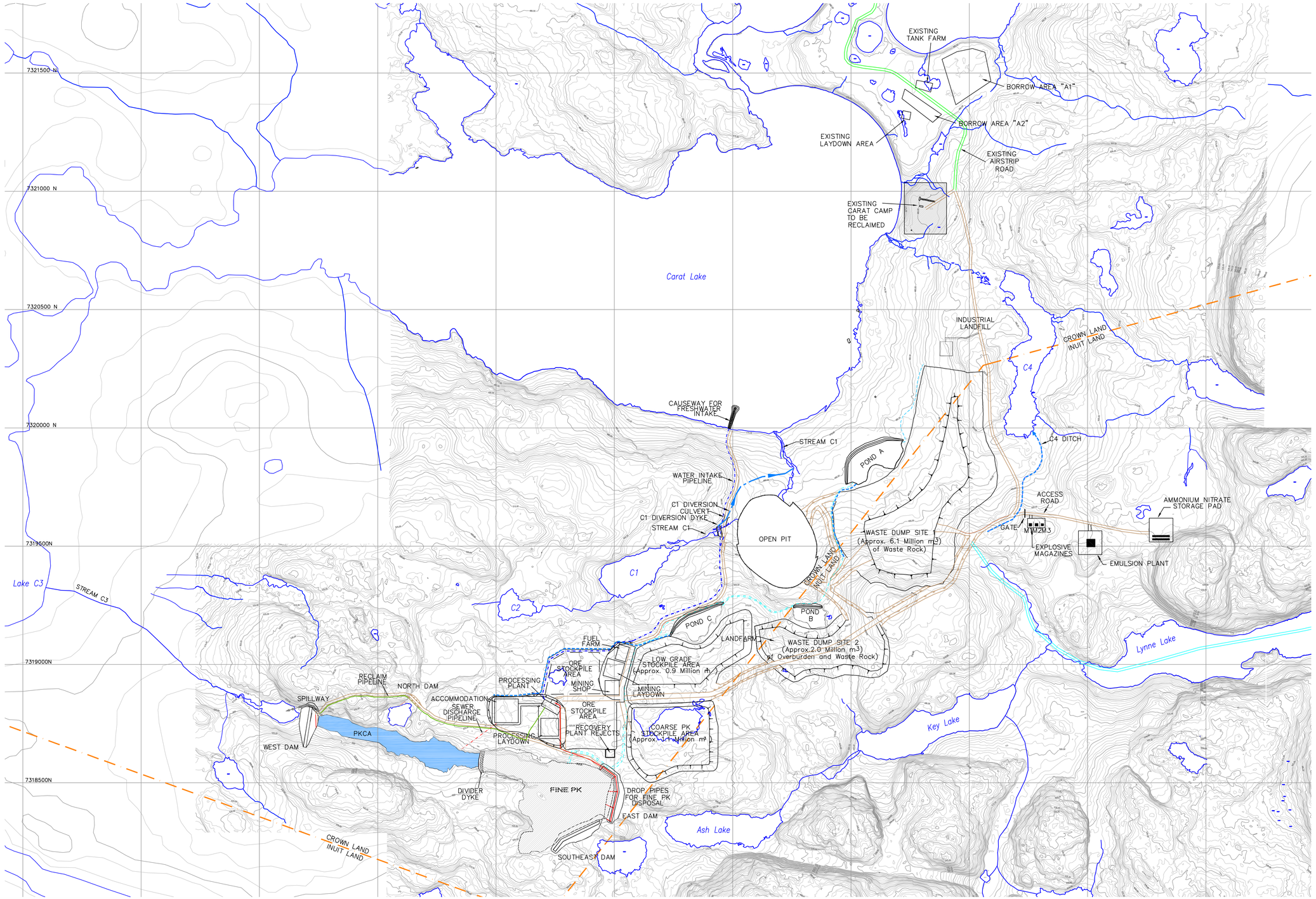

LEGEND

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- ROAD REQUIRED BY YEAR 7
- WINTER ROAD
- FRESH WATER PIPELINE
- MINE WATER PIPELINE
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3. THE NEED FOR THE SOUTHEAST DAM WILL BE EVALUATED EACH YEAR OVER THE LIFE OF MINE.
4. STOCKPILE FOR CENTRAL AND NORTH KIMBERLITE LOBES SHOW MAXIMUM LIMITS. ORE STOCKPILES DEPLETED BY 2013.

TAHERA CORPORATION
JERICHO LAKE SOUTHWEST EXTENSION

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PROJ. MGR:	PROJ. ENGR.
DATE	DATE

SRK PROJECT NUMBER: 1CT004.06

Tahera CORPORATION

Tahera Corporation

JERICHO PROJECT

DRAFT

GENERAL ARRANGEMENT AT END OF DECEMBER 2013

DRAWING NUMBER: 1CT004.06 – G13

REV.: A

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