

Shear Diamonds (Nunavut) Corp., a wholly-owned subsidiary of



**2011-2012 WORKPLAN TO EVALUATE THE JERICO RESOURCE**  
**AND SITE INFRASTRUCTURE**

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Figure 1: Jericho Site Map

## 1.0 INTRODUCTION

The Jericho Diamond Mine is located approximately 260 km southeast of Kugluktuk, NU and 30 km north of Lupin Mine. The Jericho Mine was constructed and operated by Tahera Diamond Corporation (“TDC”) between 2004 and 2008. On January 12<sup>th</sup>, 2008, The Jericho Diamond Mine, and all its assets and liabilities entered the CCAA process. On August 27, 2010, Shear Diamonds Ltd. (“Shear”) through its 100% wholly-owned subsidiary Shear Diamonds (Nunavut) Corp. completed the purchase the Jericho Mine and its assets and assumed the responsibility for the site. All mineral tenure and associated regulatory authorities for Jericho are held in Shear Diamonds (Nunavut) Corp., a Nunavut registered company.

On January 16, 2008, TDC and its wholly owned subsidiary Benachee Resources Inc. (“Benachee”), owners of the Jericho Diamond Mine, filed for protection under the *Companies’ Creditors Arrangement Act* (“CCAA”) due to a severe cash flow crisis. Pursuant to the initial order of the Ontario Superior Court of Justice, a stay of proceedings was granted and all proceedings and enforcement processes against TDC and Benachee were stayed.

Through the course of the restructuring, TDC identified two strategic goals to be achieved in the CCAA process. The first goal was to realize upon TDC’s non-strategic assets by selling its tax losses. The second goal was to restart the Jericho Diamond Mine through a recapitalization, a refinancing, a sale or some combination thereof. On June 3, 2009, after extensive negotiations and due diligence, TDC achieved its first goal pursuant to a highly complex transaction with an income trust.

With respect to the second goal, during the CCAA process TDC went through two unsuccessful attempts to find a purchaser for the Jericho Diamond Mine. On January 15, 2010 the Ontario Court approved and authorized TDC to conduct a formal sales process inviting offers for either a sale *en bloc* to facilitate a going concern reopening or, alternatively, a liquidation, in whole or in part, of the Jericho Diamond Mine. After negotiations with various parties, TDC entered into a letter of intent with Shear on May 5, 2010 which contemplated the sale of the Jericho Diamond Mine. The sale to Shear closed on August 27, 2010 and the Jericho Diamond Mine and substantially all the assets of TDC were vested in Shear pursuant to an Order of the Ontario Court dated July 27, 2010.

The Jericho Workplan to Evaluate the Resource and Site Infrastructure (“WRSI”), described herein, has been developed to provide an overview of the detailed components that Shear and its contractors will undertake in order to evaluate the site.

The WRSI is meant to be read in conjunction with the Care and Maintenance Plan (EBA, 2011) that has been filed simultaneously with the Nunavut Water Board (“NWB”).

The WRSI has been developed in order to re assess the economic viability of the Jericho Diamond Mine over the next 18 to 24 months. The property will remain under care and maintenance as Shear undertakes this evaluation.

## **2.0 OBJECTIVE OF THE WORKPLAN**

The prime objective of the WRSI is to ensure that Shear obtains the necessary geological data and assesses the current site infrastructure in order to be able to make the necessary decisions for the potential re-opening of the mine. This WRSI will provide Shear and its designated contractors with a collection of working datasets to manage site activities and meet Shear's milestones. A map of the Jericho Site can be referred to in Figure 1.

The components of the WRSI are critical to the future success of Jericho. Shear determined that the following are required:

- Resource Evaluation;
- Process Evaluation;
- Construction; and
- Maintenance & Repairs

## **3.0 WORKPLAN DETAILS**

The mine was designed as an open pit mine with a planned mining rate of 6 million tonnes per year and processing capacity of 2,000 tonnes per day ("tpd"). Construction and permitting at the Jericho Mine began in late 2004 and was completed by late 2005. The mine consists of a 2,000 tpd process plant and a camp with a capacity for 200+ people. Mining began in January 2006 with a commissioning phase lasting until July 2006, when full scale commercial production was declared.

### ***3.1 Resource Evaluation Plan:***

Open pit operations ceased in February 2008 and the pit has been inactive since. The pit is approximately 550 m long (N-S) and 450 m wide (E-W). The pit reaches a maximum depth of 85 m, an elevation of 405 m above sea level. The pit is now filled with water to approximately the 425 m level.

#### ***3.1 (a) Pit Dewatering***

In order to complete the full resource evaluation, Shear's plans include the dewatering of the pit in 2011. This will be coordinated with the PKCA dewatering schedule to be submitted to the NWB 30 days prior to commencing discharge. This will form an addendum to the Processed Kimberlite Management Plan ("PKMP") (EBA 2011).

#### ***3.1 (b) Drilling Plan***

A drilling plan is currently being designed for the evaluation of the Jericho kimberlite. The purpose of this work is to prove up and expand on the diamond resource. This work has to be completed from within the pit from either the ice surface in the spring using ice conditions; or preferably from the pit bottom once dewatered.

### 3.1(b)i Core Drilling

A core drill such as a Boyle 25A diamond drill (or equivalent) will drill test in order to verify areas where there is little information from previous drill programs by TDC. This drill program will be comprised of NQ or HQ-sized core holes with the objective of increasing confidence in the resource tonnage and understanding of the internal geology. The drill and equipment is mobile and is able to be moved within the pit using equipment that is currently on site, or alternatively, by helicopter.

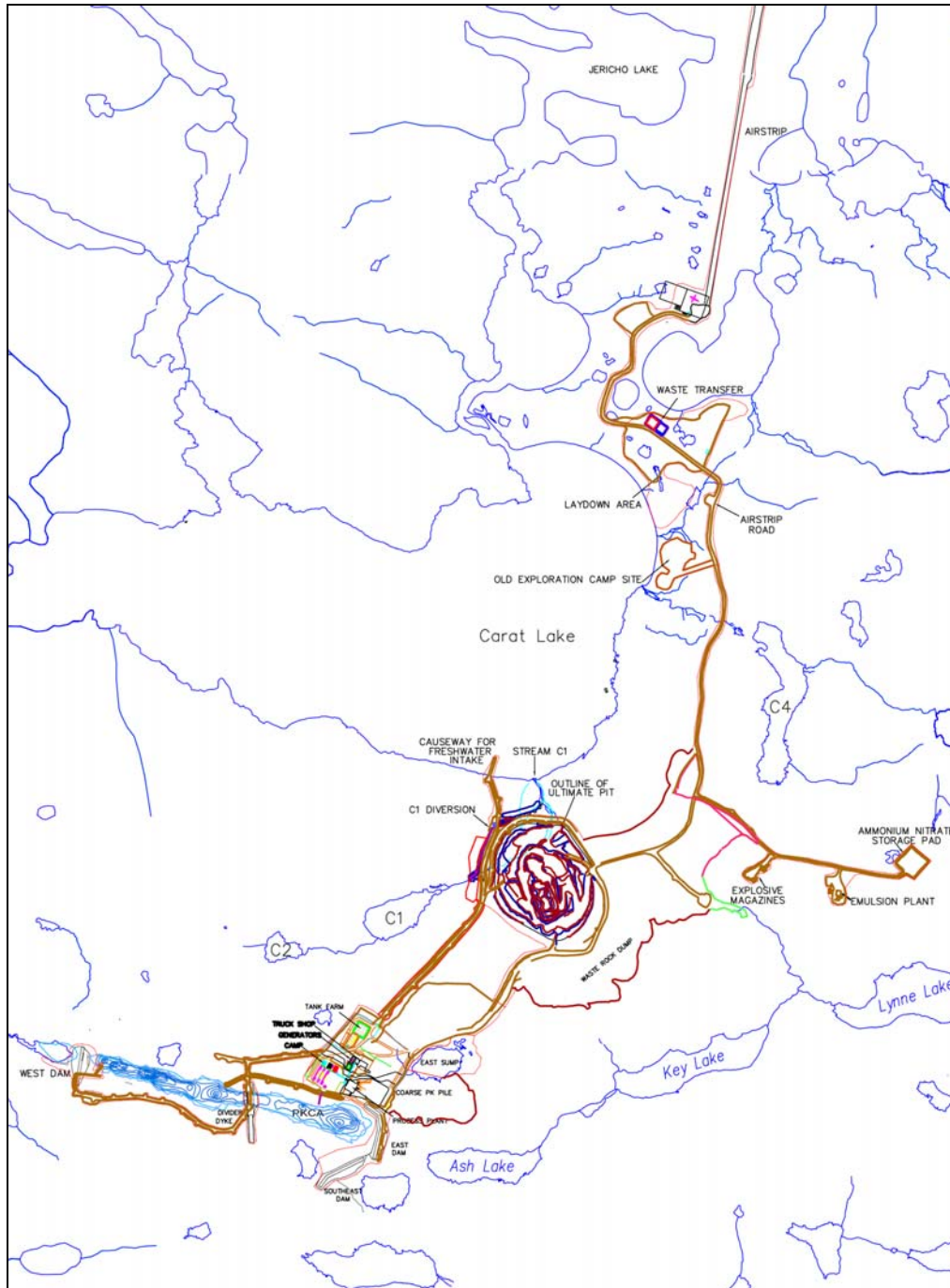


Figure 1: Jericho Site Map

### **3.1(b)ii Large Diameter Reverse Circulation Drilling**

A series of vertical holes are planned using both a core drill (as described above) and a large diameter reverse circulation ("LDRC") drill to test down to 200m below the current pit level. Samples collected will be shipped to a processing facility off-site for diamond analysis. The objective of this second phase of drilling is to extract a spatially representative kimberlite sample for geological and grade information that will go into producing an updated resource model for Jericho. The drill and equipment is mobile and is able to be moved within the pit using equipment that is currently on site, either on suitable ice or from the pit bottom once dewatered.

Any water used for in-pit drilling will be drawn from sumps within the pit.

### **3.2 Process Evaluation**

The mill and process plant has a capacity of 2,000 tpd and processed 1.2 million tonnes of kimberlite and recovered more than 780,000 carats, achieving an average grade of 0.65 cpt. The Jericho process plant is located at the southeast end of the main camp complex.

During operations recovered diamond grade was well below expectations. Factors that could have contributed to this include: improper feed size, extremely high throughput rates and poor diamond liberation. This WRSI will investigate the following:

- Testing of low grade kimberlite stockpiles, tailings and processed kimberlite;
- Equipment Crush and Sorting Improvements;

### **3.2(a) Equipment**

All the equipment that was used during the 2006-2008 production was mothballed in May 2008. Shear will perform tests under load, to ensure that the equipment has weathered the past two years and to identify the need for any repairs, improvements and/or replacement.

### **3.2(b) Plant Feed Assessment**

Current on site stockpiles and any possible diamondiferous material will be sampled and tested either using on site facilities or at off site laboratories. All discharges will follow all applicable plans.

## **3.3 Construction**

### **3.3(a) Accommodations**

The main camp at the Jericho Diamond Mine is a modular trailer camp with three accommodation wings. Cafeteria / kitchen, recreation area and office wings are also located in the camp and all wings are connected by an arctic corridor that also connects the camp to the process plant, power station and mechanics shop. The camp contains about 100 rooms and can accommodate staff of approximately 200 people. Shear's camp requirements will be substantially less than the current camp design accommodations. As a result, Shear plans to modify the camp (electrical, water distribution/treatment, accommodation) to better fit our reduced personnel requirements. The overall footprint will not be modified.

### **3.3(b) Landfarm**

NWB1JER0410, Part G, Item 13, *"The Licensee shall dispose of and contain all identified hydrocarbon-contaminated soils from spills in the Landfarm."*

A Landfarm Design and Management Plan will be submitted with the Type A Water Licence renewal application in late February 2011. In accordance with Schedule H, Item 3 b, the plan will include:

- procedures to determine acceptability of soils for remediation;
- procedures to be used during active land farming; and
- a monitoring program for both surface and groundwater.

Shear is aware that there are contaminated soils stockpiled at Jericho within the hazardous waste containment facility. The volume of these stockpiles is unknown as is the nature and extent of the contamination. In 2011 Shear, along with a geotechnical engineer consultant, will go to site to collect soil samples for analysis, determine the actual volume of contaminated material at site and scope for an appropriate location for a landfarm facility. The Landfarm Design and Management Plans will be updated and finalized for resubmission once this information has been collected and evaluated.

### **3.3 (c) Phase III Fuel Farm**

Phase III of the Fuel Farm will need to be constructed prior to resuming operations. Phase I was not constructed to engineered specifications. Phase I was constructed during the winter months using only esker material. As a result significant settling has been observed during geotechnical inspections and during licence inspections. This has been sited as a serious concern. Additionally, there have been historic significant spills within Phase I which has resulted in contamination. Once Phase III has been constructed, Phase I will be decommissioned and the contaminated material will be landfarmed. Construction of Phase III is not expected to begin until 2012. The design will be submitted with the Type A Water Licence renewal application to be filed in February 2011.

### **3.3(d) PKCA**

A detailed description of the current status of the PKCA is provided in the Processed Kimberlite Containment Area Management Plan, PKMP (EBA 2011) submitted as part of the Care and Maintenance Plan (EBA 2011).

Water management in the PKCA is a critical component of the mine operation. The construction of the dams and dykes was to be staged as they were required. Construction of Divider Dyke B, the North Dam and the West Dam was to be completed on or before 2007. However, the construction was delayed due to operational constraints and the subsequent suspension of mining activities. Prior to mining the operating volume of the PKCA must be firmly established and construction of the dykes and dams resumed as required.

<b>TABLE 1: SUMMARY OF JERICHO PKCA STRUCTURES</b>				
<b>Structure</b>	<b>Status</b>	<b>Design Crest Elevation (m)</b>	<b>As-built Crest Elevation (approx.) (m)</b>	<b>Comment</b>
<b>East Dam</b>	Completed	524.5 Crest 523.5 Liner	524.5 Crest 523.5 Liner	A road was constructed on top of the East Dam. The crest of the road is approximately 527 m
<b>Southeast Dam</b>	Completed	524.5 Crest 523.5 Liner	524.5 Crest 523.5 Liner	
<b>Divider Dyke A</b>	Partially Constructed	524	Varies – low point 521.5	
<b>Divider Dyke B</b>	Not in Place	524	–	
<b>West Dam</b>	Partially Constructed	528 Crest 524 Core	525 (min.) Crest 520 (min.) Core	
<b>North Dam</b>	Not in Place – upstream coffer dam constructed in 2007	528 Crest 524 Core	Coffer Dam Till 521 ROM Crest 522	Natural Ground of North Dam saddle 518.2 m (approx)
<b>Perimeter PK Containment Berm</b>	Not in Place	528.5	–	

Table 1 presents a summary of the structures in the PKCA.

The East and Southeast Dams have been constructed to final elevation and are complete.

The core of the West Dam has been completed to a minimum elevation of 520 m. The core will need to be raised a further 4.0 m before Cells B and C can be used to full capacity as originally designed.

However, currently the limiting factor in the PKCA is the absence of the North Dam. A coffer dam was built within the North Dam saddle as a temporary measure to prevent waves and splashing water from flowing out into the receiving environment. The elevation of the coffer dam is not as high as the design of the North Dam. As mentioned previously, the construction of the North Dam was to be completed in 2007. The absence of the dam greatly reduces the holding capacities of Cells B and C which is an impediment to future operations. Design documents are in place for both the North and West Dams and can be found in the PKMP.

The filter zone of Divider Dyke A is presently constructed to a minimum elevation of 521.5 m. The dyke will need to be constructed to the final elevation of 524 m shortly after resuming processing activities in order to ensure sufficient capacity within the cell and to ensure that the quality of the supernatant water is not compromised by an insufficient filter material.

Divider Dyke B has not been constructed but will be required once Cell A is nearing capacity. Divider Dyke B has not been designed but it is expected that the final design of Divider Dyke B will be similar to Divider Dyke A.



### ***3.3(e) Divider Dykes***

The main objectives of constructing contingency retention structures are to collect runoff water for potential treatment before discharge into the PKCA and to reduce the short term loading in the pit sump and PKCA. It is Shear's intention to evaluate the necessity for Contingency Ponds A, B and C in 2011. Should it be determined that any or all of these retention structures are required, Shear will submit a design and construction plan for review and approval at least 60 days prior to the construction.

## ***3.4 Maintenance and Repairs***

### ***3.4 (a) Buildings***

As with all the equipment on site, the buildings and associated structures at Jericho were mothballed in May 2008. Shear will be performing a full evaluation of buildings and associated structures on site, to ensure that all structures meet Health and Safety operating guidelines and regulations.

### ***3.4 (b) Ancillary Power and Equipment Structures***

A full evaluation, complete with appropriate load testing on all structures, mechanical and power equipment will be undertaken to ensure that the structures, mechanical and power equipment meet all requirements, operating parameters, and permitted regulatory approvals.

### ***3.4 (c) Causeway***

During geotechnical inspections it was noted that there has been sloughing of material due to ice action on the north end of the water intake causeway. In 2011 Shear will evaluate the extent of this deterioration and will develop a plan to repair the causeway.

### ***3.4 (d) Airstrip***

Access to the Jericho site is best accomplished via fixed wing aircraft from Yellowknife, Cambridge Bay or Kugluktuk. Currently a 1,375 m (4,500 ft) airstrip, of which 3,500 ft is all-weather, provides year round access to the Jericho site for personnel and supplies. The airstrip is also equipped with runway lights and a 10 m tower weather station. An all-weather road that is approximately 4 km long connects the airstrip to the main camp.

Past operational access of larger aircraft has been limited to the winter months when the final 300 m portion of the airstrip is sufficiently compacted for use by larger aircraft. This year Shear will compact the final 300 m to appropriate specifications for heavier and larger aircraft which will enable use of the airstrip throughout the entire year.

#### **4.0 CLOSURE**

We trust that this WRSI meets with your requirements. Should you have any questions and comments, please contact Shear at your convenience.

On behalf of Shear Diamonds Ltd. & Shear Diamonds (Nunavut) Ltd.

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