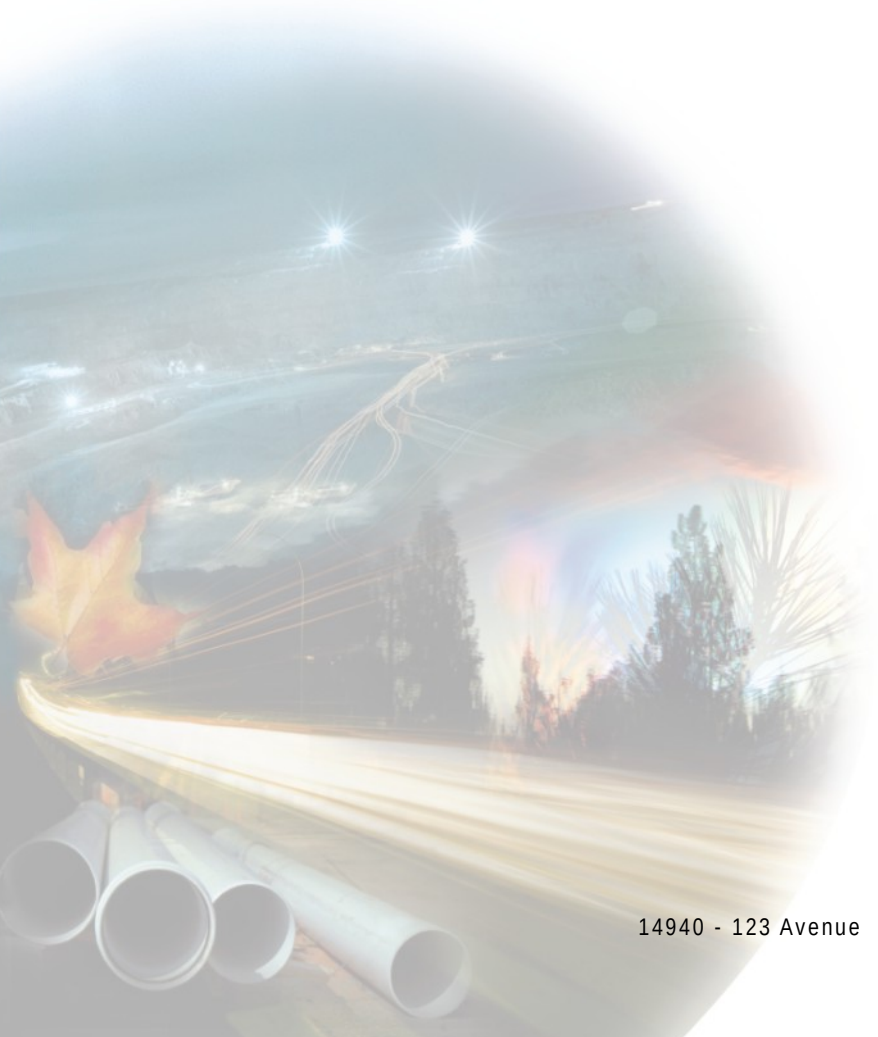
Tahera Diamond Corporation

NORTH DAM
GEOTECHNICAL SITE INVESTIGATION
JERICHO DIAMOND MINE, NU

1100060.011

July 2007



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EXECUTIVE SUMMARY

EBA Engineering Consultants Ltd. (EBA) was retained by Tahera Diamond Corporation (TDC) to complete a geotechnical investigation for the North Dam at Jericho Diamond Mine, NU. The dam comprises part of TDC's processed kimberlite management plan and is required to retain water within the processed kimberlite containment area (PKCA). The proposed dam is located on the north side of the PKCA, near its downstream end.

Four boreholes were drilled along the proposed alignment, using a diamond drill equipped with an HQ core barrel. Chilled brine was used to obtain samples of the frozen till overlying bedrock.

The generalized stratigraphy comprises silty sand till overlying granitic bedrock. The depth to bedrock ranged from 0.8 m in Borehole ND-BH-1 to 3.8 m in Borehole ND-BH-2. Estimated visual ice content in the overburden soil was typically less than 5 percent by volume. The underlying bedrock is predominantly granite with sporadic pegmatite veins. With the exception of Borehole ND-BH-1, joints were closely to moderately spaced. In Borehole ND-BH-1, fractured zones were encountered approximately 7.3 m below original ground.

A ground temperature cable was installed at Borehole ND-BH-2 and three single bead thermistors at Borehole ND-BH-1.

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1.0 INTRODUCTION

1.1 GENERAL

EBA Engineering Consultants Ltd. (EBA) was retained by Tahera Diamond Corporation (TDC) to complete a geotechnical investigation for the proposed North Dam at the Jericho Diamond Mine, NU. The purpose of the investigation was to collect and provide geotechnical information to assist with the North Dam design.

This report presents the results of the geotechnical investigation. EBA is concurrently working on a design for the North Dam, which will be documented in a separate report.

1.2 PROJECT DETAILS

Processed kimberlite, resulting from ore processing, is discharged to the processed kimberlite containment area (PKCA), located within the former Long Lake basin. Several dams are required to provide containment for the processed kimberlite and prevent release to the environment.

The North Dam forms part of TDC's processed kimberlite management plan and is required to provide containment within the PKCA. It is located on the northwest side of the PKCA as shown in Figure 1. The dam is located in a narrow valley and is roughly oriented in a northwest-southeast direction. The dam is relatively short, being approximately 100 m in length.

2.0 METHODOLOGY

2.1 SITE INVESTIGATION

The site investigation was conducted by Mr. Gary Koop, Ms. Renata Klassen and Mr. Jason Porter, of EBA, from January 31 to February 13, 2007. Ms. Klassen started the investigation and was on site until February 9, after which time Mr. Porter continued in her place. Drilling and sampling were completed using continuous 12-hour shifts.

EBA attempted to mobilize to site on January 31, at the same time as the drill crew. Poor weather delayed arrival on site until February 2. Drilling of the first hole did not commence until February 5 because the drillers needed time to set up their equipment and access roads to the site had to be completed.

A total of four boreholes were advanced with a skid mounted, diamond drill rig, operated by Connors Drilling Ltd. (Connors). Frozen overburden and bedrock samples were recovered during drilling using conventional HQ3 diamond drilling techniques.

Boreholes were drilled along the proposed dam alignment as shown in Figure 2. Boreholes ND-BH-1 and ND-BH-4 were located along the dam abutment and Boreholes ND-BH-2 and ND-BH-3 were located in the valley. Borehole ND-BH-3 was sited in an

area of increased surface boulders, and Borehole ND-BH-2 located where the overburden was anticipated to be thickest. Boreholes were drilled to a minimum depth of 10 m. In all cases, bedrock was encountered within the borehole depth. Select site photographs are presented in the photographs section.

To obtain frozen overburden and bedrock samples, chilled brine was used as the drilling fluid when coring the overburden and the upper portions of the bedrock. The brine was mixed in large tanks and allowed to cool to -3°C before starting drilling. The lower portion of the boreholes was typically drilled with fresh water to flush the hole and expedite the drilling process.

Core recovery in the abutment holes was poor. In both holes, casing was advanced ahead of drilling, resulting in the overburden material being washed away. For the valley holes, the core barrel was advanced through the overburden, ahead of casing placement. Core recovery for the central boreholes was fair to good. Some core loss still occurred as a function of the sandy soil conditions being drilled through.

Borehole ND-BH-1, at the north abutment, was located on a steep slope. A snow/ice pad, spanning from abutment to abutment, was constructed to provide access to the abutment boreholes (Photos 1 and 2). However, the pad was several metres thick in the centre and blocked access to the two boreholes in the valley. Therefore, the two abutment holes were drilled first, and the pad subsequently excavated, to provide access to the valley borehole locations.

Boreholes were logged based on observation of recovered core samples and drill behaviour. This included visual classification of soils, observation of ground ice conditions and interpretation of subsurface moisture conditions and soil stratigraphy. Bedrock index properties measured in the field included percent recovery, fracture frequency (FF) and rock quality designation (RQD). Borehole logs are presented in Appendix B.

Preliminary core review and logging was completed in the field. A secondary review of the recovered samples was completed in EBA's on-site laboratory. This included photo-documenting the recovered core.

2.2 INSTRUMENTATION

A ground temperature cable (GTC) was installed in Borehole ND-BH-2. The cable was installed inside a closed bottom PVC casing, which was pushed to the bottom of the hole following drilling. Because the hole was full of water, the PVC pipe was buoyant and tended to float during installation. The pipe was pushed to the bottom of the hole, held in place, and backfilled with silica sand around the outer annulus. However, even with backfilling, the pipe floated up a little during cable installation, resulting in the bottom bead being located at 14 m below original ground, as opposed to the design 15 m.

Three single bead thermistors were also installed in Borehole ND-BH-1 at depths of 2.4 and 8.7 m.

2.3 IN SITU TESTING

Percolation testing was completed in each borehole following borehole completion. The test was carried out for a minimum of 90 minutes at each location. All boreholes, with the exception of Borehole ND-BH-1, were filled to the top of the casing and the drop in water elevation measured with time. The results are described in Section 3.3

In Borehole ND-BH-1, fractured zones were encountered during drilling, which prevented filling of the borehole above a depth of 7.5 m below original ground.

2.4 BOREHOLE LOCATES AND SURVEY

Survey control for the site investigation was provided by Sub-Artic Survey Ltd. (SAS). SAS provided borehole layout based on coordinates provided by EBA and completed an as-drilled survey of the borehole locations.

The initial as-drilled survey was completed while there was still snow on the ground, preventing an accurate survey of the original ground elevations. A second as-drilled survey was completed on June 23, 2007 following snow melt, at which time the original ground elevation was picked up.

The coordinates and elevations for each borehole are provided on the respective borehole logs and summarized in Table 1. Borehole locations are shown in Figure 2.

TABLE 1: BOREHOLE SUMMARY

Borehole	UTM ZONE 12		Surface Elevation(m)	Depth to Bedrock (m)	Completion Depth (m)
	Northing (m)	Easting (m)			
ND-BH-01	7,318,859.9	476,637.4	522.22	0.84	10.91
ND-BH-02	7,318,846.1	476,648.9	518.20	3.82	14.95
ND-BH-03	7,318,829.8	476,663.5	519.41	1.46	10.47
ND-BH-04	7,318,818.2	476,676.3	522.45	1.51	11.71

2.5 LABORATORY TESTING

Select overburden samples were sent to EBA's Edmonton laboratory. Testing of the recovered samples included moisture content, particle size analyses and salinity testing. Test results are included in the borehole logs (Appendix B) and are summarized in Appendix C.

The initial salinity test results were higher than expected and were considered to be a result of brine contamination from drilling and unrepresentative of actual site conditions. A second set of till samples was taken from till excavations around the site. These samples were sent to EBA's Edmonton laboratory for salinity testing.

3.0 SITE DESCRIPTION

3.1 SURFACE CONDITIONS AND SURFICIAL GEOLOGY

An assessment of the surficial geology was completed based on a review of aerial photographs. The interpreted surficial geology is shown in Figure 2.

The drill site was snow covered at the time of the investigation, preventing a good assessment of the ground surface conditions; however, subsequent site visits have allowed for the surface conditions to be observed.

The valley floor is approximately 30 m wide and is located in the till blanket terrain unit. The valley floor is relatively flat and surface conditions consist of well vegetated till with some scattered boulders (Photo 3). There is a small boulder field at the toe of the south abutment, progressing a short distance up the slope.

The north valley slope is covered with till or colluvium outcropping bedrock. Borehole ND-BH-1 was drilled just northeast of a bedrock outcrop (Photo 4). The overall abutment slope is in the order of 2.5H:1V.

The south valley slope is less steep with grades in the order of 6.5H:1V. Surface conditions consist of scattered surface boulders separated by areas of vegetated till. The south slope is shown in Photo 5.

3.2 SUBSURFACE CONDITIONS

General

Figure 3 shows the subsurface conditions along the proposed dam alignment. Generally the soil stratigraphy can be described as silty sand till overlying bedrock. The overburden within the boreholes contains limited excess ground ice. A more detailed description of the overburden and bedrock follows.

Overburden

Overburden soil thickness ranged from 0.8 m in Borehole ND-BH-1 to 3.8 m in Borehole ND-BH-2. The overburden soils generally comprise sand till with varying quantities of gravel, cobbles and fines. Particle size analyses showed the fines content to be in the order of 20 to 35 percent, and in one case, greater than 35 percent. Moisture contents ranged from 5.5 to 12.0 percent. Trace amounts of excess ice was observed in Boreholes ND-BH-2 and ND-BH-3 during logging. The estimated percentage of visible ice (by volume) was less than 5 percent.

A thin layer of organics was encountered at the surface in Borehole ND-BH-2. This organic layer was 20 mm in thickness and was dark brown.

Initial salinity testing of the overburden soils returned values ranging from 8 to 18 ppt. These values are higher than what is typically seen in the area and are believed to have resulted from brine contamination from drilling. A second set of till samples was collected

from various sources on site. Tests of these samples showed salinities ranging from 2 to 8 ppt, which is considered more indicative of the actual ground conditions.

Bedrock

Bedrock was encountered in all boreholes. The depth to bedrock was shallowest on the abutment holes where it was encountered at 0.8 and 1.5 m below the ground surface for Boreholes ND-BH-1 and ND-BH-4, respectively. The deepest bedrock was encountered in Borehole ND-BH-2 at a depth of 3.8 m.

The bedrock generally comprises grey and pink, medium-grained granite. The rock is slightly weathered with close to moderately spaced joints. Oxide staining was observed on the fracture faces of many joints. Much of the jointing occurred along thin biotite laminations visible in the rock.

Zones of fractured rock were encountered in Borehole ND-BH-1 at depths below 7.3 m. In total, four fractures zones were encountered, typically less than 300 mm in thickness. During drilling, all return water was lost when the first fractured zone was encountered at 7.3 m below original ground.

Thin bands of coarse grained pegmatite were encountered in all boreholes. The pegmatite was encountered at depths of 3.2 and 9.7 m (Boreholes ND-BH-1 and ND-BH-4 respectively), and was sandwiched between granite. The pegmatite overlies the granite in Boreholes ND-BH-2 and ND-BH-3. The pegmatite thickness ranged from 0.1 to 0.2 m in Boreholes ND-BH-1 through ND-BH-3, and approximately 0.45 m in Borehole ND-BH-4.

3.3 PERCOLATION TEST RESULTS

Percolation tests were carried out in the boreholes. The test is similar to a falling head test. The borehole is filled with water, and the water level is monitored over time to determine the depth where the water level stabilizes. Percolation test results are summarized in Tables 2 through 4.

Percolation testing for Borehole ND-BH-1 was attempted on the night shift of February 6. The crew initially tried filling the borehole hole using 5 gallon buckets, but they could not raise the water level above the elevation of the fractured zone. Following this, water was pumped down the hole for several minutes; however, the water level still could not be raised above the fracture zone elevation. The water depth was measured at 08:35 the following morning at 7.5 m below original ground. This was unchanged from the value measured the night previous.

TABLE 2: PERCOLATION TEST RESULTS - BOREHOLE ND-BH-2		
Time	Elapsed Time from start (minutes)	Depth to Water (m) (below top of casing)
0834		0
0835	1	0.44
0836	2	0.63
0839	5	0.79
0844	10	0.85
0854	20	0.90
0914	40	0.98
0934	60	1.03
1004	90	1.08
Test completed on February 13 2007 **OG estimated 0.9 – 1.0 m below top of casing** **Test terminated to install GTC**		

TABLE 3: PERCOLATION TEST RESULTS – BOREHOLE ND-BH-3		
Time	Elapsed Time from start (minutes)	Depth to Water (m) (below top of casing)
1319		0
1320	1	1.58
1321	2	1.60
1324	5	1.60
1329	10	1.61
1334	15	1.62
1358	39	1.64
1437	78	1.66
1522	123	1.68
1727	248	1.76
2029	430	1.72
Feb. 12, 0852	1173	1.66
1338	1459	1.62
Test started on February 11, 2007 **OG 0.88 m below top of casing**		

TABLE 4: PERCOLATION TEST RESULTS – BOREHOLE ND-BH-4		
Time	Elapsed Time from start (minutes)	Depth to Water (m) (below top of casing)
1448		0
1449	1	0.8
1450	2	1.02
1453	5	1.07
1458	10	1.07
1503	15	1.12
1605	39	1.12
1858	78	1.10
Feb 9 0910	123	0.68*
Test started on February 8 **Feb 9, water was frozen** **OG estimated 1.1 m below top of casing**		

3.4 GROUND TEMPERATURES

A multibead ground temperature cable was installed in Borehole ND-BH-2 and single bead ground temperature cables were installed in Borehole ND-BH-1. The ground temperature readings from Borehole ND-BH-2 are presented in Figure 4. The readings indicated a ground temperature at depth in the order of -2.5°C. Ground temperatures measured at Borehole ND-BH-1 are summarized in Table 5.

TABLE 5: BOREHOLE ND-BH-1 GROUND TEMPERATURES	
Depth	Temperature June 11, 2007
2.4 m	-2.6°C
8.7 m	-2.4°C

4.0 LIMITATIONS

This data report presents the findings of a geotechnical investigation at the proposed North Dam. The conditions are considered to be reasonably representative of the site.

This report has been prepared for the exclusive use of Tahera Diamond Corporation and their agents, for specific application to the development described in Section 1.0 of this report. It has been prepared in accordance with generally accepted soil and foundation engineering practices. No other warranty is made, either express or implied.

Reference should be made to the General Conditions attached in Appendix A of this report for further limitations.

5.0 CLOSURE

We trust this satisfies your present requirements. If you have any questions, please contact the undersigned at your convenience.

Respectfully submitted,
EBA Engineering Consultants Ltd.

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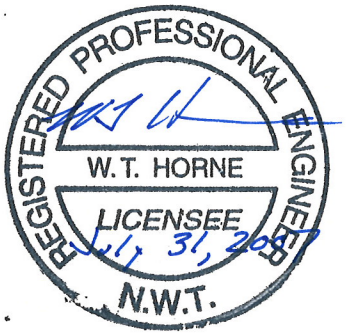

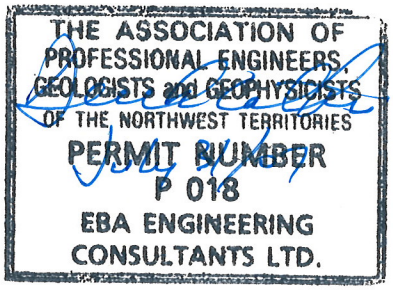

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/jnc

REFERENCES

EBA Engineering Consultants Ltd., 2006. Jericho Project, Processed Kimberlite Management Plan. Report submitted to Tahera Diamond Corporation, February 2006. EBA File: 1100060.004

FIGURES

CARAT LAKE

CAUSEWAY FOR FRESHWATER INTAKE

C1 DIVERSION

STREAM C1

OPEN PIT

WASTE DUMP SITE 1

PROPOSED WINTER ROAD

Lake C1

Lake C2

POND B

WASTE DUMP SITE 2

7320000N

7319500N

7319000N

476000E

476800E

477600E

478400E

479200E

480000E

STREAM C3

NORTH DAM

SETTLING DAM (OPTIONAL)

ADDITIONAL SETTLING POND (OPTIONAL)

WEST DAM

CELL C

CELL B

DIVIDER DYKE A

DIVIDER DYKE B (FUTURE)

CELL A

WEST DAM ACCESS ROAD (APPROXIMATE LOCATION)

PROCESSED KIMBERLITE CONTAINMENT AREA (PKCA)

CROWN LAND

INUIT LAND

COARSE PK STOCKPILE (OPTIONAL)

PLANT SITE

EAST SUMP

COARSE PK STOCKPILE

POSSIBLE FINE PK DISCHARGE LOCATIONS

EAST DAM

SOUTHEAST DAM

COARSE PK STOCKPILE (OPTIONAL)

Key Lake

Ash Lake

0 500

Scale (metres)

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CLIENT

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Diamond Corporation

Tahera Diamond Corporation
Jericho Project

General Site Plan

EBA Engineering Consultants Ltd.

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1100060.011 1100060011Q01b.dwg	DBD	GK	0
OFFICE: EBA-EDM	DATE: July, 2007		

Figure 1

LEGEND

Quaternary Holocene Deposits

- C — Colluvium.
- T_1 — Till Veneer (less than 2 m thick)
- T_2 — Till Blanket (more than 2 m thick)

Pre-Cambrian Bedrock

- R — Undifferentiated metamorphic and volcanic bedrock with patches of surficial material (till, colluvium etc.)
- D — NNW Oriented Diabase Dykes (Mackenzie)
- Geological Boundary (Approximate)
- Borehole Location

R
R
C
T_2
NORTH DAM
ND-BH-1
ND-BH-2
ND-BH-3
ND-BH-4
T_1
D
C
7318900N
7318800N
476500E
476600E
476700E
476800E

NOTE:
ESTIMATES OF TILL THICKNESS BASED ON SURFACE EXPRESSIONS.
ACTUAL DEPTHS WILL VARY. GEOTECHNICAL INVESTIGATION
WOULD BE REQUIRED TO CONFIRM DEPTHS.

0 50
Scale (metres)

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Surficial Geology and Borehole Location

EBA Engineering Consultants Ltd.

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Figure 2

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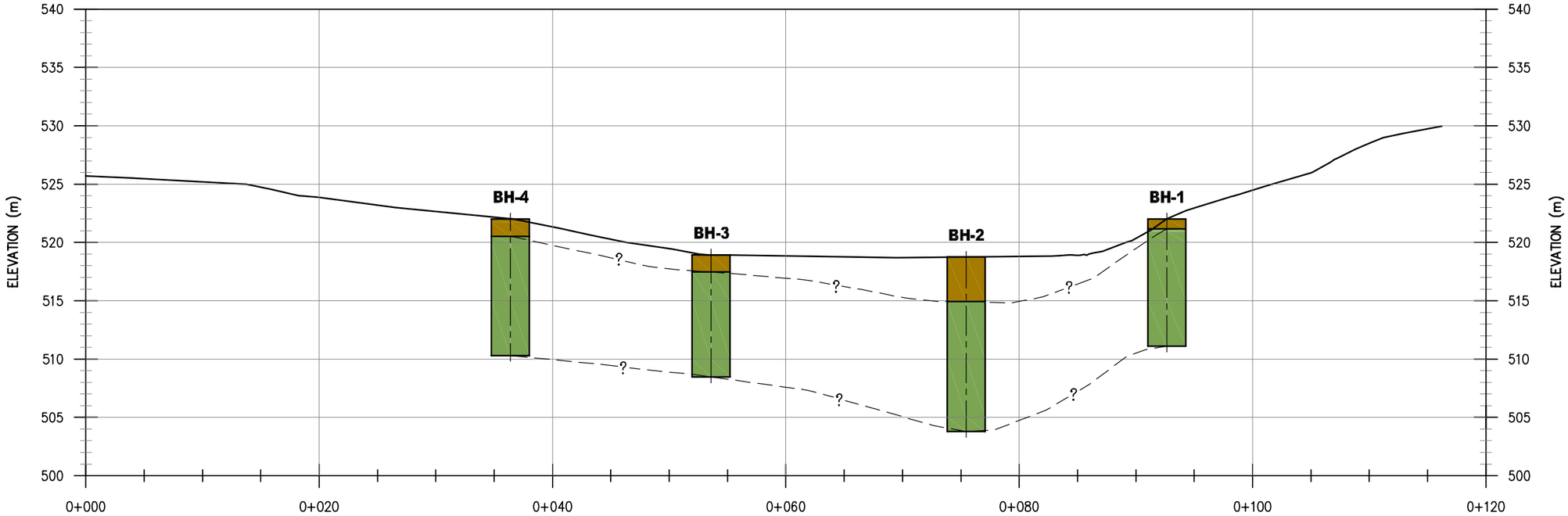

LEGEND:

– OVERBURDEN TILL

– BEDROCK

0 25

Scale: 1: 400 (metres)

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Lithological Cross-Section

EBA Engineering Consultants Ltd.

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Figure 3

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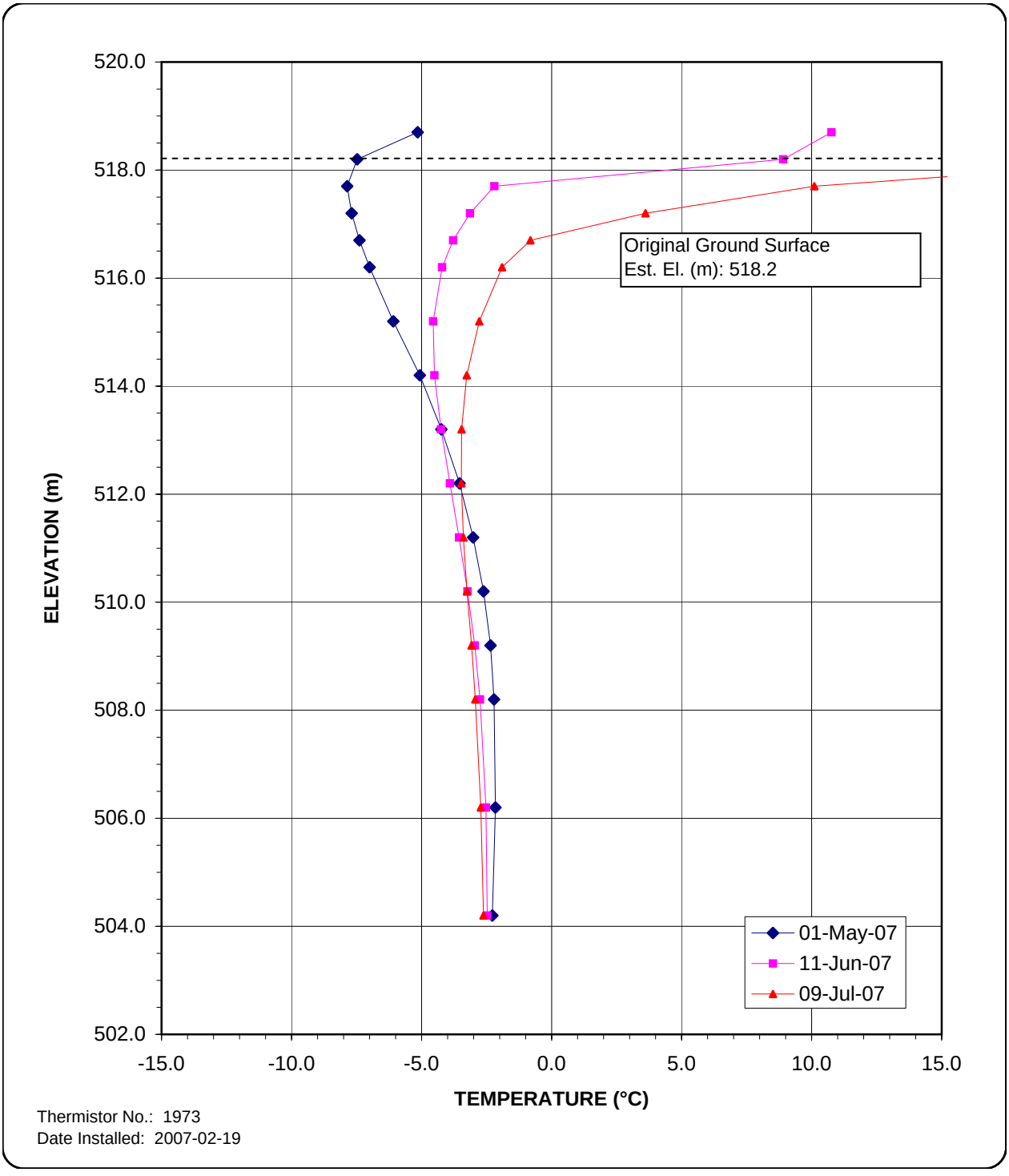


Figure 4
Ground Temperature Profile
Borehole ND-BH-02, GTC # 1973
North Dam

PHOTOGRAPHS

Photo 1
Snow/ice pad constructed to access Borehole ND-BH-1. Looking northwest from south abutment.
Photo taken February 2007.

Photo 2
Ice pad at North Dam. Drill rig set up on Borehole ND-BH-04. Photo taken February 2007.

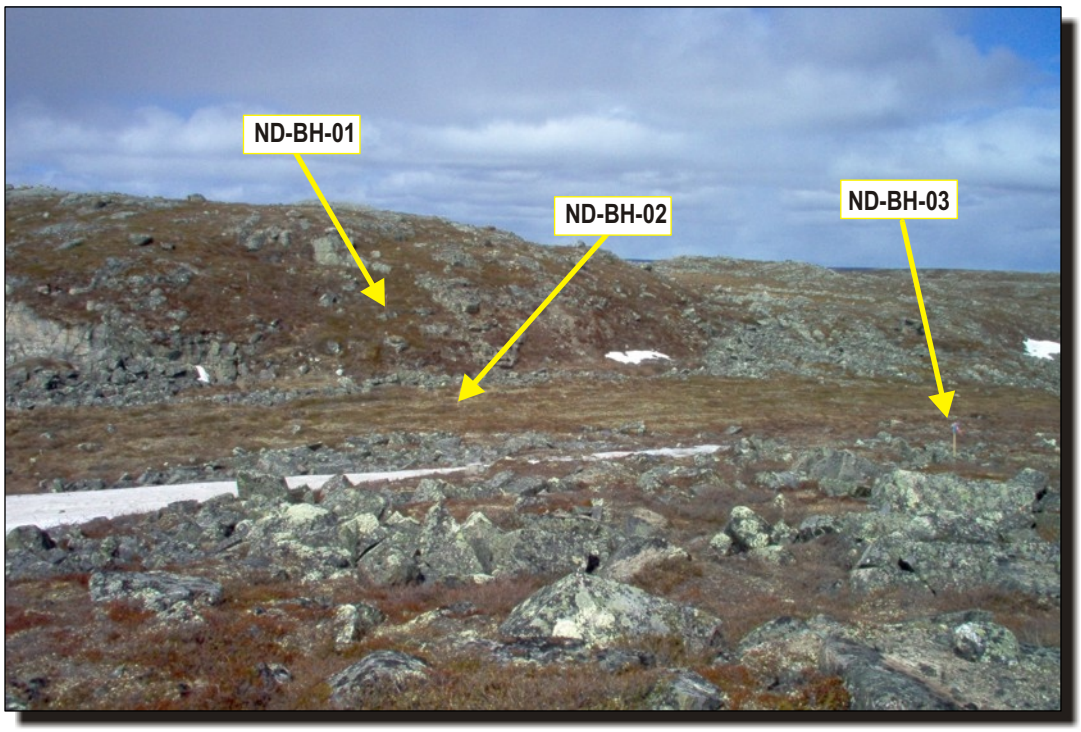


Photo 3
Valley area and north abutment facing north. Photo taken June 28, 2005. Borehole locations have been staked.

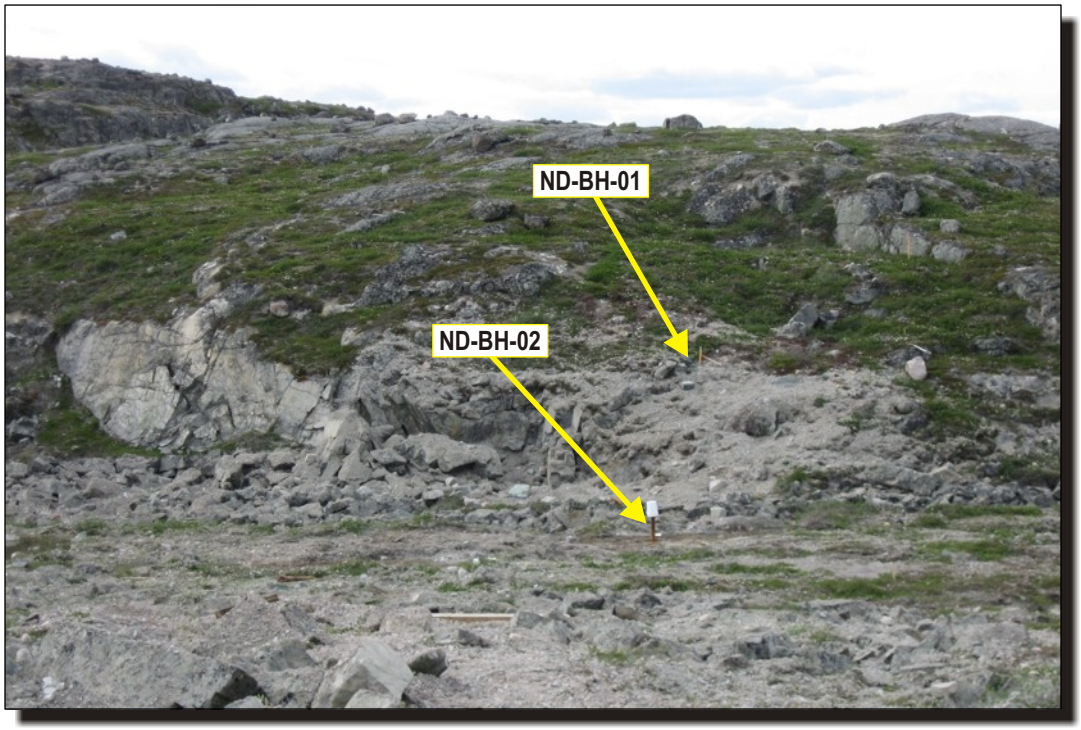


Photo 4
North abutment area, looking northwest. Surface gravel is from melting snow/ice pad. Photo taken July 11, 2007.

Photo 5
South abutment looking southeast. Note gentler slope and absence of outcropping bedrock. Surface gravel is from melting snow/ice pad. Photo taken June 11, 2007.

APPENDIX

APPENDIX A GEOTECHNICAL TERMS AND CONDITIONS

GEOTECHNICAL REPORT – GENERAL CONDITIONS

This report incorporates and is subject to these "General Conditions".

1.0 USE OF REPORT AND OWNERSHIP

This geotechnical report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary geotechnical assessment.

This report and the recommendations contained in it are intended for the sole use of EBA's client. EBA does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA's client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. EBA does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

3.0 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

4.0 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. EBA does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

5.0 SURFACE WATER AND GROUNDWATER CONDITIONS

Surface and groundwater conditions mentioned in this report are those observed at the times recorded in the report. These conditions vary with geological detail between observation sites; annual, seasonal and special meteorologic conditions; and with development activity. Interpretation of water conditions from observations and records is judgmental and constitutes an evaluation of circumstances as influenced by geology, meteorology and development activity. Deviations from these observations may occur during the course of development activities.

6.0 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

7.0 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

8.0 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

9.0 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

10.0 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

11.0 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

12.0 SAMPLES

EBA will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the client's expense upon written request, otherwise samples will be discarded.

13.0 STANDARD OF CARE

Services performed by EBA for this report have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practising under similar conditions in the jurisdiction in which the services are provided. Engineering judgement has been applied in developing the conclusions and/or recommendations provided in this report. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of this report.

14.0 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, EBA has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

15.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA's instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by EBA shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by EBA shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. The Client warrants that EBA's instruments of professional service will be used only and exactly as submitted by EBA.

The Client recognizes and agrees that electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

APPENDIX

APPENDIX B BOREHOLE LOGS

SOIL CLASSIFICATION

MAJOR DIVISION			GROUP SYMBOL	GRAPH SYMBOL	COLOUR CODE	TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA	
COARSE GRAINED SOILS (MORE THAN HALF BY WEIGHT LARGER THAN 200 SIEVE)	GRAVELS MORE THAN HALF COARSE GRAINS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)	GW		RED	WELL GRADED GRAVELS, LITTLE OR NO FINES	$C_U = \frac{D_{60}}{D_{10}} > 4$ $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1$ to 3	
			GP		RED	POORLY GRADED GRAVELS, AND GRAVEL–SAND MIXTURES, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS	
		DIRTY GRAVELS (WITH SOME FINES)	GM		YELLOW	SILTY GRAVELS, GRAVEL–SAND–SILT MIXTURES	CONTENT OF FINES EXCEEDS 12 %	ATTERBERG LIMITS BELOW "A" LINE OR P.I. LESS THAN 7
			GC		YELLOW	CLAYEY GRAVELS, GRAVEL–SAND–CLAY MIXTURES		ATTERBERG LIMITS BELOW "A" LINE P.I. MORE THAN 7
	SANDS MORE THAN HALF FINE GRAINS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)	SW		RED	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	$C_U = \frac{D_{60}}{D_{10}} > 6$ $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1$ to 3	
			SP		RED	POORLY GRADED SANDS, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS	
		DIRTY SANDS (WITH SOME FINES)	SM		YELLOW	SILTY SANDS, SAND–SILT MIXTURES	CONTENT OF FINES EXCEEDS 12 %	ATTERBERG LIMITS BELOW "A" LINE OR P.I. LESS THAN 4
			SC		YELLOW	CLAYEY SANDS, SAND–CLAY MIXTURES		ATTERBERG LIMITS BELOW "A" LINE P.I. MORE THAN 7
FINE-GRAINED SOILS (MORE THAN HALF BY WEIGHT PASSES 200 SIEVE)	SILTS BELOW "A" LINE NEGLIGIBLE ORGANIC CONTENT	$W_L < 50\%$	ML		GREEN	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY SANDS OF SLIGHT PLASTICITY	CLASSIFICATION IS BASED UPON PLASTICITY CHART (SEE BELOW)	
		$W_L < 50\%$	MH		BLUE	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS		
	CLAYS ABOVE "A" LINE ON PLASTICITY CHART NEGLIGIBLE ORGANIC CONTENT	$W_L < 30\%$	CL		GREEN	INORGANIC CLAYS OF LOW PLASTICITY, GRAVELY, SANDY OR SILTY CLAYS, LEAN CLAYS		
		$30\% < W_L < 50\%$	CI		GREEN–BLUE	INORGANIC CLAYS OF MEDIUM PLASTICITY, SILTY CLAYS		
		$W_L > 50\%$	CH		BLUE	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS		
	ORGANIC SILTS & CLAYS BELOW "A" LINE ON CHART	$W_L < 50\%$	OL		GREEN	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	WHENEVER THE NATURE OF THE FINES CONTENT HAS NOT BEEN DETERMINED, IT IS DESIGNATED BY THE LETTER "F", E.G. SF IF A MIXTURE OF SAND WITH SILT OR CLAY	
		$W_L > 50\%$	OH		BLUE	ORGANIC CLAYS OF HIGH PLASTICITY		
HIGHLY ORGANIC SOILS			PT		ORANGE	PEAT AND OTHER HIGHLY ORGANIC SOILS	STRONG COLOUR OR ODOR, AND OFTEN FIBROUS TEXTURE	

SPECIAL SYMBOLS

LIMESTONE		OILSAND	
SANDSTONE		SHALE	
SILTSTONE		FILL (UNDIFFERENTIATED)	

SOIL COMPONENTS

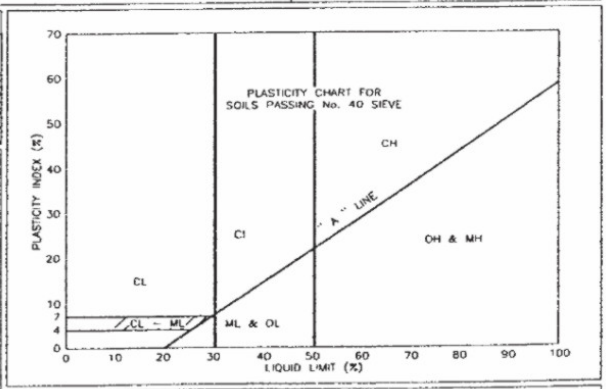
FRACTION	U.S. STANDARD SIEVE SIZE	
GRAVEL	PASSING	RETAINED
COARSE	76mm	19mm
FINE	19mm	4.75mm
SAND		
COARSE	4.75mm	2.00mm
MEDIUM	2.00mm	425µm
FINE	425µm	75µm
SILT (NON PLASTIC)	75µm	2µm
CLAY (PLASTIC)	2µm	

DEFINING RANGES OF PERCENTAGE BY WEIGHT OF MINOR COMPONENTS

PERCENT	DESCRIPTOR
50–35	"AND"
35–20	"Y" OR "LY"
20–10	"SOME"
10–1	"TRACE"

OVERSIZED MATERIAL

ROUNDED OR SURROUNDED	NOT ROUNDED
COBBLES 75mm TO 200mm	ROCK FRAGMENTS > 75mm
BOULDERS > 300mm	ROCKS > 0.75 CUBIC METRE IN VOLUME



1. ALL SIEVE SIZES MENTIONED ON THIS CHART ARE U.S. STANDARD A.S.T.M. E.11
2. BOUNDARY CLASSIFICATIONS POSSESSING CHARACTERISTICS OF TWO GROUPS ARE GIVEN COMBINED GROUP SYMBOLS, E.G. GW–GC IS A WELL GRADED GRAVEL SAND MIXTURE WITH CLAY BINDER BETWEEN 5 % AND 12%

GROUND ICE DESCRIPTION

ICE NOT VISIBLE

GROUP SYMBOLS	SYMBOLS	SUBGROUP DESCRIPTION	
N	Nf	Poorly-bonded or friable	
	Nbn	No excess ice, well-bonded	
	Nbe	Excess ice, well - bonded	

NOTE:

1. *Dual symbols are used to indicate borderline or mixed ice classifications*
2. *Visual estimates of ice contents indicated on borehole logs ± 5%*
3. *This system of ground ice description has been modified from NRC Technical Memo 79, Guide to the Field Description of Permafrost for Engineering Purposes*

LEGEND

Soil ☐ Ice ■

VISIBLE ICE LESS THAN 50% BY VOLUME

GROUP SYMBOLS	SYMBOLS	SUBGROUP DESCRIPTION	
V	Vx	Individual ice crystals or inclusions	
	Vc	Ice coatings on particles	
	Vr	Random or irregularly oriented ice formations	
	Vs	Stratified or distinctly oriented ice formations	

VISIBLE ICE GREATER THAN 50% BY VOLUME

ICE	ICE + Soil Type	Ice with soil inclusions	
	ICE	Ice without soil inclusions (greater than 25 mm (1 in.) thick)	

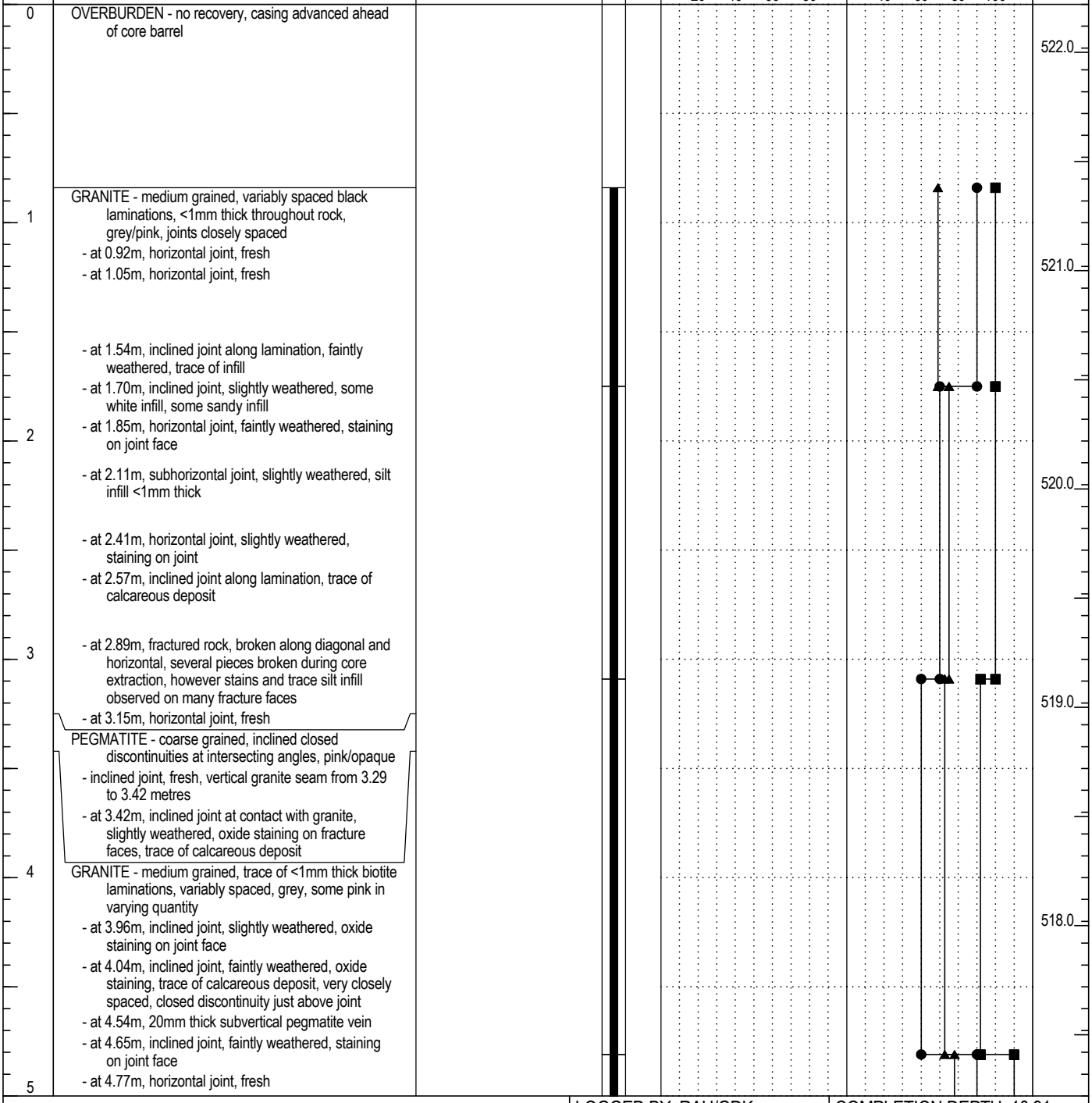
NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-01
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318859.9N; 476637.4E; Zone 12	ELEVATION: 522.22m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION
0	OVERBURDEN - no recovery, casing advanced ahead of core barrel	
1	GRANITE - medium grained, variably spaced black laminations, <1mm thick throughout rock, grey/pink, joints closely spaced - at 0.92m, horizontal joint, fresh - at 1.05m, horizontal joint, fresh	
	- at 1.54m, inclined joint along lamination, faintly weathered, trace of infill - at 1.70m, inclined joint, slightly weathered, some white infill, some sandy infill	
2	- at 1.85m, horizontal joint, faintly weathered, staining on joint face - at 2.11m, subhorizontal joint, slightly weathered, silt infill <1mm thick	
	- at 2.41m, horizontal joint, slightly weathered, staining on joint - at 2.57m, inclined joint along lamination, trace of calcareous deposit	
3	- at 2.89m, fractured rock, broken along diagonal and horizontal, several pieces broken during core extraction, however stains and trace silt infill observed on many fracture faces - at 3.15m, horizontal joint, fresh	
	PEGMATITE - coarse grained, inclined closed discontinuities at intersecting angles, pink/opaque - inclined joint, fresh, vertical granite seam from 3.29 to 3.42 metres - at 3.42m, inclined joint at contact with granite, slightly weathered, oxide staining on fracture faces, trace of calcareous deposit	
4	GRANITE - medium grained, trace of <1mm thick biotite laminations, variably spaced, grey, some pink in varying quantity - at 3.96m, inclined joint, slightly weathered, oxide staining on joint face - at 4.04m, inclined joint, faintly weathered, oxide staining, trace of calcareous deposit, very closely spaced, closed discontinuity just above joint - at 4.54m, 20mm thick subvertical pegmatite vein - at 4.65m, inclined joint, faintly weathered, staining on joint face	
5	- at 4.77m, horizontal joint, fresh	

SAMPLE TYPE | MOISTURE CONTENT (%) | BULK DENSITY (kg/m^3) 1400 1800 2200 2600 | PLASTIC M.C. LIQUID 20 40 60 80 | FRACTURE FREQUENCY 2 4 6 8 | RQD (%) 40 60 80 100 | RECOVERY (%) 40 60 80 100



Elevation (m)

NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-01
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318859.9N; 476637.4E; Zone 12	ELEVATION: 522.22m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

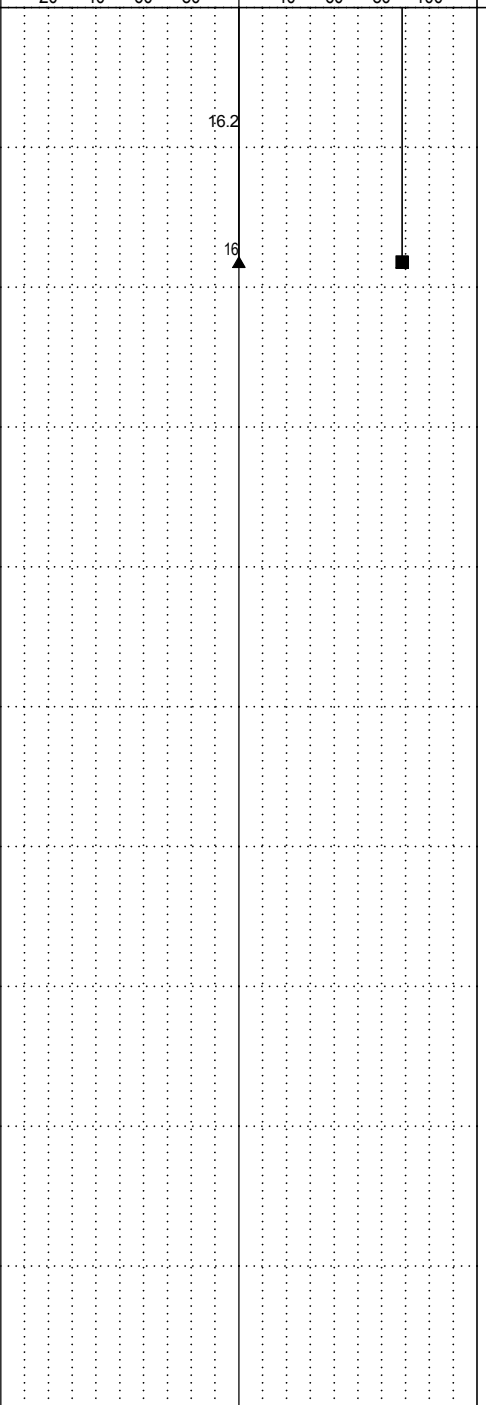
Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION	SAMPLE TYPE	MOISTURE CONTENT (%)	BULK DENSITY (kg/m^3) 1400 1800 2200 2600 / PLASTIC M.C. LIQUID 20 40 60 80	FRACTURE FREQUENCY 2 4 6 8 / RQD (%) 40 60 80 100 / RECOVERY (%) 40 60 80 100	Elevation (m)
5							
	- at 5.20m, horizontal and inclined joint, slightly weathered, oxide staining, trace of silt infill						517.0
	- at 5.27m, horizontal joint, slightly weathered, trace of silt infill						
	- at 5.29m, horizontal joint, faintly weathered, staining on portion of joint face						
	- at 5.35m, horizontal joint, faintly weathered, 2mm thick vertical pegmatite vein observed on joint face						
6	- at 5.44m, horizontal joint, fresh, may be mechanical						
	- at 5.62m, horizontal joint, faintly weathered, trace of staining						516.0
	- at 5.81m, horizontal joint, faintly weathered, trace of staining, inclined closed joint for 30mm						
	- at 5.85m, horizontal joint, faintly weathered, trace of staining						
	- at 5.92m, horizontal joint, fresh, may be mechanical break						
	- at 6.13m, horizontal and inclined joint, faintly weathered, trace of oxide staining						
7	- from 6.32 to 6.66m, fractured zone, oxide staining on fragments, silty infill on some fragments						
	- at approximately 6.5m, lose all return water						515.0
	- at 7.09m, pegmatite vein, coarse grained, inclined orientation, pink opaque, 50mm long						
	- from 7.34 to 7.52m, fractured zone						
	- from 7.76 to 8.06m, fractured zone, particle as small as 70mm, trace of staining on some pieces, trace of infill					16	
8							514.0
	- at 8.30m, 70mm thick subvertical closed joint					15.5	
	- at 8.37m, subhorizontal joint, slightly weathered, calcareous infill in portion of fracture face						
	- at 8.44m, inclined joint, fresh					16	
	- from 8.57 to 8.77m, fracture zone, 30mm pieces, rough surface, faintly weathered						
	- at 8.76m, vertical joint, faintly weathered, 190mm long						
9	- from 8.91 to 9.01m, fracture zone						
	- at 9.11m, subhorizontal joint, some discolouration on face						513.0
	- at 9.21m, horizontal joint, fresh						
	- at 9.61m, horizontal joint, fresh						
	- at 9.76m, subhorizontal joint, slightly weathered, trace of white calcareous deposit, dark discolouration on joint					16	
10							

NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-01
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318859.9N; 476637.4E; Zone 12	ELEVATION: 522.22m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION	SAMPLE TYPE	MOISTURE CONTENT (%)	BULK DENSITY (kg/m^3) 1400 1800 2200 2600 / PLASTIC M.C. LIQUID 20 40 60 80	FRACTURE FREQUENCY 2 4 6 8 / RQD (%) 40 60 80 100 / RECOVERY (%) 40 60 80 100	Elevation (m)
10	- at 9.92m, horizontal joint, fresh - from 9.96 to 10.11m, fracture zone, multiple inclined vertical joints, oxide staining on fracture faces - from 10.40 to 10.70m, fracture zone						512.0
11	END OF BOREHOLE (10.91 metres) Three single bead thermistors installed at 2.4, 5.6 and 8.7m below OG.						511.0
12							510.0
13							509.0
14							508.0
15							



NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-02
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318846.1N; 476648.9E; Zone 12	ELEVATION: 518.2m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION	SAMPLE TYPE	MOISTURE CONTENT (%)	Elevation (m)
0	ORGANICS AND ICE - dark brown, (20mm thick)	Vs 5-10%, 2mm thick lenses spaces 2-3mm apart			518.0
	SAND (FILL) - and silt, trace of gravel to 16mm diameter, brown	Nbn		5.5	
	- some gravel				
1				6.7	517.0
	- gravelly to 40mm diameter, silty	Trace Vr			
2	- some cobbles				
	- cobbly, trace of gravel and fines, grey	Nbn			516.0
	- boulder (260mm long), black with pink inclusions				
	- decreasing gravel content, some gravel, some fines, gravel to 16mm diameter	Vs, Vr 5%, <1mm thick lenses spaced 4-5mm apart			
3					515.0
	PEGMATITE - coarse grained, horizontal joints, very closely spaced, pink	20mm thick ice lense on top of rock			
4	- at 3.87m, horizontal joint, fresh	1mm thick ice filled, clear			
	- at 3.91m, horizontal joint, fresh	<1mm thick ice filled, clear			514.0
	GRANITE - medium grained, joints closely spaced, pink	1-2mm thick ice filled			
	- at 4.01m, horizontal joint, faintly weathered, trace of infill	1-2m thick ice filled, clear			
	- at 4.01m, 1mm thick vertical joint, ice filled, 60mm long, clear				
	- at 4.07m, horizontal joint, grey infill, ice filled				
	- at 4.18m, horizontal joint, fresh, ice filled				
	- at 4.18m, subvertical joint				
5	- at 4.27m, inclined joint, ice filled				

BULK DENSITY (kg/m^3) 1400 1800 2200 2600 ■

FRACTURE FREQUENCY ● 2 4 6 8

▲ RQD (%) ▲ 40 60 80 100

PLASTIC M.C. LIQUID 20 40 60 80

■ RECOVERY (%) ■ 40 60 80 100

19

19

19

NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-02
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318846.1N; 476648.9E; Zone 12	ELEVATION: 518.2m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION	SAMPLE TYPE	MOISTURE CONTENT (%)	Elevation (m)
5	- at 4.31m, vertical joint, 60mm long, ice filled - at 4.37m, horizontal joint, fresh - at 4.46m, joints, faintly weathered, moderate spaced, horizontal joint, trace of oxide staining - at 4.68m, subhorizontal joint, faintly weathered - at 5.01m, subhorizontal joint, 60m long, fresh - at 5.34m, subhorizontal joint, slightly weathered, trace of oxide staining				513.0
6	- at 6.00m, horizontal joint, slightly weathered on portion of joint, oxide staining - at 6.41m, horizontal joint, fresh				512.0
7	- at 6.84m, subhorizontal joint, closed, 1-2mm wide - at 6.91m, subhorizontal joint, fresh - at 6.96m, horizontal joint, slightly weathered, trace of oxide staining - at 7.12m, subhorizontal joint, fresh - at 7.47m, 45° joint, slightly weathered, oxide stained - at 7.59m, horizontal joint, slightly weathered, trace of oxide staining				511.0
8	- at 7.97m, horizontal joint, slightly weathered, trace of oxide staining - at 8.00m, horizontal joint, slightly weathered, oxide staining - at 8.44m, near 45° joint, slightly weathered, trace of oxide staining				510.0
9	- at 9.41m, horizontal joint, slightly weathered, oxide staining - at 9.65m, horizontal joint, slightly weathered, trace of oxide staining				509.0
10					

BULK DENSITY (kg/m^3): 1400 1800 2200 2600

PLASTIC M.C. LIQUID: 20 40 60 80

FRACTURE FREQUENCY: 2 4 6 8

RQD (%): 40 60 80 100

RECOVERY (%): 40 60 80 100

NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-02
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318846.1N; 476648.9E; Zone 12	ELEVATION: 518.2m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION	SAMPLE TYPE / MOISTURE CONTENT (%)	Elevation (m)
10	- at 10.11m, horizontal joint, slightly weathered, trace of oxide staining - at 10.18m, horizontal joint, fresh			508.0
11	- at 10.88m, 45° joint, slightly weathered, trace of oxide staining - at 11.06m, subhorizontal joint, fresh - at 11.10m, near 45° joint, slightly weathered, trace of oxide staining, trace of dark lenses with shiny inclusions - at 11.20m, subvertical closed joint, 150mm long - at 11.35m, horizontal joint, fresh - at 11.39m, horizontal stepped joint, slightly weathered, trace of oxide staining - at 11.56m, near 45° joint, slightly weathered, trace of oxide staining			507.0
12	- at 11.85m, horizontal joint, slightly weathered, oxide stained - at 12.09m, horizontal joint, fresh - at 12.36m, subhorizontal joint, slightly weathered, oxide stained - at 12.49m, pegmatite vein, inclined 45°, pink			506.0
13	- at 12.84m, horizontal joint, fresh to slightly weathered - at 12.94m, horizontal joint, fresh			505.0
14	- at 13.67m, horizontal joint, slightly weathered, oxide stained - at 13.69m, subhorizontal joint, fresh - at 13.86m, horizontal joint, slightly weathered, oxide stained, vertical joint, slightly weathered, oxide stained, 60mm long - at 13.92m, horizontal and subvertical joints, 20mm long pieces for 100mm of core length - at 14.02m, horizontal joint, slightly weathered - at 14.22m, horizontal joint, slightly weathered, trace of oxide staining - from 14.22 to 14.52m, 1mm thick vertical black veins - at 14.52m, horizontal joint, slightly weathered, trace of oxide staining			504.0
15	- at 14.70m, horizontal joint, slightly weathered, trace			

BULK DENSITY (kg/m^3): 1400 1800 2200 2600

PLASTIC M.C. LIQUID: 20 40 60 80

FRACTURE FREQUENCY: 2 4 6 8

RQD (%): 40 60 80 100

RECOVERY (%): 40 60 80 100

NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-02
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318846.1N; 476648.9E; Zone 12	ELEVATION: 518.2m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

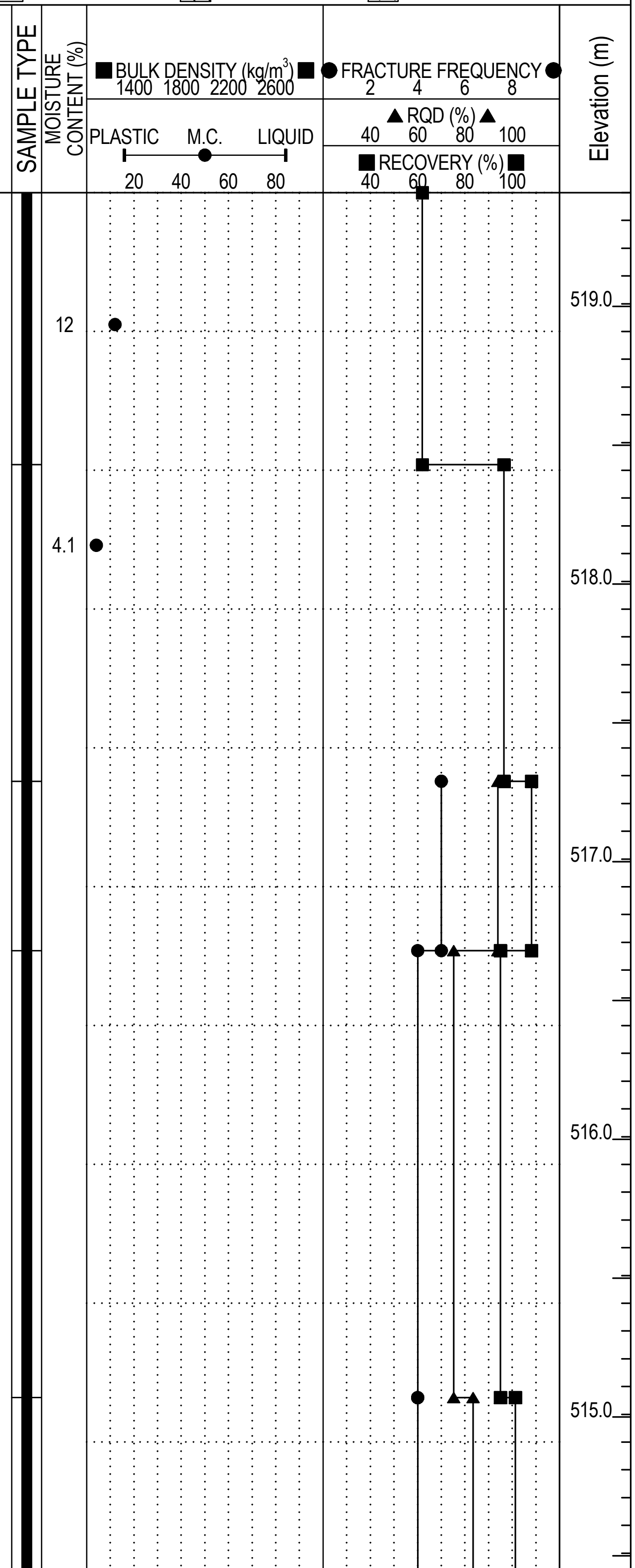
Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION	SAMPLE TYPE	MOISTURE CONTENT (%)	BULK DENSITY (kg/m^3) 1400 1800 2200 2600 / PLASTIC M.C. LIQUID 20 40 60 80	FRACTURE FREQUENCY 2 4 6 8 / RQD (%) 40 60 80 100 / RECOVERY (%) 40 60 80 100	Elevation (m)
15	of oxides						
	END OF BOREHOLE (14.95 metres) Ground thermistor cable installed.						503.0
16							502.0
17							501.0
18							500.0
19							499.0
20							

NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-03
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318829.8N; 476663.5E; Zone 12	ELEVATION: 519.41m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION
0	SAND (TILL) - silty, some gravel, cobbles and boulders throughout, gravel to 16mm diameter, brown	Nbn
	- top 300mm of run washed out, till pieces retrieved	
	- 70mm red cobble	
	- boulder, fine grained, black, (370mm)	
1	- cobble, fine grained, red, (140mm)	
	- increasing gravel size and content, some cobbles	Trace Vx <2%
	PEGMATITE - coarse grained, joints very closely spaced, black white	
	GRANITE - medium grained, strong, joints moderately spaced, grey/pink	
	- at 1.82m, 5mm thick sand infill	No visible ice
2	- at 2.12m, very closely spaced horizontal joints for 50mm	
	- at 2.42m, horizontal joint, fresh	
	- at 2.73m, vertical joint along biotite laminations, 190mm long, trace of infill	
3	- at 2.91m, horizontal joint, fresh	
	- at 2.96m, horizontal joint, fresh, increasing grain size for 40mm	
	- at 3.22m, horizontal joint, trace of infill	
	- at 3.29m, horizontal joint, fresh	
	- at 3.84m, horizontal joint, fresh	
4	- at 4.43m, horizontal joint, fresh	
	- at 4.72m, horizontal joint, fresh	
	- at 4.75m, horizontal joint, fresh	
5		



EBA Engineering Consultants Ltd.	LOGGED BY: RAH/GDK	COMPLETION DEPTH: 10.47m
	REVIEWED BY: GDK	COMPLETE: 07/02/11
	DRAWING NO: 1100060-03	Page 1 of 3

NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-03
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318829.8N; 476663.5E; Zone 12	ELEVATION: 519.41m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION	SAMPLE TYPE	MOISTURE CONTENT (%)	BULK DENSITY (kg/m^3) 1400 1800 2200 2600 / PLASTIC M.C. LIQUID 20 40 60 80	FRACTURE FREQUENCY 2 4 6 8 / RQD (%) 40 60 80 100 / RECOVERY (%) 40 60 80 100	Elevation (m)
5	- at 4.94m, horizontal joint, faintly weathered, increasing grain size for 20mm						514.0
	- at 5.50m, inclined closed joint, oxide staining present when broken with hammer - at 5.70m, inclined joint, shallow angle 15° from vertical, closed joint roughly perpendicular to open joint						
6	- 6.10m, horizontal joint along biotite lamination - at 6.17m, horizontal joint along biotite lamination, trace of infill around edges, silty						513.0
	- at 6.73m, zone coarser grained granite, 60mm long						
7							512.0
	- at 7.66m, horizontal joint along biotite lamination, faintly weathered, less pink in rock - at 7.86m, horizontal joint along biotite lamination, fresh						
8	- at 7.91m, horizontal joint, fresh - at 8.35m, horizontal joint, fresh						511.0
	- at 8.55m, horizontal joint, fresh - at 8.71m, horizontal joint, faintly weathered, trace of infill						
9	- at 8.96m, increasing pinks - at 8.96m, hairline closed laminations for 130mm - at 9.16m, horizontal joint along biotite lamination, inclined 10mm wide pegmatite vein, trace of white deposit on outer edge of joint - at 9.33m, inclined joint, fresh - at 9.40m, horizontal joint, fresh						510.0
10							

NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-03
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318829.8N; 476663.5E; Zone 12	ELEVATION: 519.41m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION	SAMPLE TYPE	MOISTURE CONTENT (%)	BULK DENSITY (kg/m^3) 1400 1800 2200 2600 / PLASTIC M.C. LIQUID 20 40 60 80	FRACTURE FREQUENCY 2 4 6 8 / RQD (%) 40 60 80 100 / RECOVERY (%) 40 60 80 100	Elevation (m)
10	- at 10.36m, horizontal joint, fresh						509.0
	END OF BOREHOLE (10.47 metres) Note: Hole flushed after completion, no return.						
11							508.0
12							507.0
13							506.0
14							505.0
15							

EBA Engineering Consultants Ltd.	LOGGED BY: RAH/GDK	COMPLETION DEPTH: 10.47m
	REVIEWED BY: GDK	COMPLETE: 07/02/11
	DRAWING NO: 1100060-03	Page 3 of 3

NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-04
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318818.2N; 476676.3E; Zone 12	ELEVATION: 522.45m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION
0	OVERBURDEN - no recovery, casing advanced ahead of core barrel	
1		
	GRANITE - medium to coarse grained, joints very closely to closely spaced, pink	Lens <1mm thick
	- at 1.56m, horizontal joint, some dark discolouration on portion of joint face	
	- at 1.65m, vertical joint with ice lensing <1mm thick	
2	- at 1.71m, horizontal joint, slightly weathered, trace of sandy/silty infill, entire joint face almost black	
	- at 1.98m, 45° joint, trace of oxide staining, joint along thin biotite lamination	
	- at 2.26m, subhorizontal joint, fresh, irregular microfractures 1-3mm wide to 2.41m, white calcareous staining on core exterior	
	- at 2.41m, 45° joint along biotite lamination, trace of staining and silt infill	
	- at 2.41m, 20mm wide pegmatite seam, inclined	
	- at 2.50m, 45° inclined joint along biotite lamination, slightly weathered, trace of sand/silt infill, light brown	
3	- at 2.76m, horizontal joint, faintly weathered, trace of sand infill on portion of joint face	
	- at 2.94m, inclined biotite laminations for 200mm, closed, variable orientations	
	- at 2.95m, inclined horizontal joint along lamination, faintly weathered, trace of sand infill	
	- at 3.04m, inclined joint, fresh	
	- at 3.13m, inclined joint along biotite lamination, trace of silt infill on joint face	
	- at 3.20m, inclined 60mm seam of pegmatite	
4	- at 3.53m, horizontal joint, fresh	
	- at 3.85m, horizontal joint, fresh	
	- at 3.94m, inclined joint (estimated 30°) along biotite lamination, no visible staining	
	- at 4.15m, inclined joint (15° from vertical) along biotite lamination, trace of staining	
	- at 4.54m, horizontal joint, fresh	
	- at 4.57m, horizontal joint along biotite lamination	
	- at 4.63m, inclined joint (estimated 60°) along biotite lamination	
5	- at 4.67m, inclined joint (estimated 60°) along biotite	

SAMPLE TYPE | MOISTURE CONTENT (%) | PLASTIC M.C. LIQUID (20 40 60 80)

BULK DENSITY (kg/m^3) (1400 1800 2200 2600) | FRACTURE FREQUENCY (2 4 6 8) | RQD (%) (40 60 80 100) | RECOVERY (%) (40 60 80 100)

142

Elevation (m): 522.0, 521.0, 520.0, 519.0, 518.0, 141.7

EBA Engineering Consultants Ltd.	LOGGED BY: RAH/GDK	COMPLETION DEPTH: 11.71m
	REVIEWED BY: GDK	COMPLETE: 07/02/08
	DRAWING NO: 1100060-04	Page 1 of 3

NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-04
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318818.2N; 476676.3E; Zone 12	ELEVATION: 522.45m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION
5	lamination, trace of staining, some silt infill - at 4.73m, horizontal joint, fresh, may be mechanical, increased grain size for 60mm, coarse - at 4.81m, horizontal joint, trace of staining on portion of joint face - at 5.04m, horizontal joint along biotite lamination, trace of staining - at 5.04m, 30mm thick horizontal pegmatite vein - at 5.31m, horizontal joint along biotite lamination, trace of silt infill on portion of joint face	
6	- at 5.31m, several horizontal biotite laminations for 200mm - at 5.43m, horizontal joint along biotite lamination, trace of silt infill - at 5.58m, 60mm thick horizontal pegmatite vein - at 5.76m, horizontal joint along biotite lamination, <2mm thick, fresh - at 5.83m, zone of very closely spaced to closely spaced joint, 150mm long, horizontal and inclined joints along biotite lamination, trace of staining - at 6.31m, horizontal joint along bentonite lamination, trace of silt infill	
7	- at 6.43m, 100mm wide inclined pegmatite vein - at 6.47m, horizontal joint along bentonite lamination, some silt infill - at 6.64m, horizontal joint, faintly weathered, along bentonite lamination - at 6.64m, 4mm thick inclined band of coarse grained opaque rock - at 7.18m, horizontal joint, slightly weathered, some silt infill, grey	
8	- at 7.96m, inclined joint, fresh - at 8.22m, horizontal joint on thin pegmatite band, 30mm thick	
9	- at 8.64m, 1mm thick inclined pegmatite vein - at 9.46m, horizontal joint, fresh	
10	PEGMATITE - coarse grained, pink and grey - at 9.82m, horizontal joint along biotite lamination, trace of silt infill on joint face	

SAMPLE TYPE | MOISTURE CONTENT (%) | BULK DENSITY (kg/m^3) 1400 1800 2200 2600 | PLASTIC M.C. LIQUID 20 40 60 80 | FRACTURE FREQUENCY 2 4 6 8 | RQD (%) 40 60 80 100 | RECOVERY (%) 40 60 80 100

142

Elevation (m): 517.0, 516.0, 515.0, 514.0, 513.0

NORTH DAM SITE INVESTIGATION	TAHERA DIAMOND CORPORATION	BOREHOLE NO: 1100060ND-BH-04
	DRILL: DIAMOND DRILL	PROJECT NO: 1100060.011
JERICHO DIAMOND MINE, NU	7318818.2N; 476676.3E; Zone 12	ELEVATION: 522.45m

SAMPLE TYPE: HQ CORE | NQ CORE | CORE | NO RECOVERY | DISTURBED

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	LITHOLOGICAL DESCRIPTION	GROUND ICE DESCRIPTION	SAMPLE TYPE	MOISTURE CONTENT (%)	BULK DENSITY (kg/m^3) 1400 1800 2200 2600 / PLASTIC M.C. LIQUID 20 40 60 80	FRACTURE FREQUENCY 2 4 6 8 / RQD (%) 40 60 80 100 / RECOVERY (%) 40 60 80 100	Elevation (m)
10	GRANITE - medium to coarse grained, joints very closely spaced, pink - at 10.68m, horizontal joint, slightly weathered, dull grey/green deposit on joint face - at 10.74m, horizontal joint, slightly weathered, trace of oxide staining and calcareous infill/deposit on part of joint face - at 10.74m, broken rock for 30mm - at 10.77m, horizontal joint, faintly weathered, trace of silt infill - at 11.30m, horizontal joint, fresh - at 11.50m, vertical fracture, faintly weathered to run end, likely due to extraction						512.0
11							511.0
12	END OF BOREHOLE (11.71 metres)						510.0
13							509.0
14							508.0
15							

EBA Engineering Consultants Ltd.	LOGGED BY: RAH/GDK	COMPLETION DEPTH: 11.71m
	REVIEWED BY: GDK	COMPLETE: 07/02/08
	DRAWING NO: 1100060-04	Page 3 of 3

APPENDIX

APPENDIX C LABORATORY TEST RESULTS

EBA Engineering

AGGREGATE ANALYSIS REPORT

Project: North Dam Site Investigation
Address: Jericho Diamond Mine

Project Number: 1100060.011
Date Sampled: / / By: Client
Client: Tahera Corporation
#1900, 130 Adelaide Street West
Toronto, Ontario M5H 3P5
Tel: 877-777-2004 ext223 Fax:416-777-1898
Attention: Dan Johnson

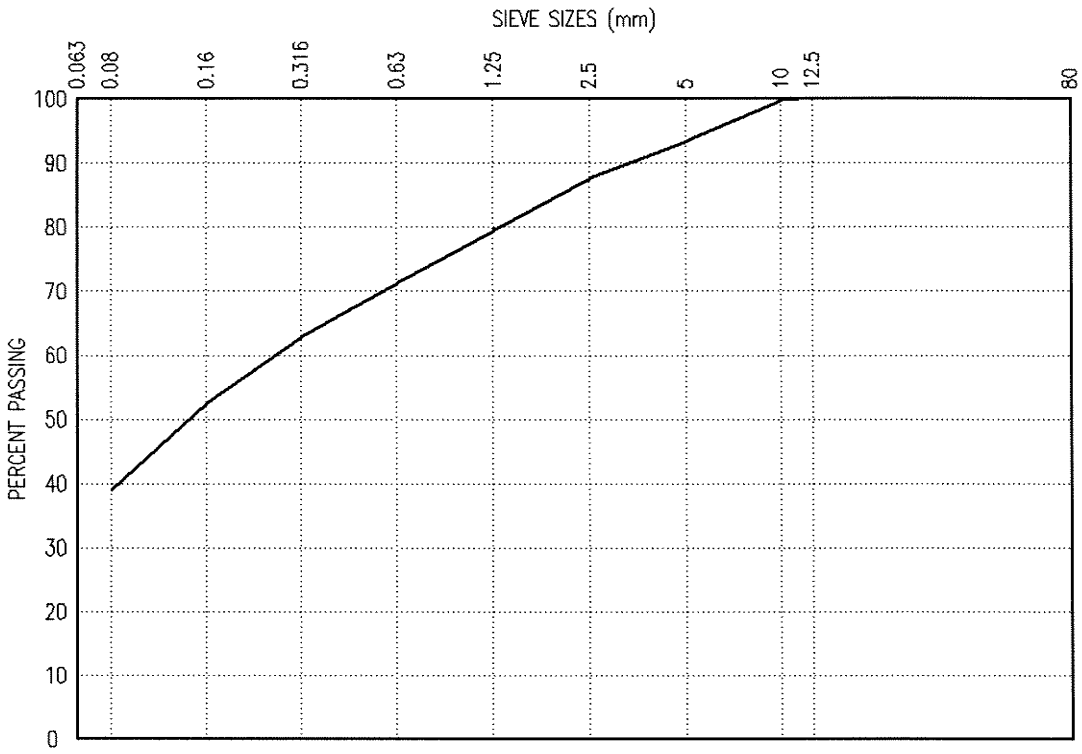
Sample Number: 1473.1
Sample Location: BH2, 0.6 - 0.76m

Time: Temp:
Date Tested: 03/12/07 By: AN
Natural Moisture Content: 5.6 %
Crushed Faces: Faces:

Soil Description: Sand and Silt, trace 12.5mm max gravel - Brown

Remarks:

Sieve	% Passing
12.5	100.0
10	99.5
5	93.2
2.5	87.4
1.25	79.3
0.63	71.1
0.316	62.6
0.16	52.2
0.08	39.0



Reviewed By:

EBA Engineering

AGGREGATE ANALYSIS REPORT

Project: North Dam Site Investigation
Address: Jericho Diamond Mine

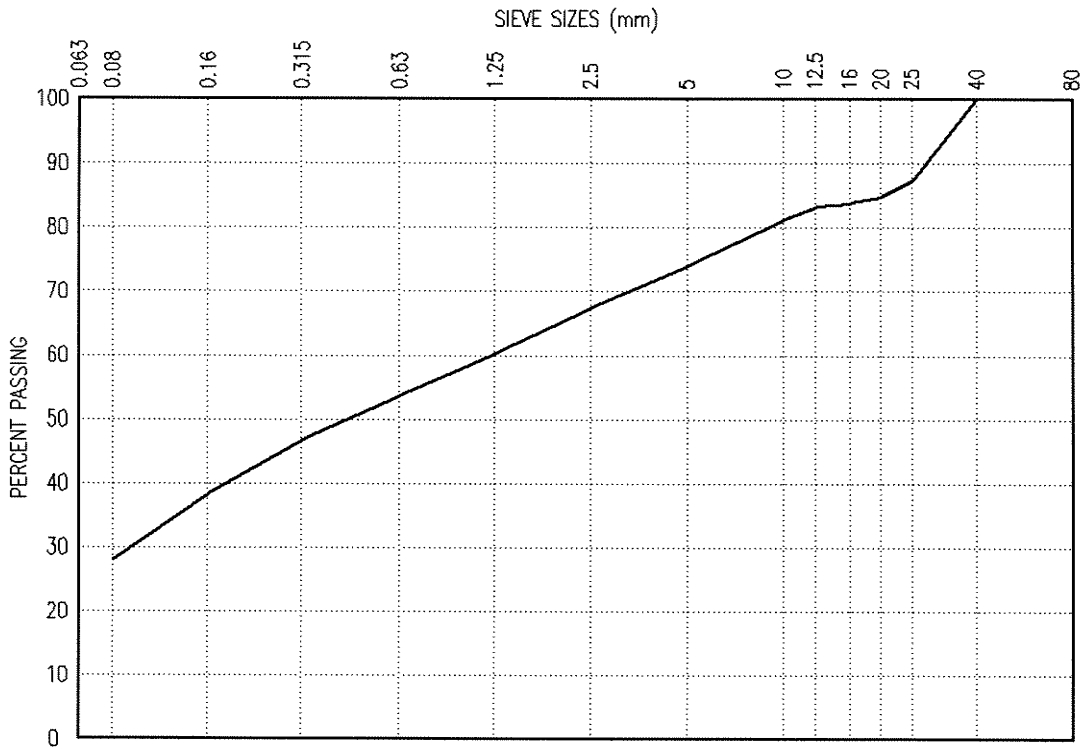
Project Number: 1100060.011
Date Sampled: / / By: Client
Client: Tahera Corporation
#1900, 130 Adelaide Street West
Toronto, Ontario M5H 3P5
Tel: 877-777-2004 ext223 Fax:416-777-1898
Attention: Dan Johnson
Soil Description: Sand, gravelly (40mm max), silty - Brown

Sample Number: 1473.2
Sample Location: BH2, 1.21 - 1.41m

Time: Temp:
Date Tested: 03/12/07 By: AN
Natural Moisture Content: 6.7 %
Crushed Faces: Faces:

Remarks:

Sieve	% Passing
40	100.0
25	87.3
20	84.7
16	83.7
12.5	83.0
10	81.1
5	73.8
2.5	67.3
1.25	60.2
0.63	53.5
0.315	46.5
0.16	38.1
0.08	27.9



Reviewed By: JAR

EBA Engineering

AGGREGATE ANALYSIS REPORT

Project: North Dam Site Investigation
Address: Jericho Diamond Mine

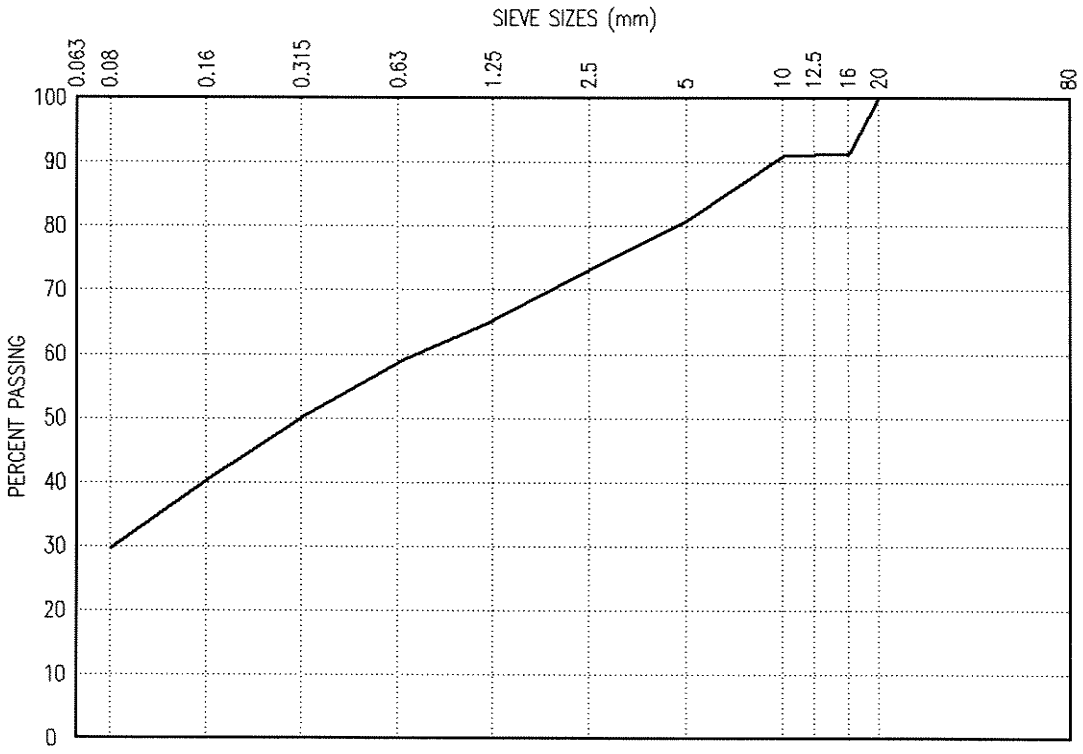
Project Number: 1100060.011
Date Sampled: / / By:
Client: Tahera Corporation
#1900, 130 Adelaide Street West
Toronto, Ontario M5H 3P5
Tel: 877-777-2004 ext223 Fax:416-777-1898
Attention: Dan Johnson
Soil Description: Sand, silty, some 20mm gravel - Brown

Sample Number: 1473.4
Sample Location: BH3, 0.4 - 0.55

Time: Temp:
Date Tested: 12/03/07 By: AN
Natural Moisture Content: 12.0 %
Crushed Faces: Faces:

Remarks:

Sieve	% Passing
20	100.0
16	91.2
12.5	91.1
10	90.9
5	80.6
2.5	73.2
1.25	65.1
0.63	58.5
0.315	50.0
0.16	40.2
0.08	29.6



Reviewed By: JDR

EBA Engineering

AGGREGATE ANALYSIS REPORT

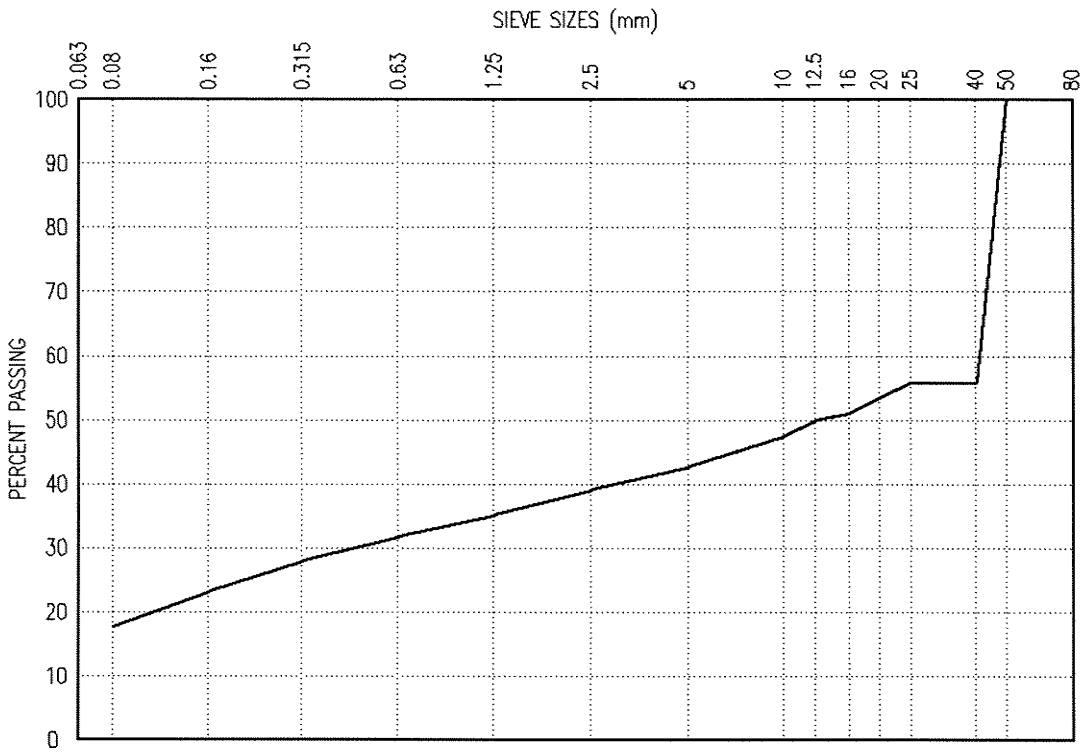
Project: North Dam Site Investigation
Address: Jericho Diamond Mine
Project Number: 1100060.011
Date Sampled: / / By: Client
Client: Tahera Corporation
#1900, 130 Adelaide Street West
Toronto, Ontario M5H 3P5
Tel: 877-777-2004 ext223 Fax:416-777-1898
Attention: Dan Johnson

Sample Number: 1473.5
Sample Location: BH3, 1.12 -1.42m
Time: Temp:
Date Tested: 28/03/07 By: AN
Natural Moisture Content: 4.1 %
Crushed Faces: Faces:

Soil Description: Sand & Gravel (50mm Max),Some Silt-Brown

Remarks:

Sieve	% Passing
50	100.0
40	55.8
25	55.8
20	53.3
16	50.9
12.5	49.7
10	47.4
5	42.6
2.5	39.0
1.25	34.9
0.63	31.5
0.315	27.7
0.16	23.0
0.08	17.5



Reviewed By:

Determination of the Soluble Salt Content of Soils by Refractometer

ASTM D4542

Project No: 1100060.011
Project: North Dam Site Investigation
Client: Tahera Diamond Mine

Attention: Tahera Corporation
Fax: 416-777-1898
Ph: 877-777-2004
ext. 223

Sample No.: As Shown
Date Sampled:
Sampled By: Client
Date Tested: 21-Mar-07
Tested By: KP
Office: Edmonton

Sample No.	Location	Depth (m)	Soil Type	Salinity (ppt)
BH 2		1.21 to 1.41	Sand & Gravel, s silt	8.0
BH 2		2.17 to 2.38	Sand & Gravel, s silt	15.0
BH 3		1.12 to 1.42	Sand & Gravel, s silt	17.5

Remarks:

Reviewed By:

EBA Engineering Consultants Ltd.

Determination of the Soluble Salt Content of Soils by Refractometer

ASTM D4542

Project No: 1100060.011
Project: North Dam Site Investigation
Client: Tahera Diamond Mine

Attention: Renata Klassen **Fax:**
Ph:
ext.

Sample No.: As Shown
Date Sampled:
Sampled By: Client
Date Tested: 8-Jun-07
Tested By: KP
Office: Edmonton

Sample No.	Location	Moisture content %	Soil Type	Salinity (ppt)
1	From SED Sta. 0+090	20.4	Sand, some silt, water	2.0
2	From SED Sta. 0+120	12.9	Sand, some silt, tr.clay	2.0
3	Small Stockpile	15.6	Sand, some silt, tr.clay	2.0
4	Top of Large Stockplie	8.5	Sand,silty, some clay	8.0

Remarks:

Reviewed By:

EBA Engineering Consultants Ltd.