4.0 DEVELOPMENT DESCRIPTION

Work to date has outlined two significant gold deposits for which resource estimations have been completed. They include the Ormsby Zone and the Nicholas Lake Main Zone, which are collectively referred to as the Yellowknife Gold Project (YGP). The location of the proposed development is shown in Figure 1.4-1, while the preliminary site plans for Ormsby and Nicholas Lake are presented in Figures 4.1-1 and 4.1-2 respectively.

The Ormsby and Nicholas Lake Zones have been subject to considerable drilling and are the current basis for resource estimation. The majority of the following discussion focuses on these zones.

The Ormsby Zone has been drilled and accessed by a decline ramp and sublevel drifting and some bulk sampling has taken place.

The Nicholas Lake Main Zone has been drilled and accessed by a decline ramp and sublevel drifting and some bulk sampling has taken place.

4.1 RATIONALE FOR PROJECT

The purpose and rationale for the Yellowknife Gold Project (YGP) is to mine ore and extract gold from mineral deposits in the vicinity of the historic Discovery Mine. This particular area has a long history of mineral exploration and gold production from the historic Discovery Mine. The development of the YGP will continue this production of gold. Gold is a commodity with the price set by global supply and demand forces. Tyhee NWT Corp will be able to sell its production into the world market at prevailing prices without materially affecting supply and demand. Extraction of this resource from the NWT will create jobs, benefit the people of the NWT, add to the NWT and Canadian Gross Domestic Product, and provide a potential return for investors considered acceptable in today's market. The location of the project can be seen on Figure 1.4-1.

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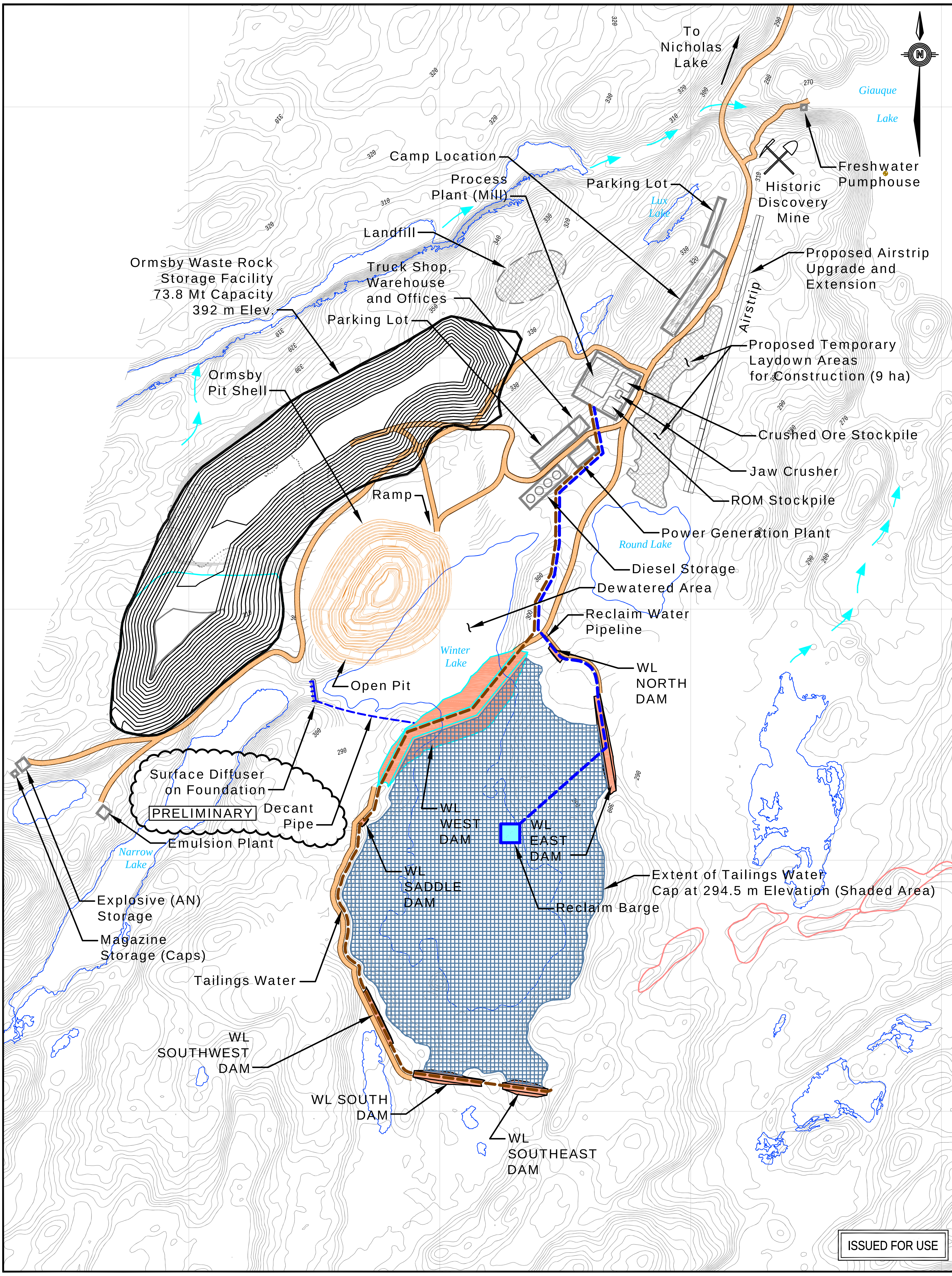
Q:\Vancouver\Drafting\Environmental\V232\V23201097\006\V23201097.006_FIG 4.1-1_R1.dwg [FIGURE 4.1-1] April 14, 2011 - 11:17:11 am (BY: BOKIC, JON)



352000 353000 354000 355000

LEGEND:

- DIRECTION OF DRAINAGE
- POTENTIAL GRANULAR BORROW SOURCE

NOTES:

- Base mapping from Watts, Griffis and McOuat (drawing file TDC_07_Base_Infrastructure.dwg)

YELLOWKNIFE GOLD PROJECT

Ormsby Site Plan
Full Build-out

PROJECTION	DATUM
UTM Zone 12	NAD83

Scale: 1:15,000

0.25 0.1 0 0.25

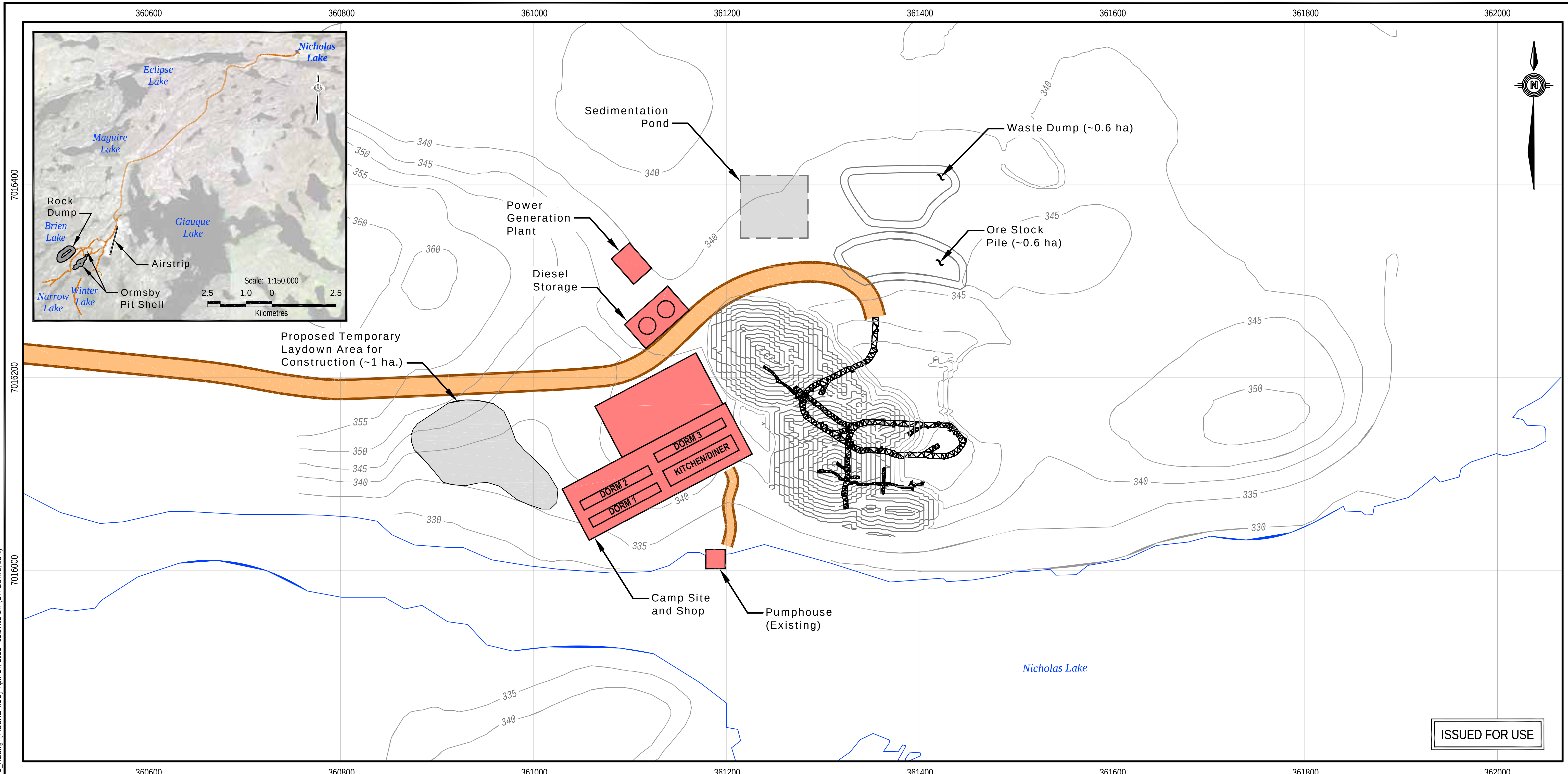
Kilometres

Tyhee NWT Corp

EBA Engineering Consultants Ltd.

FILE NO.			
V23201097.006_FIG 4.1-1_R1.dwg			
PROJECT NO.	DWN	CKD	REV
V23201097.006	SF/JAB	DS/RH	1
OFFICE	DATE		
EBA-VANC	April 14, 2011		

Figure 4.1-1



LEGEND:

Existing Underground Development

NOTES:

- All locations are approximate.
- All contours are at 5m intervals.

QUANTITIES:

Waste Dump:
Area: ~4.3 ha
Volume: 1,500,000m³

Ore Stock Pile:
Area: ~0.6 ha
Volume: ~100,000m³

YELLOWKNIFE GOLD PROJECT

Nicholas Lake General Site Plan

PROJECTION	DATUM
UTM Zone 12	NAD83

Scale: 1:4000

50 0 50 100 Metres

Tyhee NWT Corp

EBA Engineering Consultants Ltd.

FILE NO.			
V23201097.006_FIG 4.1-2_R1.dwg			
PROJECT NO.	DWN	CKD	REV
V23201097.006	SF/JAB	LR/RH	1
OFFICE	DATE		
EBA-VANC	April 14, 2011		

Figure 4.1-2

Q:\Vancouver\Drafting\Environmental\V232\V23201097\006\V23201097.006_FIG 4.1-2_R1.dwg [FIGURE 4.1-2] April 14, 2011 - 11:17:32 am (BY: BOKIC, JON)

4.2 PROJECT HISTORY

4.2.1 Discovery Mine

The historic Discovery Mine Property is located in the northern part of the Yellowknife greenstone belt, within the Slave Structural (geological) Province. Similar geology and mineralization occur to the south at the now closed Con and Giant mines in Yellowknife.

Gold was first discovered at the historic Discovery Mine property on the west shore of Giauque Lake in 1944, where spectacular visible gold was found in a thick folded quartz vein. By July 1946 there was sufficient ore to warrant underground development and shaft sinking commenced in November 1946. Underground and surface work continued during 1948 and 1949. A 90 tonne per day mill was installed with amalgamation and cyanide circuits. Production commenced in December 1949. From 1949 to 1969 the shaft was deepened to a depth of 1,237 m and 27 levels were developed to provide access to shrinkage stopes and production was increased to 227 tpd. Operations continued until 1968 when the mill was destroyed by fire. Ore was then trucked to Yellowknife until the mine closed in 1969. The historic Discovery Mine produced approximately 1 M troy ounces of gold from approximately 1M tons of ore between 1950 and 1969 at a produced grade of ~ 35 g/t Au. (NORMIN 2008).

4.2.2 Previous Exploration – Discovery and Ormsby Zones

After the historic Discovery Mine closed in 1969, there was no recorded exploration work until 1980, when the property was optioned by Newmont Exploration Limited. Newmont conducted line cutting, geological mapping, geochemistry and geophysical surveys consisting of magnetic, very low frequency electromagnetic (VLF), horizontal loop electromagnetic (HLEM) and induced polarization (IP) surveys. Follow-up work was recommended, however there was no further record of work conducted by Newmont and in the late 1980's, Canamax Resources Corporation optioned the property and apparently conducted diamond drilling, although the results could not be obtained through publicly accessible sources.

The mining leases lapsed in 1992 and the property was staked by New Discovery Mines Ltd., who entered into a business agreement with GMD Resource Corp. (GMD). Since then, previously unrecognized mineralization has been discovered within the Ormsby Zone.

In August and September 1994, a 15-hole (975 m), BQ diamond drill program was completed by GMD. This drilling program confirmed the presence of numerous quartz veins and volcanic breccias containing gold in the Ormsby Zone. Drill core from the Lux Lake Shear Zone (150 metres west of the Discovery Mine headframe) contained gold enriched, sulphide bearing and altered metasediments.

During 1996, 1997 and 1998, GMD conducted surface and underground exploration at the Ormsby Zone including surveying, line cutting, geological mapping, geophysics, diamond drilling, metallurgical testing and underground development. Diamond drill programs by

GMD totalled approximately 51,500 m in 218 drill holes. The majority of the core was cut in half and more than 45,000 samples were analyzed for gold by fire assay.

A 4m x 4m decline was driven with trackless equipment by GMD to provide access to the Ormsby Zone, although it only reached a vertical depth of 20 m. Lateral development explored a portion of the zone. In all, GMD developed some 215 m of decline and level drifts.

In 2001, Tyhee NWT Corp purchased the property from GMD.

In 2005, Tyhee NWT Corp's underground development at the Ormsby Zone consisted of an additional 959 m of decline and two subdrifts along mineralized zones. Approximately 6,800 tonnes of ore from this development are stockpiled on surface together with some 60,000 tonnes of waste rock. The ore is stockpiled on top of the waste pile and is covered by tarpaulin. The waste rock has been spread out around the portal area and forms an approximately 500m long narrow roadway to the current camp and shop facilities. SNP data from this work was collected and submitted to the MVLWB as part of GMD's license. The data indicates that since GMD's 1995 underground program the rocks (ore and waste) have not generated acid on site.

A total of 146,366 m of core from both surface and underground exploration drilling has been completed by Tyhee NWT Corp as of March 2010.

4.2.3 Previous Exploration – Nicholas Lake Main Zone

The Nicholas Lake Main Zone was first staked by W. McLanders and J.H. Benedict working under a prospecting agreement with Consolidated Mining and Smelting Co. of Canada (Cominco) in 1941.

The claims lapsed in 1952, and were re-staked by various people over the following years, including Dave R. Webb (Webb), a private citizen, in 1986. Webb staked the current NIC 1 and NIC 2 claims in September 1986. The property was optioned to Chevron Minerals Ltd. (Chevron) in April 1987, who in turn re-optioned the property to IGF Metal Inc (IGF).

In 1987, Chevron-IGF carried out a program of exploration which included geological mapping, re-sampling of 15 historical trenches, excavation and sampling of four new trenches and stripping of overburden, followed by detailed mapping and sampling over the Main Zone.

The Chevron-IGF work identified a mineralized zone, 35 m long and 1 m to 2 m wide, grading 13.7 g/t Au to 171.0 g/t Au. The zone was open in both directions along strike, and Cominco's earlier drilling work demonstrated continuity to depth. Further work was recommended.

In 1988, IGF dropped their option and Athabasca Gold Resources Ltd. (Athabasca) signed an option agreement with Chevron to earn 60% interest in the property. Additional ground was staked in 1988. Athabasca carried out a program of diamond drilling in April 1998 to meet the requirements of the option agreement with Chevron.

Subsequent drilling and exploration programs were carried out in September to December 1988, January to March 1989, May to June 1989 and February to April 1990, bringing the total diamond drilling to 15,374 m of NQ core in 71 drill holes.

In 1991, Chevron sold its interest in Nicholas Lake to Athabasca. In the same year Athabasca optioned a 35% interest in the property to Royal Oak Mines Inc. (Royal Oak).

Diamond drilling of the Main Zone continued during the fall of 1991 and a regional exploration program was undertaken targeting mineralized zones outside the Nicholas Lake Main Zone area. Previously identified targets (Nicholas East, Nicholas North, and MacAskill) were examined in detail. Other targets (Eastern Volcanic, Western Volcanic, and Teapot) were identified and also examined.

In 1992, diamond drilling continued at the Main Zone. Three drill holes tested anomalous zones identified during the 1991 regional work program. Two drill holes tested the Nicholas East Zone and one drill hole tested the Bruce Lake Zone. The West Volcanic Zone was drill tested with two diamond drill holes.

In the spring of 1994, a regional exploration program of prospecting, sampling and mapping was undertaken.

Work on an underground decline into the Nicholas Lake Main Zone commenced in March 1994. Phase I of the decline and underground exploration was completed by October 5, 1994. Work included:

- 600 m of underground drift development to 270 m elevation (90 m below surface);
- 220 m of silling and cross-cutting within the two main mineralized zones (A2 and A6);
- 2,972 m of underground diamond drilling in 36 drill holes; and
- A total of 1,025 underground chip samples, a combination of face, back and wall chip samples, were collected.

In the spring of 1995, Athabasca undertook a second resource estimate. Resources were estimated by Kermeen et al (1995) to be 461,000 tonnes grading 13.32 g/t Au. In October 1995, Athabasca sold its interest in the Nicholas Lake property to Royal Oak.

From 1995 to 1999, Royal Oak undertook a legal survey of the NIC 1 and NIC 2 mineral claims that resulted in the two claims being taken to lease in 1996. Legal surveys were also completed on the BUSH, PIG and SAINT claims, in preparation to be taken to lease. A program of data compilation and synthesis into a GIS system (CARIS) was also undertaken. The extent and quality of this data compilation and synthesis effort is not known.

In April, 1999, Royal Oak filed for creditor protection, and in December, 1999, the Superior Court of Ontario ordered Nicholas Lake and all data, files, information and material related to the Nicholas Lake property to be returned to D.R. Webb.

In 2001, Tyhee NWT Corp purchased (by agreement) the Nicholas Lake prospect from Webb.

Development at Nicholas Lake consists of a decline and two sub-drifts at approximately 90 m below surface. Mineralized rock from the sub-drifts is stockpiled on surface. Over 25,970 m of diamond drill core have been recovered from 139 holes.

4.2.4 Tyhee NWT Corp Exploration – Ormsby, Bruce Lake, and Nicholas Lake Main Zones

Tyhee NWT Corp is developing a newly discovered zone area of gold mineralization, within the Ormsby Zone, south of the historic Discovery Mine, as well as the Nicholas Lake Main Zone, about 10 km to the northeast.

A significant amount of exploration work has been completed on the YGP and includes; systematic surface, underground and drill hole sampling, surface and underground mapping, geophysics, bulk sampling, underground development and metallurgical work. The most significant work has been the drilling of 617 holes for a total of 146,366 m and 95,789 assays on the Ormsby and Bruce Lake Zones and 140 drill holes for a total of 26,234 m and 13,389 assays on the Nicholas Lake Main Zone.

Surface Sampling

Exploration between 2004 and 2010 included detailed outcrop mapping and petrography/geochemistry/geochronology sampling (e.g. Whitty, 2007; Strate, T. and Senkiw, M. 2008). Surface samples for whole rock geochemistry, incompatible element analysis, petrography and a single U-Pb geochronology sample where collected to help classify the rocks of the YGP and correlate them with the rest of the Yellowknife greenstone belt.

Underground Bulk Sampling

Tyhee NWT Corp has established underground development at the Ormsby Zone with 959 m of decline, 531 m of level development, an 89 m of raise and two sub-drifts along mineralized zones. Approximately 6,800 tonnes of ore from this development was taken in July 2005 and stockpiled on surface. Three thousand tonnes were crushed on site and ten tonnes (grading 1.75 – 2.0 g/t) of belt sampled material was sent to Process Research Associates (now Inspectorate America Ltd., PRA Division) in Richmond BC for metallurgical testing in March 2006 (PRA project numbers 07030704, 2007 and 0801602, 2008). Further studies were conducted on drill hole composites that were shipped in October 2009 to PRA. The decline has been allowed to flood and the portal access closed as per NWT Mine Safety requirements in early 2006.

Development at Nicholas Lake consists of a decline and two sub-drifts at approximately 90 m below surface. An estimated 3,000 tonnes of ore are stockpiled on surface and about 35,000 tonnes of development waste muck from the sub-drifts is both stockpiled and spread to form a laydown area near the decline portal. The ore is stockpiled on the waste rock and consists of gold mineralized granodiorite and quartz vein. Portions of this stockpile were sampled and shipped to PRA in October 2009 for metallurgical evaluation.

Drilling

Prior to Tyhee NWT Corp acquiring the Ormsby and Nicholas Lake properties (in 2001), Ormsby Zone exploration drilling totalled 218 drill holes for 54,577 m (Table 4.2.1). From 2001 to 2003, Tyhee NWT Corp drilled 28 holes totalling 8,056 m. From 2004 to 2007, Tyhee NWT Corp completed a further 350 drill holes totalling 77,170 m from both surface and underground at the Ormsby and Bruce Lake zones. During 2008, Tyhee NWT Corp completed 15 drill holes totalling 5,113 m to expand the resource in the Ormsby zone. These drill programs trace the mineralization to a depth of 700 m below surface and along 2,200 m of strike length. Drilling was contracted to Connor's Drilling. A core diameter of NQ was used with greater than 90% recovery.

Prior to 2001, exploration drilling at the Nicholas Lake Main Zone totalled 115 drill holes for 19,280 m (Table 4.2.1). In 1994, a previous operator developed the Nicholas Lake decline for 820 m of underground development. From 2002 to 2007, Tyhee NWT Corp completed 21 drill holes totalling 6,104 m at Nicholas Lake. The 2007 drill program included the re-sampling of all pre-existing drill core at the Main Zone. The Nicholas Lake portal is presently flooded and barricaded.

Between 2006 and 2010, 50 geotechnical holes (totalling over 6,000 m) were drilled at Ormsby and Nicholas Lake, 17 of which were oriented core. Drill holes were located in a variety of key areas including the Ormsby and Nicholas Lake proposed mine sites as well as infrastructure sites including areas for the proposed tailings dam as well as the mill, camp and shop.

TABLE 4.2.1: EXPLORATION DIAMOND DRILLING SUMMARY*

Zone	No. of Holes	Year(s)	Total Metres (m) Drilled
Ormsby	218	Pre-2001	54,577
Ormsby and Bruce Lake	28	2001-2003	8,056
Ormsby and Bruce Lake	350	2004-2007	77,170
Ormsby	15	2008	5,113
Ormsby	6	2009-2010	1,450
Nicholas Lake Main	115	Pre-2001	19,280
Nicholas Lake Main	21	2002-2007	6,104
Nicholas Lake Main	4	2009	850

* Numbers are rounded

Geophysics

An airborne magnetic and EM survey was conducted by Fugro in the summer of 2005 over Ormsby and Nicholas Lake. This survey was conducted at 150 m line-spacing and was used to map and prospect the property.

Ground surveys, produced from magnetic and horizontal loop electromagnetic data that was obtained at the YGP property during February 1996, were reviewed by Associated Mining Consultants Ltd.

4.3 PROJECT ALTERNATIVES

In order to optimize the project with respect to economics, safety, and the environment, several alternatives have been reviewed for most of the proposed facilities.

4.3.1 Site Access

Alternatives for site access include air transport, winter roads and all-weather roads. Currently the plan is to use a combination of all alternatives. As proposed in the PDR, access to and from Nicholas Lake will initially be by the existing winter road route, however; following further economic evaluation, an all-weather road (a distance of approximately 9 km) may be considered between Ormsby and Nicholas Lake to transport ore to the mill at Ormsby and to transport supplies, equipment, and personnel to Nicholas Lake. Biophysical information to support such access is included in this DAR document. Should the winter road between Ormsby and Nicholas Lake be the mode of transport of ore to the Ormsby mill, mine production may be done on a seasonal basis with ore being hauled in the winter months. Road access to the Ormsby site will continue to be via the existing winter road route from Prosperous Lake.

The existing airstrip, located on the historic Discovery Mine Tailings cap provides fixed wing aircraft landing capabilities year-round. Seasonal access by floatplane via Giauque Lake is available. Overland transportation to the site, initially established in the 1950's by Discovery Mines Ltd., has been via a winter road for a number of years. The winter road is operated during the months of January through April, conditions permitting.

The existing airstrip at the historic Discovery Mine has been used during the advanced exploration activities at the YGP and is the preferred option for continued use during the pre-production and operational phases of the YGP. Discussions with INAC's Contaminates and Remediation Directorate have determined that the extended use of the existing airstrip can be conducted in a manner that does not compromise the underlying tailings cap. In late summer 2005, EBA carried out a site investigation of the existing airstrip, apron and access road, in order to support continued operations of the airstrip and to provide data for a potential upgraded design for long-term use of the airstrip during the operational phase of the Yellowknife Gold Project. EBA's investigation, which is described in EBA(2005) in Appendix M, included two areas of frost boil occurrence near the airstrip with the objective that the data collected might assist INAC in determining the mechanism of "frost boil" formation. Standpipe piezometers and thermistor cables were installed in some of the boreholes during the site investigation. EBA subsequently monitored the installed borehole instrumentation during 2006 and 2007, and the monitoring and inspection results and other information related to the operation of the airstrip, apron and access road are described in EBA (2007) in Appendix M. EBA (2007) also provides comments on the civil works recommended to upgrade the airstrip, access road and apron for longer term use, once the YGP moves closer to a production decision. Tyhee NWT Corp has provided to MVLWB an upgraded design for the airstrip, to be implemented following a construction decision, and has provided the design criteria and related information to the MVLWB as required by its current water license and land use permit.

EBA has continued to undertake bi-annual site visits to inspect the airstrip and read the instrumentation. These inspections are reported to Tyhee NWT Corp. and are described in EBA (2008), EBA (2009) and EBA (2010) and included in Appendix M.

4.3.2 Mining Methods

Two mining methods have been investigated for the Ormsby Zone; surface (open pit) and underground. These investigations indicate that, based on current information, both open pit mining and underground are viable options. For the Ormsby Zone, standard open pit mining is suggested for the upper portions of mineralized zones and underground bulk mining methods are expected to be utilized for the lower portions.

Based on the most recent studies it is now planned to mine the Nicholas Lake resource by underground methods only.

The Ormsby site will host a 79 Mt (5 Mt ore and 74 Mt waste) conventional open pit followed by a 1.4 Mt underground operation. The Nicholas Lake site will host a 1.3 Mt underground operation.

The open pit at Ormsby will provide the bulk of the feed to the mill, accounting for approximately 75% of mill feed for the first 4 years while Nicholas Lake is in operation. Underground operations will begin development during year 3 at the Ormsby site (ramp access will be established near the bottom of the pit to recover the underground resources) and will start producing ore at the end of year 4. The Ormsby open pit has a mine life of 5.5 years excluding stockpiles. The open pit mine will be developed to excavate the majority of the Ormsby reserve. Due to increasing strip ratios as the depth of the pit increases, it is more economical to mine the lower sections of the deposit using underground mining techniques. The Ormsby open pit will produce ore at a rate of 2,250 tpd, while the Ormsby and Nicholas Lake underground operations will produce ore at a rate of 750 tpd for a total combined rate of 3,000 tpd.

The detailed mine plan and schedule will be developed by a professional engineer prior to commencement of the mining activities and maintained on site by Tyhee NWT Corp technical staff during operations. This will include mine design plans, mining sequence and scheduling.

The mine production schedule aims to ensure that the processing plant runs at optimum capacity and maximizes NPV.

For open pit mining, conventional methods will be used to extract both ore and waste. At this time, the mining operations will be owner operated and owner maintained. Tyhee NWT Corp will supply the mining mobile fleet (haul trucks (777 Cat or similar), loaders (992 or similar) dozers (D6, D8 or similar), graders and blasthole drills), operators, maintenance facilities and personnel for both the mining operations and other requirements. Tyhee NWT Corp technical staff will provide support for all of the production and planning requirements of the operations.

Several field investigations were carried out at Ormsby involving a total of 19 geotechnical drill holes, 16 of which were oriented, to collect data for kinematic analysis, rock mass quantification, ground water and ground temperature for design of the open pit.

4.3.3 Tailings Storage Facilities

As presented in the PDR submitted in 2008, three possible alternate sites have been reviewed for tailing containment areas. These are Winter Lake, Round Lake and a surface disposal area in a valley west of the Ormsby and Bruce Lake Zones (referred to as "Ormsby Valley"). The preferred option, and the one discussed in this Developer's Assessment Report, is the disposal of all process tailings into Winter Lake (Figure 4.3-1). To minimize the amount of water used for process needs, reclaim make up water will be optimized from Winter Lake. In support of the use of the preferred tailings option (Winter Lake) an independent Tailings Alternative Assessment has been undertaken which has investigated additional options, both on land and lake disposal. The Tailings Alternative Assessment report is provided in Appendix L.

4.3.4 Process Plant

Geotechnical investigations have been conducted on two alternative locations for the Ormsby process plant facilities. The process plant will be located northeast of the Ormsby open pit to minimize the distance to transport ore and in a location that will meet the bedrock foundation requirements for the plant (Figure 4.1-1)

A platform measuring approximately 100 m x 150 m has already been cut in a bedrock ridge slope at elevation 300 m at the current camp site. The dimensions of the platform should be increased to 200 m x 200 m by additional blasting of the bedrock slope to make a larger foundation platform at elevation 300 m. The cut platform should be large enough to accommodate a process plant (125 m x 100 m footprint), a run-of-mine stockpile (60 m x 60 m footprint) and a crushing plant (60 m x 60 m footprint).

The preliminary process and plant design for a nominal 3,000 tpd mill are based on design criteria developed from testwork data as well as industrial practices where relevant experimental data is lacking. The design throughput rate is based on a utilization factor of 90%.

Ores from the Ormsby and Nicholas Lake deposits will be processed at respective nominal rates totalling 3000 tpd, with a maximum of 25% of the feed originating from Nicholas Lake. The weighted average grades of these deposits were used to determine the design head grade.

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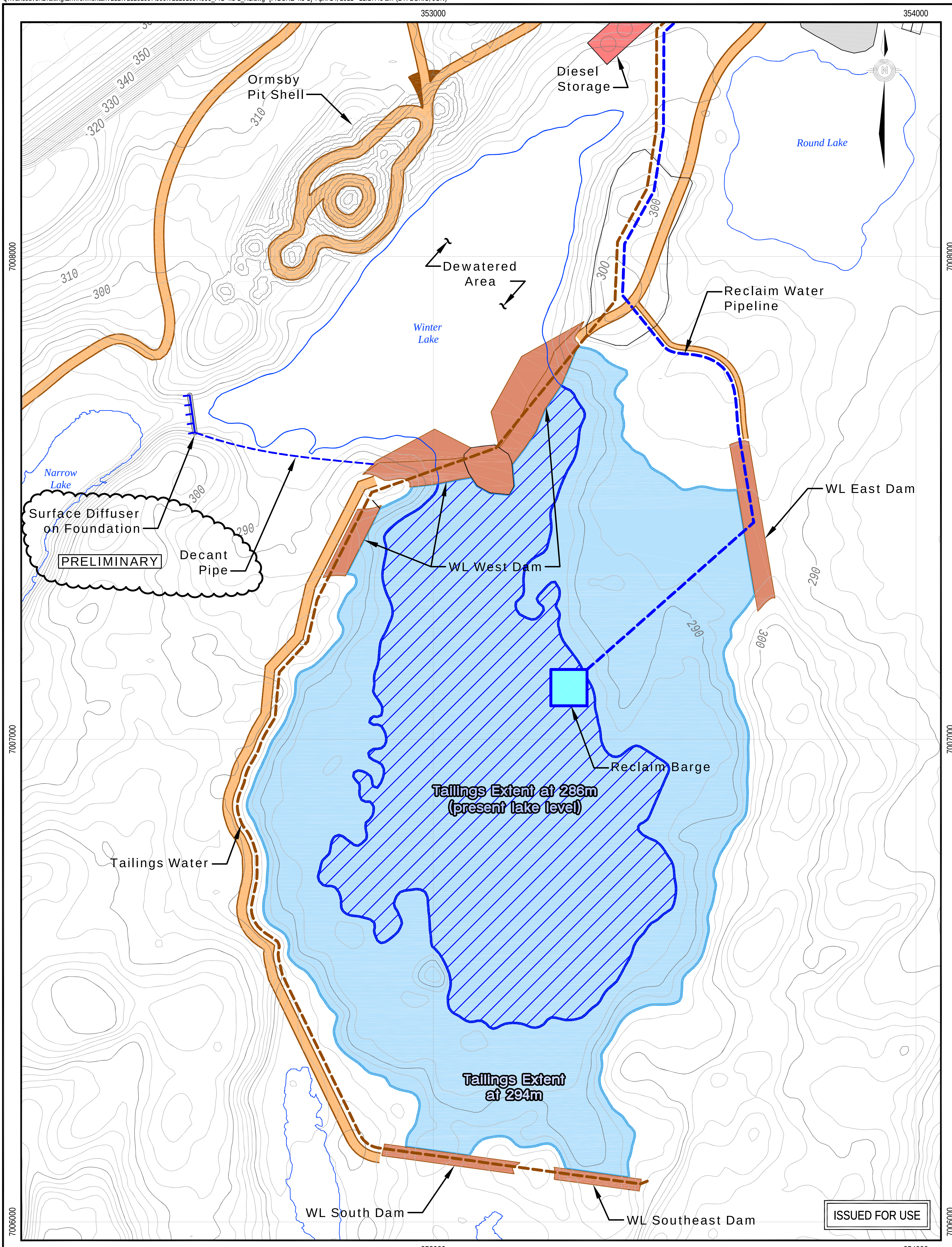


LEGEND:

Tailings Extent at 286m	• Estimated Surface Area:	518,837 m²	
	• Estimated Volume:	764,180 m³	
	• Estimated Tonnage	1.299 Mt	
Tailings Extent at 294m	• Estimated Surface Area:	1,168,058 m²	
	• Estimated Volume:	7,856,660 m³	
	• Estimated Tonnage	13.356 Mt	
Internal Dyke (Winter Lake)			

NOTES:

- Base mapping from Watts, Griffis and McOuat (drawing file TDC_07_Base_Infrastructure.dwg)
- Background imagery from IKONOS (July 27 and August 2, 2004) and Landsat TM (August 11, 2001)
- Extra water features extracted from IKONOS imagery
- Tailings tonnage calculated using an SG of 1.7 for average deposited dry density.

YELLOWKNIFE GOLD PROJECT

Winter Lake TCA Preferred Option

PROJECTION: UTM Zone 12 | DATUM: NAD83

Scale: 1:7500
150 100 50 0 150
Metres

Tyhee NWT Corp

EBA Engineering Consultants Ltd. eba

FILE NO.: V23201097.006_FIG 4.3-1_R1.dwg

PROJECT NO.: V23201097.006 | DWN: JAB | CKD: RH | REV: 1

OFFICE: EBA-VANC | DATE: April 14, 2011

Figure 4.3-1

4.3.5 Waste Rock Storage

Alternative sites for waste rock storage areas at both Ormsby and Nicholas Lake have been reviewed with recommended locations being based on accessibility and reduced environmental impact considerations.

Recent static testing of the Ormsby and Nicholas Lake mineralized and unmineralized waste rock indicates that the waste should be currently categorized as either potentially acid generating (PAG) or the potential for acid generation is uncertain (section 4.12.9.1). Further studies will define areas of PAG rock versus non-acid generating (NAG) rock and a segregation criteria will be defined that will enable the practical segregation of problematic rock types. Use of NAG waste rock material as construction material may be possible (such as for haul roads, dams for the tailings storage facility and sub-grade fill for infrastructure), but verification testing will be needed to identify and segregate NAG rock from uncertain and PAG rock.

Waste rock produced from the Ormsby mining operations (both open pit and underground) will be placed on surface to the northwest of the Ormsby open pit as shown on Figure 4.1-1. The Ormsby waste rock storage facility will accommodate a total of approximately 74 Mt at an average in-situ dry density of 2.1 t/m^3. The dimensions of the pile are approximately 2,200 m long, 500 m wide by 108 m high, with a maximum elevation of 392 masl. Where possible PAG waste rock will be placed such that it will be adequately covered by NAG waste rock.

The waste rock location was chosen due to its short haul distance from the pit and the ability to manage runoff. Drainage from the waste rock pile will be contained within a catchment basin, tested and treated as needed before being discharged to the receiving environment or pumped to the TCA. Surface runoff will be intercepted, collected and pumped into the tailings containment area. Nicholas Lake underground mining operation will produce ~ 340,000 t of waste rock (Figure 4.1-2). The majority of this is planned to be used for operating requirements including road base, stope backfill and general construction. No permanent waste dump design has been developed on surface since the amount of waste rock requiring storage is minimal. An area has been designated to contain waste rock should volumes increase and a permanent dump be required.

Waste rock storage facilities will be designed with average final side slopes of 1H: 2.5V which in combination with some surface till placement will allow for revegetation of the slopes as part of reclamation and closure.

4.3.6 Camp

The main camp site will be located at Ormsby with alternative locations under review (Figure 4.1-1). A small 50 person camp will be located at Nicholas Lake (Figure 4.1-2).

The proposed Ormsby camp will be a modular facility for a minimum of 200 permanent employees. The camp will be sized to accommodate visitors, consultants, and other temporary personnel during operations.

The camp could consist of nine 24-person dormitories, a kitchen/diner unit, a unit comprised of recreation, TV, exercise, and laundry facilities connected by an arctic corridor. A fully contained water and sewage treatment plant and an incinerator for disposal of non-hazardous solid wastes will be incorporated into the camp layout.

The proposed Ormsby camp is located approximately 200 m upwind of the mill from the prevailing north-easterly winds, on the west side of the access road from Nicholas Lake to Ormsby. The camp facility will be located within an area measuring approximately 375 m by 60 m that will be blasted in the bedrock slope at elevation 300 m. The access road at this location will be realigned to minimize the volume of rock cut into the bedrock slope. However, to house a sewage and water treatment plant, a parking lot, and temporary facilities that may be required during construction, an additional platform measuring approximately 30 m by 200 m will be prepared at elevation 310 m further northeast along the haul road.

The distance between the proposed camp facilities and the existing airstrip is between approximately 100 and 300 m. The proximity of the proposed camp to the airstrip from the health and safety standpoint will be reviewed during detailed feasibility studies.

4.3.7 Fuel Storage

Two alternate locations for the Ormsby diesel storage site were selected close to the workshop as well as the mill and the power generation plant, as the majority of fuel will be supplied to these operations (Figure 4.1-1). Fuel storage facilities will be located at Ormsby such that potential damage from flyrock from the open pit will not be an issue.

Site storage facilities will be required at both Ormsby and Nicholas Lake to supply the equipment fleet (10.5 ML) and on-site electric power generating units (13 ML) with fuel for one year. This is sufficient for 12 months operation; resupply will only be possible on the winter road during a 6 to 8 week period each year.

Diesel storage at Ormsby will consist of a truck unload facility with metering, filtration, and pumping to six bulk storage tanks, each with a capacity of 3.5 ML for a total fuel storage of about 21 ML. A platform measuring 80 m by 150 m will be prepared by cut and fill of exposed bedrock to accommodate the proposed facilities. The tanks do not require heating or insulating. The tanks will be contained within a bermed area to provide spill containment for 4 ML. Transfer pumps will deliver diesel to day tanks, the power plant, and a truck fill station for site vehicles.

Diesel storage at Nicholas Lake will be similar but smaller in size to the Ormsby facility (Figure 4.1-2). Two bulk storage tanks will be located at Nicholas Lake totalling about 7 ML of diesel fuel.

Within the day tank area, smaller tanks will also be provided for clean lube oil and dirty sump oil.

Based on an estimated total annual energy consumption of 50 GWh, on-site diesel electric power generating plants at Ormsby and Nicholas Lake will require about 13 ML of fuel per year in addition to the 10.5 ML required by the mining fleet. The grade chosen is arctic diesel P50 which will allow winter storage and handling without the requirement for supplemental heat. All diesel fuel must be delivered in the two months or so that the winter road is open.

4.3.8 Truck Shop/Warehouse and Office Building

Truck shop and warehouse will be located on the first floor of a two-storey heated building measuring 60 m by 60 m. The second floor of the building will be occupied by offices.

A level platform measuring 250 m by 60 m will be prepared at Ormsby by cut-and-fill of exposed bedrock at one of the two alternate locations shown on Figure 4.1-1. The truck shop building will be erected on a concrete pad placed at the northeast end of the platform at the first alternate location or at the south end of the platform at the second alternate location. The rest of the platform area measuring 200 m by 60 m will be used for parking, maintenance yard, and the truck shop laydown area, as shown on Figure 4.1-1. The Ormsby truck shop and warehouse will also service equipment and operations at Nicholas Lake if an all-weather road is in place; otherwise a small truck shop/maintenance facility will be located at Nicholas Lake.

4.3.9 Power

Two power supply alternatives were investigated to deliver the power requirements for the Yellowknife Gold Project, these were:

- A grid connection to the Northwest Territories Power Corporation (NTPC) via a new transmission line; or
- On-site diesel electric power generation plants located at Ormsby and Nicholas Lake.

Based on more detailed study, it was confirmed that power for the site will be produced on-site by diesel generation. Further information on this study is presented in Appendix N. The proposed power generation plants will be located in close proximity to the diesel storage facilities (Figures 4.1-1 and 4.1-2). An area will be located within the rock cut platform at each location. A process plant peak load of 8.63 MW has been estimated (15 minute thermal average) with an average running load of 6.07 MW for an annual project energy consumption of 50 GWh. For design purposes, a peak demand load of 9 MW has been allowed. About 20 % of the power generation requirements will occur at Nicholas Lake, with 5 diesel powered generating units (4 active, 1 standby) located at Ormsby and 2 units (1 active, 1 standby) at Nicholas Lake.

Power plant design is based on a modular approach which provides superior sound attenuation between units, optimal fire isolation and other operating advantages such as emissions control. The stations are completely self-contained. Each genset can, if desired, be equipped with exhaust waste heat recovery to provide up to 6 MW of thermal heat in the form of hot water or low grade steam to the process and/or space heating. This will be investigated further during detailed feasibility as heat recovery in other operations has provided positive economics by doing so.

4.4 YELLOWKNIFE GOLD PROJECT GEOLOGY

4.4.1 Property Geology

The YGP, which includes the Ormsby and the Nicholas Lake Main Zone, are considered to be orogenic gold deposits. These types of deposits account for nearly 20% of global gold production, and are abundant and widespread throughout the Canadian Shield. Orogenic gold deposits in greenstone belts are commonly hosted in greenschist to amphibolite facies metamorphosed rocks. Gold deposition typically post-dates peak metamorphism and accompanies retrograde metamorphism in greenschist facies host rocks retrograde on amphibolite grade host rocks. Favourable structural settings include areas of competency contrast between adjacent rock units where faults and shears are likely to occur, transecting chemically favourable rocks. Quartz-carbonate veins and disseminated stockwork zones are the most common styles of mineralization occurring in orogenic gold deposits, although other replacement-types occur.

Gold mineralization in all zones occurs both in and around silicified rocks with smoky grey quartz veins, pods and disseminations as free disseminated gold. Highest gold grades occur in the brecciated country rock in close proximity to quartz veins striking perpendicular to foliation. Alteration assemblages of pyrrhotite ± arsenopyrite ± chlorite ± pyrite ± sericite ± calcite are associated with gold. Pyrrhotite and gold occur together, and arsenopyrite may be associated with gold, but not necessarily vice versa. Retrograde phases of chlorite, sericite and calcite typically occur with gold. This style of mineralization is typical of the disseminated stockwork style where mineralized zones consist of 5 to 20% sulphides commonly occurring along foliation-parallel bands and quartz veinlets.

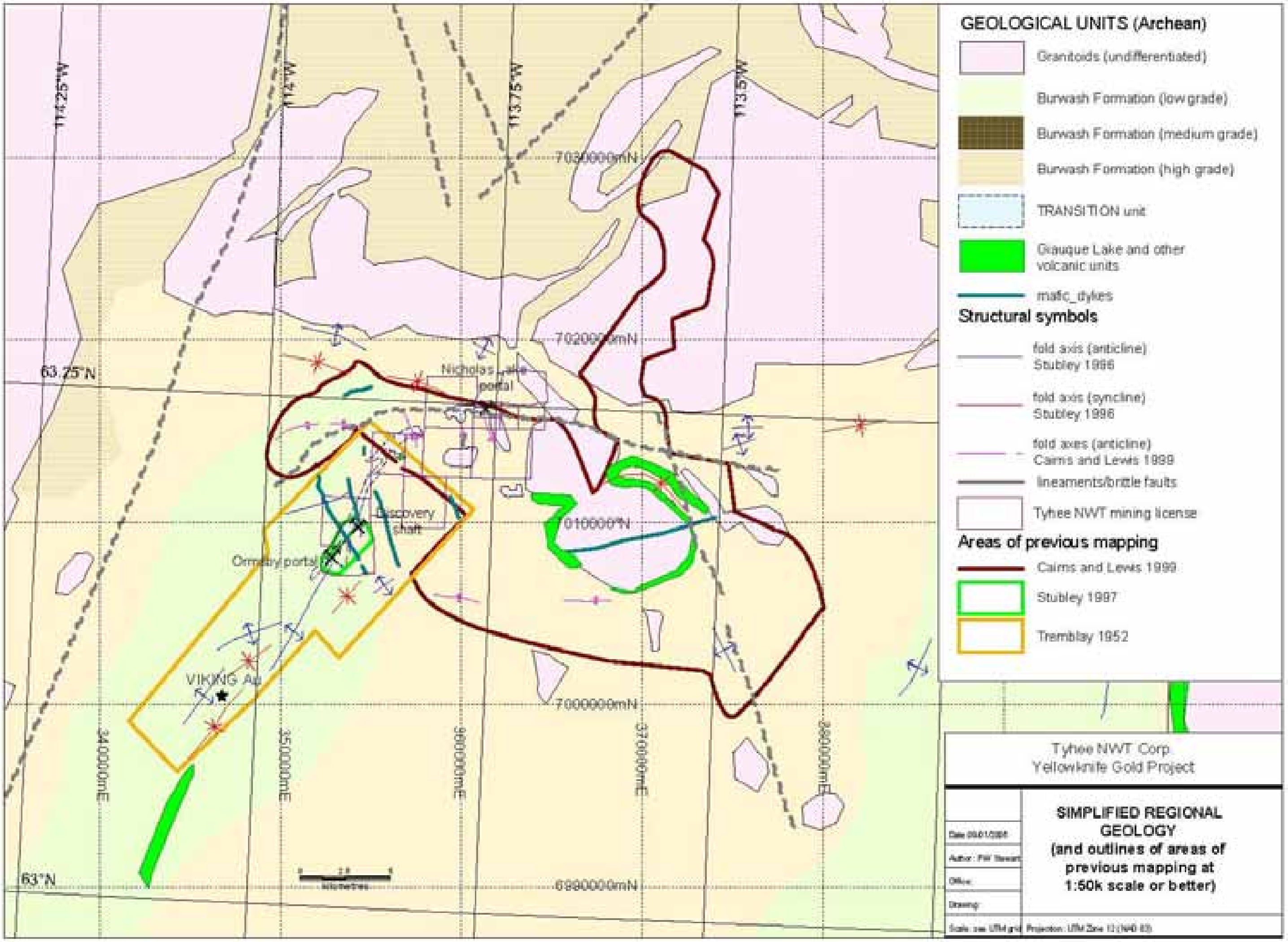
Regional geology is summarized from Whitty (2007).

The Slave Province is an Archean craton that makes up a major part of the north-western Canadian Shield. It consists mainly of granitic and metasedimentary rocks ranging in age from 4.0 Ga to 2.5 Ga and is bound by Paleoproterozoic orogenic belts on the east and west. The tectonic evolution of northern Canada involved a series of accretionary events alternating with periods of continental extension.

The south central portion of the Slave Province is underlain by a Mesoarchean crystalline basement block, consisting of granodioritic to tonalitic gneiss, known as the Central Slave Basement Complex. The Central Slave Basement Complex is overlain by the Central Slave Cover Group, a highly deformed and locally imbricated autochthonous sequence consisting of ultramafic, mafic and minor felsic volcanic rocks, conglomerate, chromite-bearing quartzite, and banded iron formation.

The Yellowknife greenstone belt is the southernmost of numerous greenstone belts, and is exposed in the southwestern part of the Slave Province. This belt strikes north-northeast from Yellowknife Bay for approximately 100 km. The southern half is continuously exposed, and well documented and mapped. Conversely, the northern half is poorly studied and consists of discontinuous exposures of metavolcanic rocks. The rocks within the belt define a homocline, dipping steeply to the east in contrast to the complexly-folded metasedimentary units. Sequences of greenschist to amphibolite facies metamorphosed mafic to felsic volcanic rocks and related metasedimentary rocks and turbiditic sequences of greywacke and argillite compose the belt.

The Yellowknife Gold Property is situated about 2 km south of the Nardin Complex and the high metamorphic grade correlatives of the Burwash Formation (Figure 4.4-1). The Burwash Formation is composed of metamorphosed thickly bedded greywacke, siltstone and mudstone. The Property straddles the cordierite-in isograd separating the low and medium grade regions of the Basin. The Discovery and Nicholas Lake prospects are hosted in the medium grade rocks, whereas the Ormsby prospect (and the Viking Gold prospect about 10 km to the southwest) lie within the low metamorphic grade region. Granitoids intrude most medium grade regions of the Burwash Formation; in contrast none appear to intrude the low grade regions. Granitoids on the property are undated and unclassified but are considered to most likely be assignable to the Hidden-Prosperous Lake intrusive suite. NW-striking and roughly E-striking mafic dykes of unknown age intrude both metamorphic regions and the latter set also intrudes the figure-8 shaped granitoid north of Thistlethwaite Lake (Figure 4.4-1).



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NOTES
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YELLOWKNIFE GOLD PROJECT

Property Geology Map
Ormsby Property

PROJECT NO.	DWN	CKD	REV
V23201097	SL	RH	0

OFFICE	DATE
EBA-VANC	March 11, 2011

Figure 4.4-1

4.4.1.1 Ormsby

The Yellowknife Supergroup is a supracrustal sequence of metamorphosed volcanic and sedimentary rocks throughout the Slave Province. Rocks of the Yellowknife Supergroup underlie the Discovery Property, which consists of two large metabasaltic bodies surrounded by predominantly metasedimentary rocks. Three rock units are present on the Discovery Property: (1) the Burwash Formation composed of metamorphosed sandstone and siltstone turbidites; (2) the Transition Unit composed of metamorphosed sandstone, siltstone, (now graphitic) mudstone, and volcanic components; and (3) amphioblite composed of pillowed, brecciated and massive metabasalt. The amphibolite and Transition units are interpreted as occurring collectively within the Banting Group based on rock associations and U-Pb age (Whitty, 2007). One of the amphibolite bodies is termed the Ormsby Member, and hosts Ormsby gold mineralization. It contains a significant brecciated or fragmental component. The derivation of the breccia as a primary or secondary effect is not resolved. It does appear to be a controlling feature on the distribution of gold mineralization.

The more northerly amphibolitic body contains pillows, more limited breccias or fragmentals and is referred to as the Discovery Member.

All the rocks are deformed and metamorphosed at greenschist to amphibolite facies conditions. Nonetheless, their protoliths are recognizable based on preserved textures. Four generations of ductile deformation are preserved on the property, exposed as near vertical dipping foliations, folds and a composite lineation. Retrograde metamorphism and gold mineralization overprint ductile deformation. Faulting and jointing are the youngest observed deformation on the property. The metabasalt bodies are more competent and susceptible to brittle deformation and extensional veining than the surrounding metasedimentary rocks.

4.4.1.2 Nicholas Lake

Turbiditic metasedimentary rocks of the Burwash Formation predominate the Nicholas Lake region, and are intruded by granite and granodiorite, which host mineralization. Numerous dykes and irregular masses of granodiorite are present in the area southwest of the main granodiorite intrusion. Burwash Formation metasedimentary rocks are tightly folded with remnant bedding striking generally north westerly and dipping steeply. A strong, parallel to sub-parallel axial planar foliation is preserved in the rocks. Regional metamorphic grade is lower amphibolite facies (Northwest Territories Geosciences Office Detailed Showing Report of Nicholas Lake).

The granodiorite is medium-grained, beige to weakly pink, commonly silicified and contains common quartz veins and stringers as well as sheeted quartz vein zones.

4.4.2 Mineralization

The Ormsby Zone is typical of the current orogenic gold deposit model. Gold mineralization in the Ormsby Zone occurs both in and around smoky grey quartz veins as free disseminated gold. Highest gold grades occur in the brecciated part of the Ormsby

Member in close proximity to inclined quartz veins striking perpendicular to the length of the Ormsby Member. Alteration assemblages of pyrrhotite ± arsenopyrite ± chlorite± pyrite ± sericite ± calcite are associated with gold. Pyrrhotite and gold always occur together, and arsenopyrite is always with gold, but not necessarily vice versa. Retrograde phases of chlorite, sericite and calcite typically occur with gold. Gold mineralization is interpreted to have occurred post folding, post-peak metamorphism, and syn-retrograde metamorphism (Whitty, 2007). The style of mineralization is typical of the disseminated stockwork style where mineralized zones consist of 5-20% sulphides occurring along foliation-parallel bands and quartz veinlets.

At Nicholas Lake, shear-zone hosted gold-bearing quartz-sulphide veins occur within a small granodiorite plug. Sulphide minerals comprise about 6% of the veins and include arsenopyrite, pyrite, pyrrhotite, galena, sphalerite and minor chalcopyrite. Gold grains are closely associated with fractures and open space fillings in sulphides or alone with quartz.

4.4.3 Mineral Resources and Mineral Reserves

The Yellowknife Gold Project contains the Ormsby Zone and the Nicholas Lake Main Zone. The resource estimates for these deposits are based on the results of diamond drilling programs, underground mapping and sampling of the Ormsby and Nicholas Lake declines and development as well as an extensive amount of technical data obtained during previous exploration programs.

Mineral resources were calculated in 2007 by Mintec Inc. and reported in a Preliminary Assessment report (August 30, 2008) and filed on SEDAR. An updated mineral resource for the YGP was prepared by Val Pratico, P. Geol., and discussed in "Report on the Resource Estimate of the Yellowknife Gold Project" dated March 4, 2009 and filed on SEDAR. . The current resource for Ormsby and Nicholas Lake was reviewed by L. Reggin, P.Geol and presented in the report "Technical Report on the Pre-feasibility Study of the Yellowknife Gold Project Northwest Territories, Canada" dated July 22, 2010 presented in Table 4.4-1.

TABLE 4.4-1: YGP MINERAL RESOURCES (JULY 2010)*

Category	Ormsby Zone	Nicholas Lake Main Zone	Total Resource
Measured			
Tonnes	3,003,000	1,249,000	4,252,000
Grams Gold per Tonne	3.41	3.81	3.53
Troy Ounces, Gold	329,000	153,000	482,000
Indicated			
Tonnes	7,898,000	1,484,000	9,382,000
Grams Gold per Tonne	3.42	3.32	3.45
Troy Ounces, Gold	869,000	158,000	1,027,000
Measured+ Indicated			
Tonnes	10,901,000	2,733,000	13,634,000
Grams Gold per Tonne	3.42	3.54	3.47

TABLE 4.4-1: YGP MINERAL RESOURCES (JULY 2010)*			
Category	**Ormsby Zone**	**Nicholas Lake Main Zone**	**Total Resource**
Troy Ounces, Gold	1,198,000	311,000	1,509,000
Inferred			
Tonnes	223,000	955,000	1,178,000
Grams Gold per Tonne	3.14	3.92	3.29
Troy Ounces, Gold	23,000	120,000	143,000

*Rounded; cutoff grade: Ormsby = 1.25 g/t, Nicholas = 1.1 g/t; as defined in the CIM Definition Standards for Mineral Resources and Mineral Reserves

Mineral Reserves were developed using a the Lerschs Grossman algorithm for the open pit component of the Ormsby zones and modified longwall mining method for the Ormsby underground and open longhole mining method for Nicholas Lake underground mining. Reserves were calculated using a US$950 gold price. Mineral reserves are presented in Table 4.4-2.

TABLE 4.4-2: YGP DILUTED MINERAL RESERVES (JULY 2010)*				
Category	**Ormsby Zone Open Pit**	**Ormsby Zone Underground**	**Nicholas Lake Underground**	**Total Reserves**
Proven				
Tonnes	2,788,000	N/A	134,000	2,922,000
Grams Gold per Tonne In-Situ	3.02	N/A	7.06	3.20
Troy Ounces, Gold In-Situ	270,400	N/A	30,400	300,800
Mill Recovery	92%	N/A	90%	91.8%
Troy Ounces, Gold Recovered	248,800	N/A	27,400	276,200
Probable				
Tonnes	2,378,000	976,000	841,000	4,195,000
Grams Gold per Tonne In-Situ	3.41	5.60	3.91	3.92
Troy Ounces, Gold In-Situ	260,800	175,600	105,800	542,200
Mill Recovery	92%	92%	90%	91.6%
Troy Ounces, Gold Recovered	239,900	161,500	95,200	496,600
Total				
Tonnes	5,166,000	976,000	975,000	7,117,000
Grams Gold per Tonne In-Situ	3.20	5.60	4.35	3.64
Troy Ounces, Gold In-Situ	531,200	175,600	136,200	843,000
Mill Recovery	92%	92%	90%	91.7%
Troy Ounces, Gold Recovered	488,700	161,500	122,600	772,800

*Rounded; based on variable cutoff grades; US$950/oz gold; as defined in the CIM Definition Standards for Mineral Resources and Mineral Reserves

4.4.4 Exploration Potential

Additional drilling has been completed on both the Ormsby and Nicholas Lake Main zones since reporting of the resource in 2010 and these modifications have not been reflected in the updated model. Since the change in resource did not constitute a material change on the property an updated technical report was not completed. However, the potential in these zones for delineating additional resources is considered high, and as such, it is possible to extend the life of the project. These structures are known to extend over approximately 1 km and to a depth of 500 m.

Exploratory drilling has also been conducted on the Bruce Lake zone which lies to the north of the Ormsby Main zone. Other exploration targets include the Goodwin Lake and Clan Lake zones both of which are south of Ormsby by ~ 15 and 40 km respectively. Based on exploration results, both these zones may be developed at a later stage.

4.4.5 Seismicity

The Yellowknife Gold Project area lies in a tectonically inactive plate zone within the Canadian Shield. The Shield area is considered relatively stable compared to more active boundary plates located to the west in the Yukon and Alaska. The active tectonics in the region results in minor and small earthquakes. The highest seismicity is associated with the coastal zone (Seismic Zone 1) to the west of the Northwest Territories. Further inland, the seismicity reduction increases from Zone 2 into Zone 3

4.5 SITE PREPARATION AND CONSTRUCTION

The proposed mine site infrastructure facilities layout, shown on Figures 4.1-1 and 4.1-2, are based on the terrain analysis of the site, the results of the 2009–2010 geotechnical investigations, the surficial geology, and the permafrost distribution. Foundations for the proposed infrastructure will be placed on competent unfrozen bedrock, either exposed or covered by a thin veneer of surficial material that will be removed prior to construction. Each of the proposed infrastructure facilities is discussed below in more detail and in Section 4.14.

4.5.1 Site Access and On-site Roads

The present road layout at the site will be utilized and additional roads developed to provide access to the surface facilities, as shown on Figures 4.1-1 and 4.1-2. Quarried rock or clean NAG crushed waste rock will be used in roadway construction with finer dressing material possibly coming from a local borrow pit and/or esker.

The YGP is accessible by road on a seasonal basis via a 55 km winter road starting at Prosperous Lake, approximately 20 km NE of Yellowknife (Figure 1.4-1). Tyhee NWT Corp has used this access in the past and will continue to use this access to move equipment and supplies for exploration activities, construction and operation of the YGP.

Road construction required on site will consist of upgrades to existing roads from the airstrip to the Ormsby site, to Giauque Lake for access to the freshwater pumphouse, plus relatively short access roads to new facilities.

A 1,500 m long by 26 to 30 m wide heavy haul road will be constructed using run-of-mine waste rock to connect the Ormsby pit to both the main waste rock dump to the west and the crusher to the north.

Access to Nicholas Lake will initially be by the existing winter road, however; during detailed feasibility studies, all-weather road access to Nicholas Lake (~ 9 km) may be developed to transport ore from the Nicholas Lake to the Ormsby mill.

All mine haulage roads will be designed and constructed in accordance with the ***SME Mining Engineering Handbook***, (Hartman, 1992) and Information Circular 8758 ***Design of Surface Mine Haulage Roads – A Manual*** (Kaufman and Ault, 1977). It has been assumed that all access and haul roads will be constructed from non-reactive overburden from the pit and/or locally available borrow areas.

All roads will incorporate ditches and culverts as necessary to prevent erosion and improve road performance.

4.5.2 Surface Buildings

All surface buildings will be placed on concrete foundations and some buildings may be of a prefabricated design to facilitate efficient site installation. Foundations for the proposed structures will be placed on competent unfrozen bedrock, either exposed or covered by a thin veneer of surficial material that will be removed prior to construction. Site topography will be optimized for building locations to minimize excavation requirements. Assembly of the various infrastructure components is expected to take place at site.

The proposed laydown area as shown on Figure 4.1-1 of ~9 ha at Ormsby will be located on the west side of the existing airstrip and on the historic Discovery Mines tailings cap. The boundaries of the laydown area were adjusted to minimize the impact on the perimeter environment, i.e., to avoid knocking down trees in the dense grove surrounding the tailings cap.

The small laydown area at Nicholas Lake of 1 ha will be located southwest of the proposed campsite as shown on Figure 4.1-2.

Based on the Pre-feasibility Study, it is estimated project construction will take approximately 18-24 months and will likely commence early 2014.

4.6 CONSTRUCTION MATERIALS

It is anticipated that borrow material will come from local eskers, the current quarry located northeast of the Ormsby deposit and the base of Winter Lake after dewatering, if suitable. At this stage, it appears as though there are adequate quantities of materials on site for construction, based on granular resources studies completed in 2006. EBA conducted a granular material assessment of the YGP area in 2008 (EBA, 2008c, Appendix Q).

It is expected that all quarried construction material will be accessed, processed and provided by Tyhee NWT Corp's mining personnel, who will supply material that is specified by the design requirements for each construction activity. For example, sand and gravel specifications will vary dependent on the designated use such as the foundations, dams, roadways etc. Should local sources not meet specific requirements, material sources outside the project area may be used and transported to the site as needed.

Cement requirements for concrete will be transported to the site with other construction equipment via the winter road and a cement plant will be established at the site to produce concrete.

The estimated quantities of sand and gravel are 10,000 to 15,000 m^3 (17,000 to 26,000 tonnes) for buildings, roads and associated structures. The estimated gravel requirements for the tailings containment area at Winter Lake are approximately 23,000 m^3 (40,000 tonnes) together with 107,000 m^3 (190,000 tonnes) of sand and clay type material. Based on previous investigations and studies, it is estimated that sufficient quantities of materials required for construction exist within the project area.

4.7 MINE DEVELOPMENT AND SCHEDULING

Table 4.7-1 shows the project development schedule of the YGP, including engineering studies, permitting, construction and production. This schedule was developed during the pre-feasibility study and may change when a detailed feasibility study is completed. The schedule is regarded as conservative and the actual timelines to production could well be significantly in advance of the timelines indicated.

Based on the schedule, engineering studies are expected to be completed by Q2 2012. Plant construction is scheduled to commence the winter of Q1 2014 and be completed by late 2015 with plant commissioning shortly after completion of construction. Site facilities such as power supply, waste disposal facilities, camp, fuel supply, explosive magazines, offices, warehouse and shops and associated surface facilities are expected to be constructed during this period.

Pre-production mine development is scheduled to commence the winter of Q2 2014 and be completed in about 4 months. Initial mining will commence prior to the mill being commissioned so that sufficient ore will be available for the commissioning and continued operation of the mill.

It is expected that the Yellowknife Gold Project will be at full capacity by late 2015.

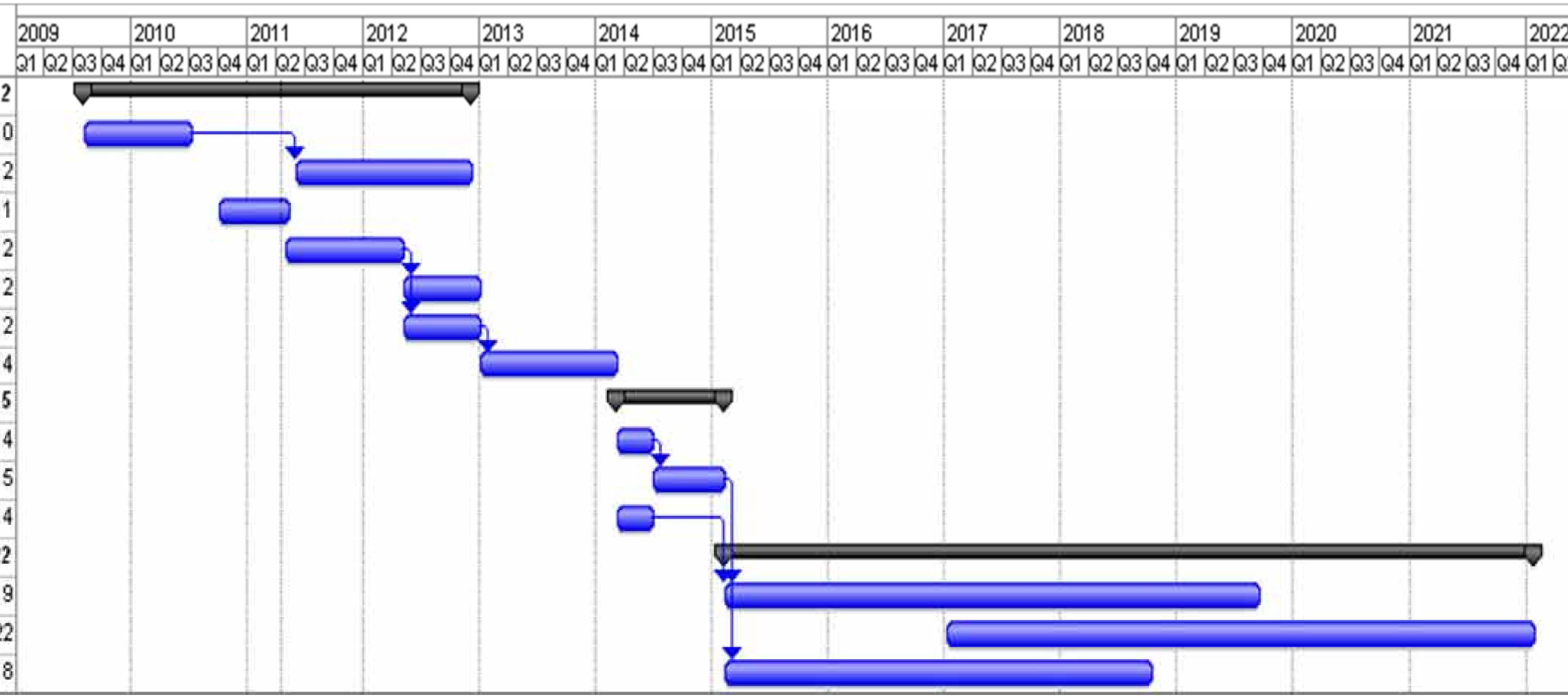
Ormsby open pit mining will start once infrastructure is in place and mill construction has been completed. Due to the Ormsby deposit outcropping at the surface, access to ore is available at the start of mining. This is beneficial from a cash flow perspective in that there is not a long period between the start of mining and the point when the mine starts producing revenue. Some clearing and grubbing will be necessary in addition to earthworks for other mine infrastructure.

The Ormsby open pit will start producing ore within the first year of mining operations. The Nicholas Lake deposit has an established portal and partial decline and will only require minimal underground development prior to accessing the ore. The Ormsby underground will require 1,300 m of development to access the ore body and establish required underground ventilation. This is estimated to take 6 months and will commence near the end of year 2 of the operation. Underground operations at Nicholas Lake will finish about year 4 of operations.

This schedule is subject to change as the project moves forward.

Table 4.7-1: Development Schedule

ID	Task Name	Duration	Start	Finish
1	**Studies**	**39.59 mons**	**Mon 8/3/09**	**Sat 12/1/12**
2	Prefeasibility Study	10.91 mons	Mon 8/3/09	Mon 7/5/10
3	Feasibility Study and Trade-Off Studies	17.86 mons	Wed 6/1/11	Sat 12/1/12
4	Developers Assessment Report	7.27 mons	Fri 10/1/10	Thu 5/12/11
5	**Environmental Assessment (MVEIRB)**	11.95 mons	Sun 5/1/11	Tue 5/1/12
6	**Regulatory Process (MVLWB)**	7.91 mons	Wed 5/2/12	Mon 12/31/12
7	**DFO Schedule 2 Approval**	7.91 mons	Wed 5/2/12	Mon 12/31/12
8	**Pre-Construction**	13.82 mons	Tue 1/1/13	Mon 3/3/14
9	**Construction**	**10.91 mons**	**Fri 3/7/14**	**Fri 2/6/15**
10	Infrastructure Foundation Preparation	3.64 mons	Fri 3/7/14	Fri 6/27/14
11	Mill Construction	7.27 mons	Fri 6/27/14	Fri 2/6/15
12	Pre-Stripping at Ormsby	3.64 mons	Fri 3/7/14	Fri 6/27/14
13	**Production**	**82.55 mons**	**Fri 2/6/15**	**Mon 1/24/22**
14	Open Pit Mining at Ormsby	54.54 mons	Fri 2/6/15	Thu 9/12/19
15	Underground Mining at Ormsby	60 mons	Mon 1/2/17	Mon 1/24/22
16	Underground Mining at Nicholas Lake	43.63 mons	Fri 2/6/15	Thu 10/11/18



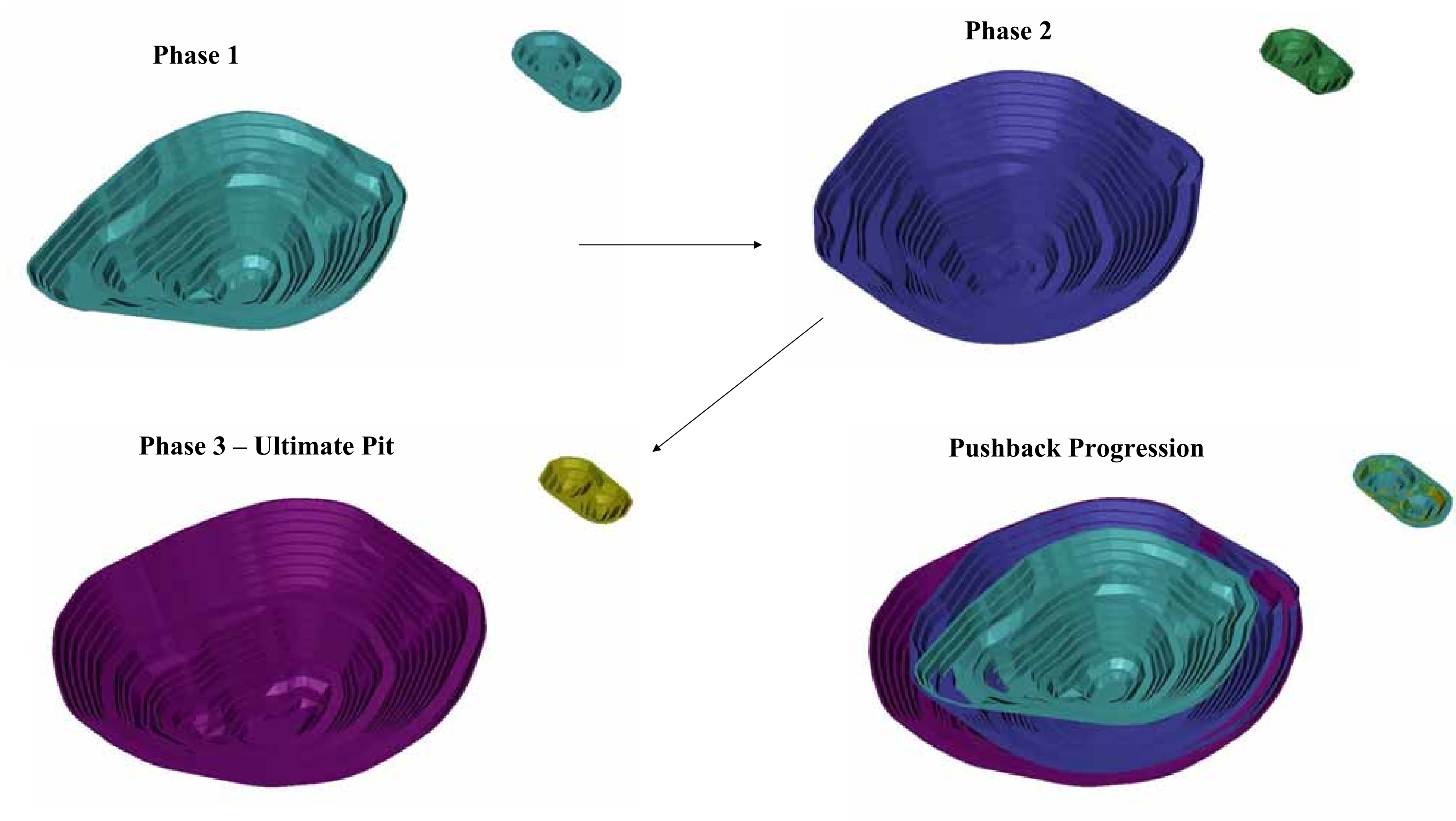
4.8 MINE PLAN AND OPERATION

Mining operations at the YGP will consist of two separate mining locations, Ormsby where the major mine infrastructure will be located, and Nicholas Lake Underground, located approximately 9 km to the northeast. The Ormsby site will host a ~79 Mt (5 Mt ore and 74 Mt waste) conventional open pit followed by a 1.4 Mt underground operation. The Nicholas Lake site will host a 1.3 Mt underground operation.

The mining operations will likely be owner operated and maintained. Tyhee NWT Corp will supply the mining mobile fleet, operators, maintenance facilities and personnel for both the mining operations and other requirements. Tyhee NWT Corp technical staff will provide support for all of the production and planning requirements of the operations. The open pit at Ormsby will provide the bulk of the feed to the mill, accounting for approximately 75% of mill feed for the first 4 years while Nicholas Lake is in operation. Underground operations will begin development during year 3 at the Ormsby site and will start producing ore about a year later. The Ormsby open pit has a mine life of 5.5 years excluding stockpiles. The open pit mine will be developed to excavate the majority of the Ormsby reserve. Due to increasing strip ratios as the depth of the pit increases, it is more economical to mine the lower sections of the deposit using underground mining techniques. The Ormsby open pit will produce ore at a rate of 2,250 tpd, while the Ormsby and Nicholas Lake underground operations will produce ore at a rate of 750 tpd for a total combined rate of 3,000 tpd.

The detailed mine plan and schedule will be developed prior to commencement of the mining activities and maintained on site by the Tyhee NWT Corp technical staff during operations. This will include mine design plans, mining sequence and scheduling. Schematics of the open pit and underground mining methods are shown in Figures 4.8-1 to 4.8-5 (five figures).

The mine production schedule aims to ensure that the processing plant runs at full capacity and maximizes NPV. Table 4.8-1 below shows the base case production schedule with material movements and gold grades.



100m 0 100 200m

NOTES
Phase 1 - to Year 3.5
Phase 2 - to Year 5.0

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YELLOWKNIFE GOLD PROJECT

Ormsby Pit Phases - Conceptual

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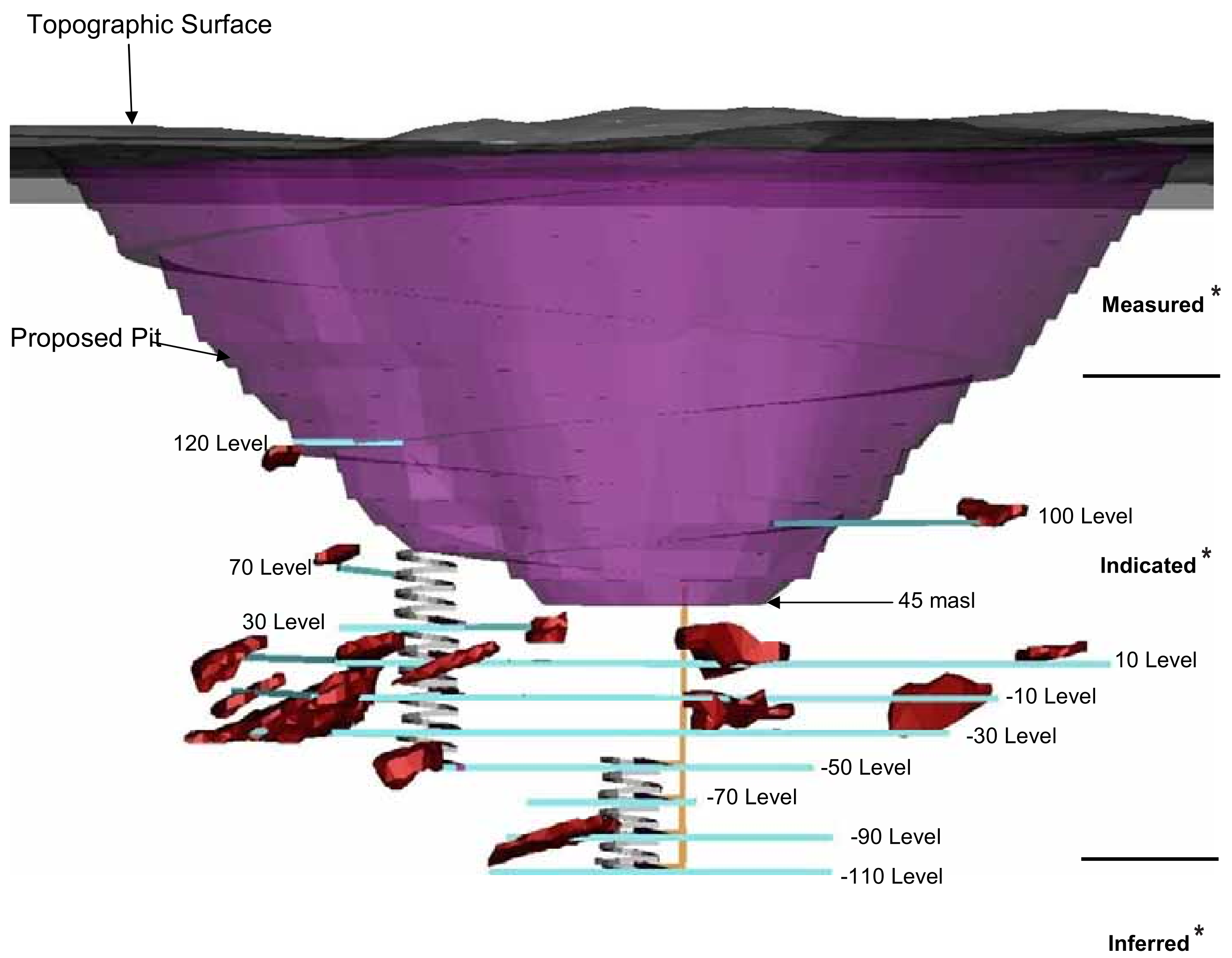
EBA-VANC	April 14, 2011		

Figure 4.8-1



LEGEND

- Proposed Vent
- Proposed Decline
- Proposed Adits
- Proposed Ramp

-50m 0m 50m 100m

NOTES

* Measured, Indicated and Inferred Mineral Resources have the meanings ascribed to those terms as defined by the CIM Definition Standards on Mineral Resources and Reserves.

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YELLOWKNIFE GOLD PROJECT

Ormsby Proposed Underground (Looking West) - Conceptual

PROJECT NO.	DWN	CKD	REV
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EBA-VANC	April 14, 2011

Figure 4.8-2

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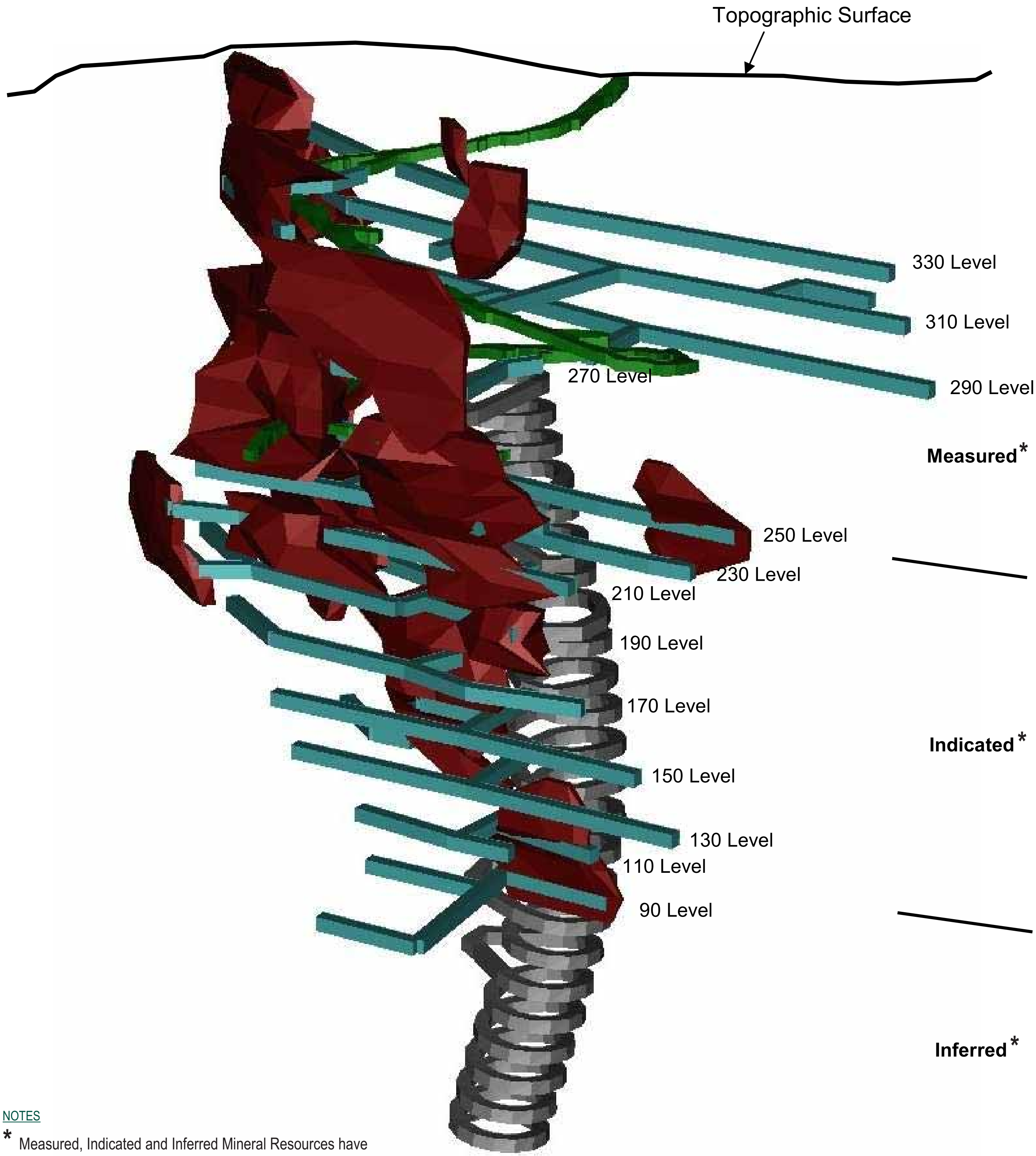

NOTES
* Measured, Indicated and Inferred Mineral Resources have the meanings ascribed to those terms as defined by the CIM Definition Standards on Mineral Resources and Reserves.

LEGEND
- Existing Decline
- Proposed Decline
- Proposed Adits
- Proposed Ramp

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YELLOWKNIFE GOLD PROJECT

Nicholas Lake Proposed Underground (Looking Northwest) - Conceptual

PROJECT NO.	DWN	CKD	REV
V23201097	KW	RH	0

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Figure 4.8-3

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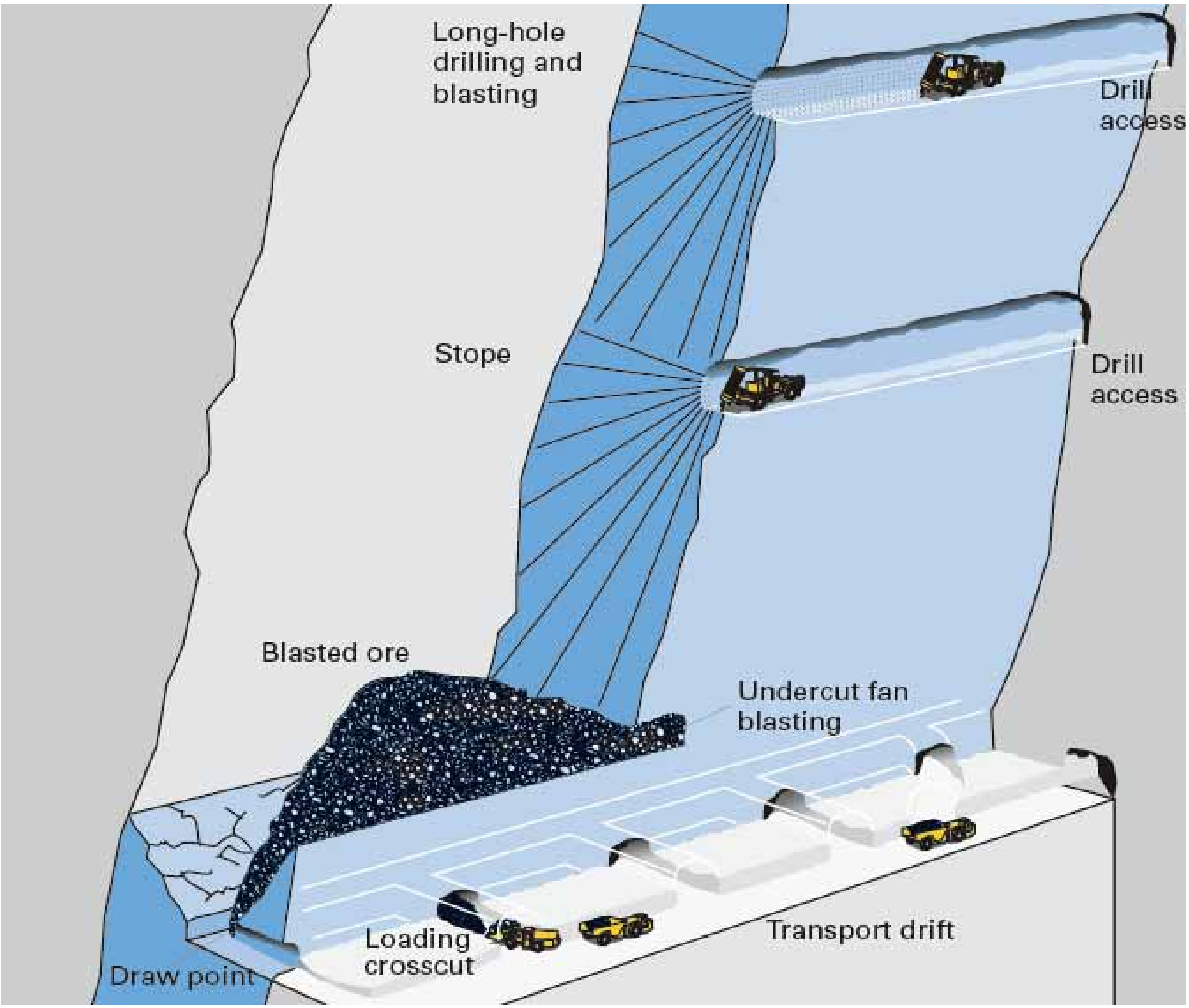

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CLIENT

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eba

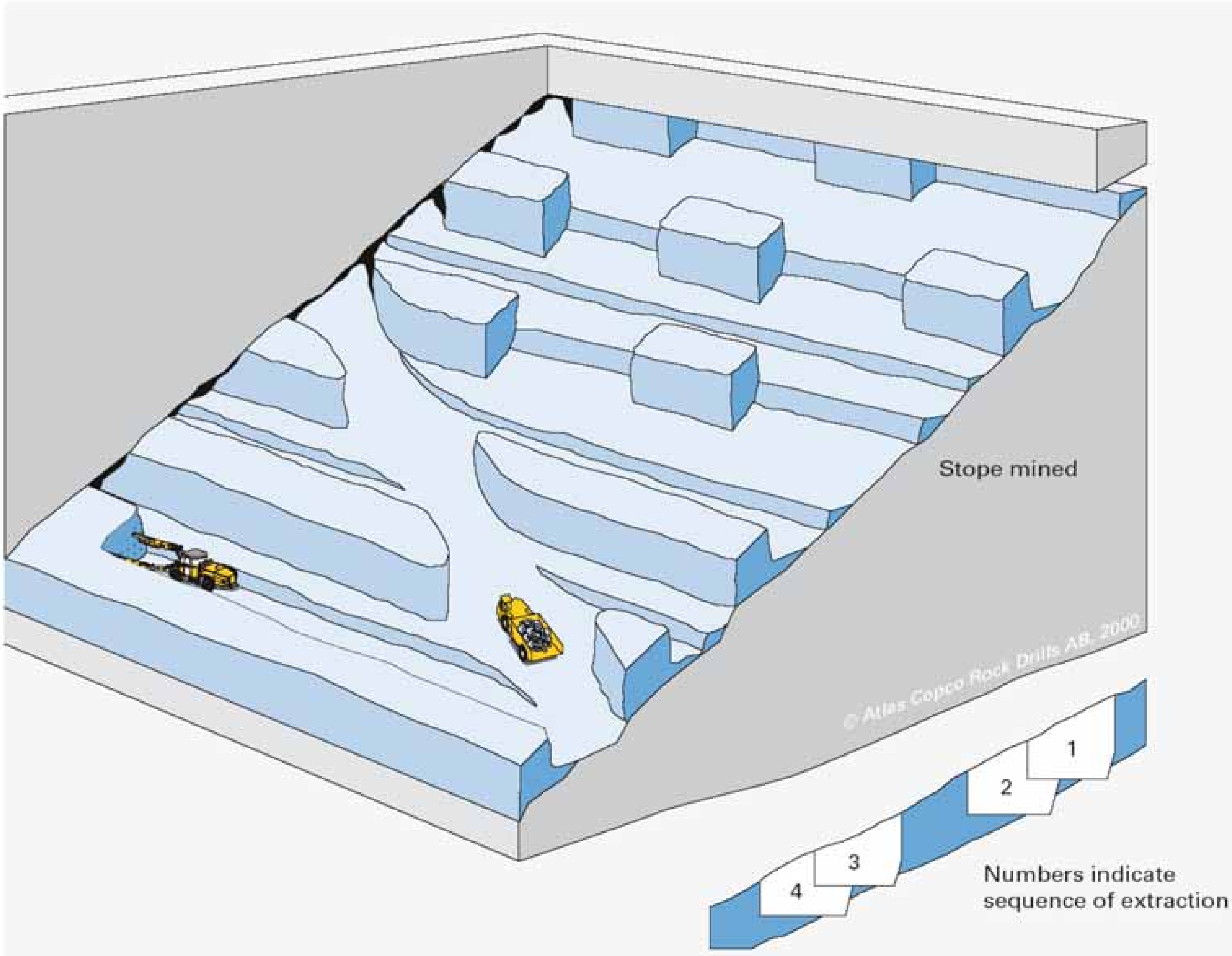
YELLOWKNIFE GOLD PROJECT

Longhole Drilling
Sub-level Stoping - Conceptual

PROJECT NO.	DWN	CKD	REV
V23201097	KW	RH	0

OFFICE	DATE
EBA-VANC	April 14, 2011

Figure 4.8-4



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YELLOWKNIFE GOLD PROJECT

Conceptual Longwall Mining Method

PROJECT NO.	DWN	CKD	REV
V23201097	SL	RH	0

OFFICE	DATE
EBA-VANC	March 11, 2011

Figure 4.8-5

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TABLE 4.8-1: BASE CASE PRODUCTION SCHEDULE									
Area	**Year**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Ormsby Open Pit	Ore (t)	674,753	1,074,578	859,019	1,023,620	1,022,192	512,033		
	Grade (g/t)	2.68	2.33	3.06	3.59	3.41	4.75		
	In-Situ oz	58,217	80,359	84,418	118,013	11,965	78,187		
	Waste (t)	8,823,225	21,035,146	18,662,051	14,751,817	9,553,690	1,110,012		
	Strip Ratio	13.08	19.58	21.72	14.41	9.35	2.17		
Ormsby Underground	Ore (t)				68,438	273,750	273,750	273,750	85,878
	Grade (g/t)				3.89	3.86	8.36	5.18	5.02
	In-Situ oz				8,556	33,986	73,620	45,555	13,851
	Waste (t)			60,263	79,094	39,977	71,267	77,229	51,335
Nicholas Lake Underground	Ore (t)	205,313	273,750	273,750	221,696				
	Grade (g/t)	4.54	4.68	4.17	4.00				
	In-Situ oz	29,951	41,178	36,680	28,489				
	Waste (t)	150,217	101,024	64,914	24,645				
Total	Ore(t)	880,065	1,348,328	1,132,769	1,313,753	1,295,942	785,783	273,750	85,878
	Grade (g/t)	3.12	2.80	3.33	3.67	3.50	5.16	4.37	5.02
	In-Situ oz	88,168	121,536	121,098	155,057	145,951	151,808	45,555	13,851
	Waste (t)	8,980,237	21,140,980	18,792,670	14,860,246	9,595,571	1,184,653	80561	53,780

The open pit will require an engineered slope design, ramp design and exit points. The production schedule will be established to maximize delivery of ore to the mill. Facilities near the open pit will be placed for ease of access and safety. Waste rock storage areas will be placed proximal to open pit exits.

Access to the Ormsby underground mining will be via a decline/ramp from the bottom of the open pit with level drifts driven to the ore zones. There will be direct decline access from the surface for Nicholas Lake underground mining. Drawpoints, sill drifts, sub-drifts and raises will be driven as required to outline the ore zone. Several underground mining areas will be developed to ensure that the production targets are met. An underground ventilation system will incorporate the exhaust method, whereby fresh air is pulled through the portal and other surface openings and vented to surface via raises. Exhaust fans will be located at the raises; mine air will be heated during the winter months. Blind headings will be ventilated by auxiliary fans and ducting.

Water and compressed air, required to facilitate mining, will be piped to the mine. Any excess water will be collected in a sump, allowed to settle suspended solids and pumped to the tailings containment area.

Power for operations will be distributed via a system of power lines, transformers, switchgear and cables to the electrical equipment.

4.9 MINE PRODUCTION SCHEDULE

The expected mine life, under Base Case conditions (3,000 tpd) is 7.5 years. The lifespan is variable dependent mainly upon the establishment of more resources with subsequent reserves through exploration, an increase or decrease in the price of gold, increase or decrease to costs, and the production rate.

The mine ore production is estimated at 2,500 to 3,000 tpd for 350 days per year, giving a yearly production of 875,000 to 1,050,000 tonnes. This will be the nominal feed to the process plant. The process plant operation includes an allowance for down time such as planned maintenance and unforeseen breakdowns, which reduces the available operating time. As a result, the actual throughput for the process plant at any one time could reach a maximum of 4,000 tpd and the plant design takes this into account.

In addition to ore being extracted from the zones, waste rock is also removed when providing access to the ore. It is estimated that approximately 74 million total tonnes of waste rock will be extracted from Ormsby during the open pit mining phase (years 1 – 5).

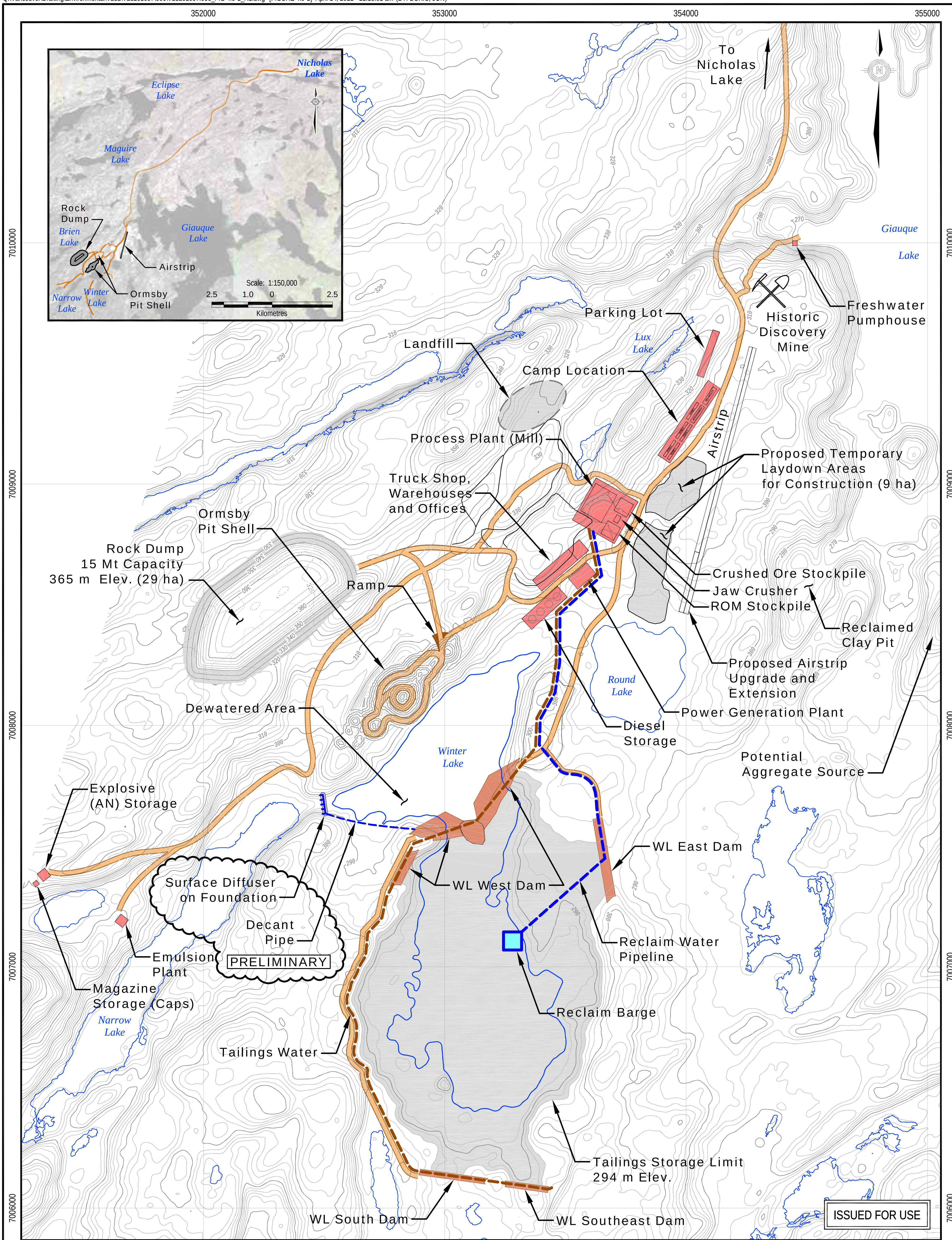
The waste rock from open pit mining will be delivered to a nearby waste rock storage area at Ormsby (WRSA). Waste will be stacked in 15 m compacted lifts by end dumping from haul trucks and spreading by dozer, up to a final height of about 108 m.

Schematics showing the Ormsby mine site after the first year of mining operations and full build-out are presented in Figures 4.9-1 and 4.1-1, respectively.

4.10 ORE PROCESSING

The conceptual process design will consist of three-stage crushing of run-of-mine ore. Crushed product will feed into a primary grinding circuit consisting of a single stage ball mill operating in closed circuit. Gravity treatment by centrifugal concentration and cleaning by tabling will be incorporated into the grinding circuit. This will be followed by froth flotation, and regrinding of the rougher flotation concentrate with two stages of flotation cleaning. The flotation concentrate will be cyanided, filtered and the pregnant leachate solution forwarded to a Merrill Crowe zinc precipitation circuit. Smelting will be performed on site to produce doré.

Q:\Vancouver\Drafting\Environmental\V232\V23201097\006\V23201097.006_FIG 4.9-1_R1.dwg [FIGURE 4.9-1] April 14, 2011 - 11:18:01 am (BY: BOKIC, JON)



NOTES:

- Base mapping from Watts, Griffis and McOuat (drawing file TDC_07_Base_Infrastructure.dwg)
- Background imagery from IKONOS (July 27 and August 2, 2004) and Landsat TM (August 11, 2001)
- Extra water features extracted from IKONOS imagery

YELLOWKNIFE GOLD PROJECT

Ormsby Preliminary Site Plan
1 Year of Mine Operations

PROJECTION	DATUM
UTM Zone 12	NAD83

Scale: 1:15,000
0.25 0.1 0 0.25
Kilometres

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FILE NO.
V23201097.006_FIG 4.9-1_R1.dwg

PROJECT NO.	DWN	CKD	REV
V23201097.006	JAB	RH	1

OFFICE	DATE
EBA-VANC	April 14, 2011

Figure 4.9-1

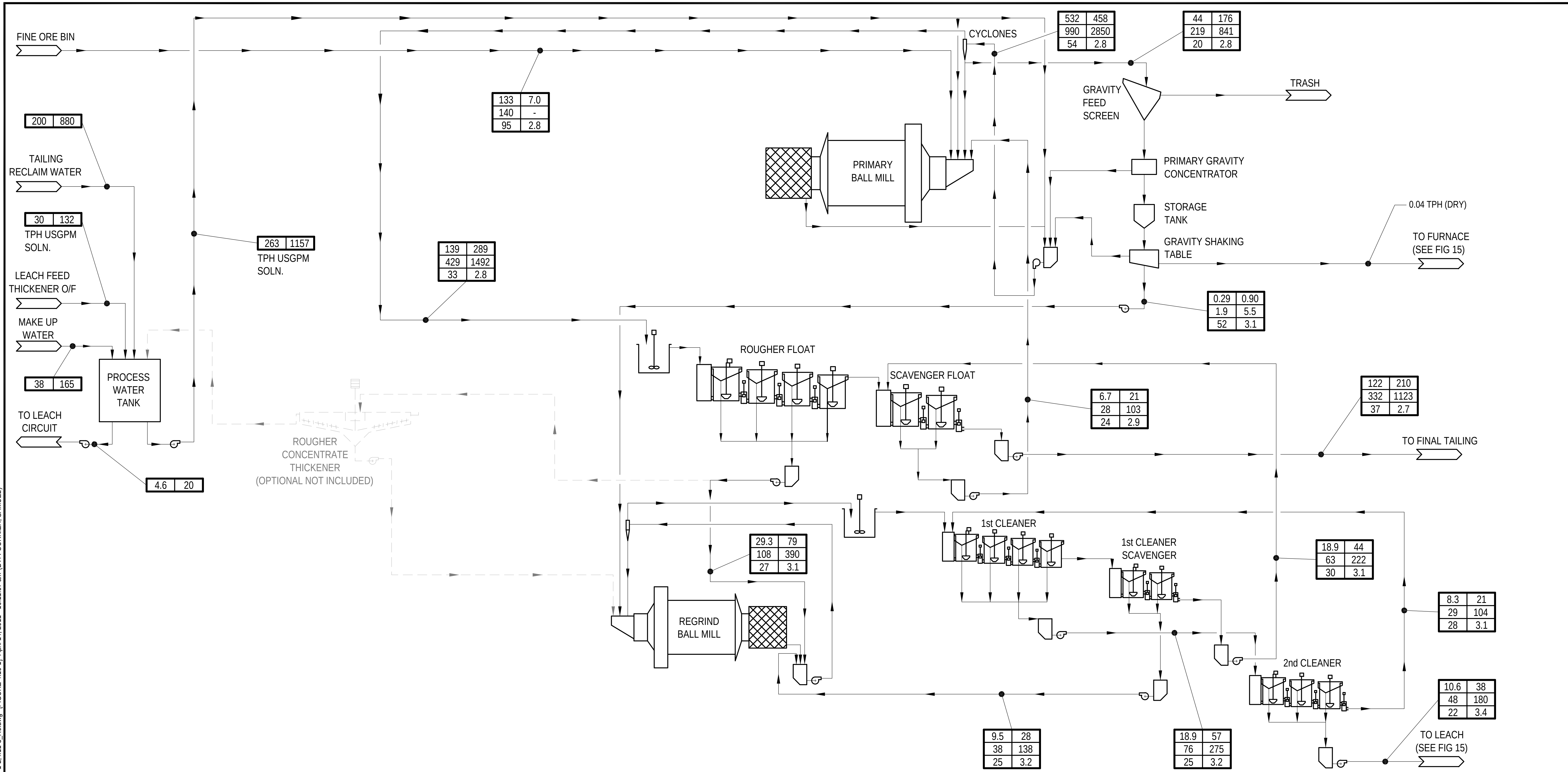
Water will be reclaimed from the flotation tailings for re-use in the process plant.

The flotation concentrate may be reground and cyanide leached in a CIL circuit. Gold and silver values will load onto activated carbon and be subsequently recovered into Dore bars. The cyanidation residue (tailings) will be detoxified using an oxidative process (SO2/Air or Caro's Acid). This detoxified waste stream will be combined with the flotation tailings and pumped to Winter Lake, the proposed tailings containment area.

Figure 4.10-1 shows the grinding and flotation flowsheet.

Figure 4.10-2 shows the gold leach circuit.

Figure 4.10-3 shows the Merrill Crowe circuit.



LEGEND

Pump Boxes

Pump

Primary Flow Circuit

Optional

KEY (Slurry Stream)

tph solid	tph solution
tph slurry	USGPM
% solids	S.G.

KEY (Solution Stream)*

tph solution	USGPM

* Doesn't include all water additions to cleaner circuit launders and regrind.

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YELLOWKNIFE GOLD PROJECT

Mill Process Flowsheet Grinding and Flotation - Conceptual

PROJECTION N/A	DATUM N/A
Scale: N.T.S.	
FILE NO. V23201097.006_FIG 4.10-1-2,4.11-3_R0.dwg	
PROJECT NO. V23201097.006	DWN SF / CKD LR / REV 0
OFFICE EBA-VANC	DATE April 14, 2011

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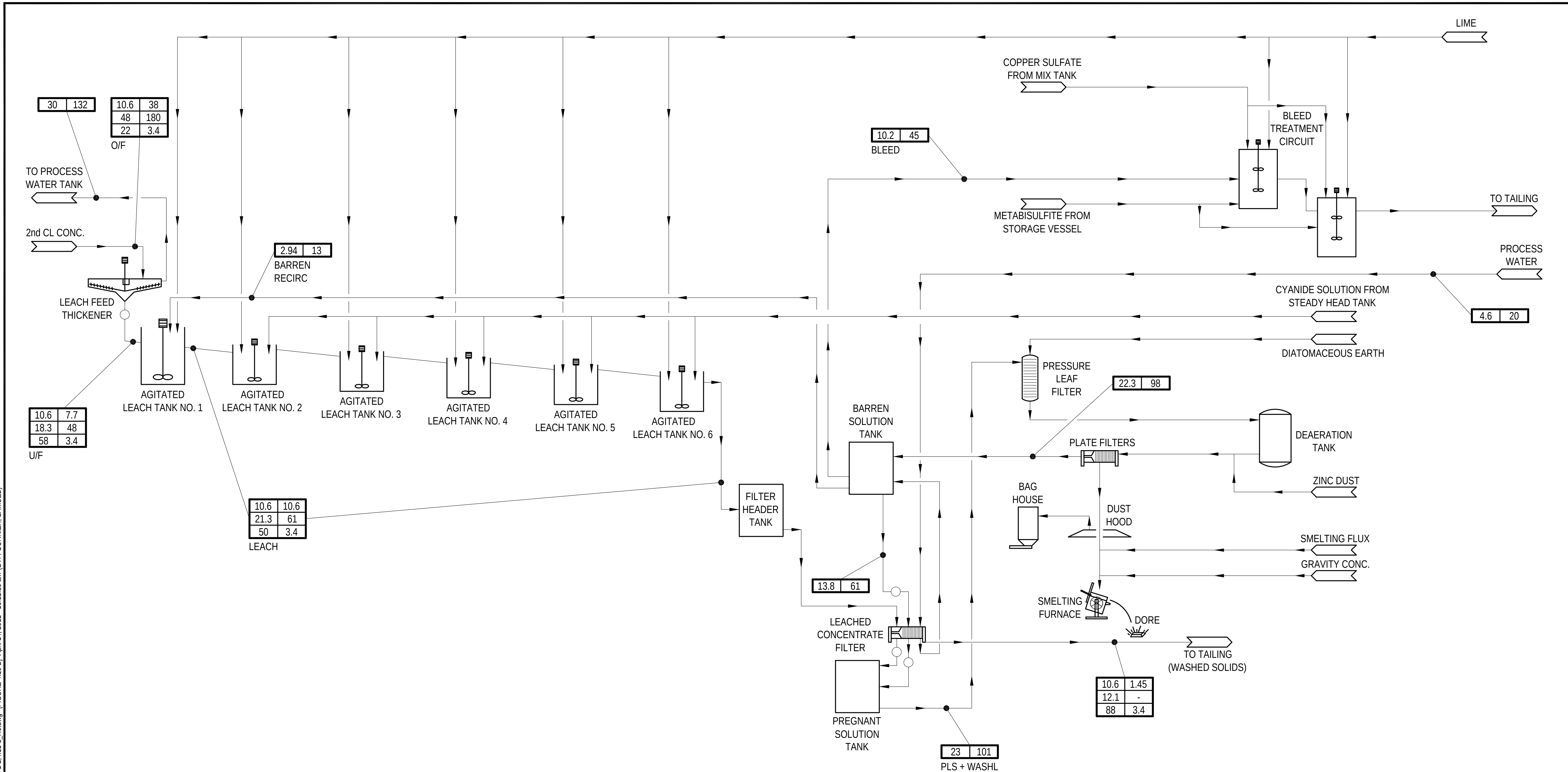
Figure 4.10-1



LEGEND

Pump Boxes

Pump

Primary Flow Circuit

KEY
(Slurry Stream)

tph solid	tph solution
tph slurry	USGPM
% solids	S.G.

KEY
(Solution Stream)

tph solution	USGPM

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YELLOWKNIFE GOLD PROJECT

Mill Process Flowsheet Gold Leach and Recovery - Conceptual

PROJECTION N/A

DATUM N/A

Scale: N.T.S.

Tyhee NWT Corp

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FILE NO. V23201097.006_FIG 4.10-1-2,4.11-3_R0.dwg

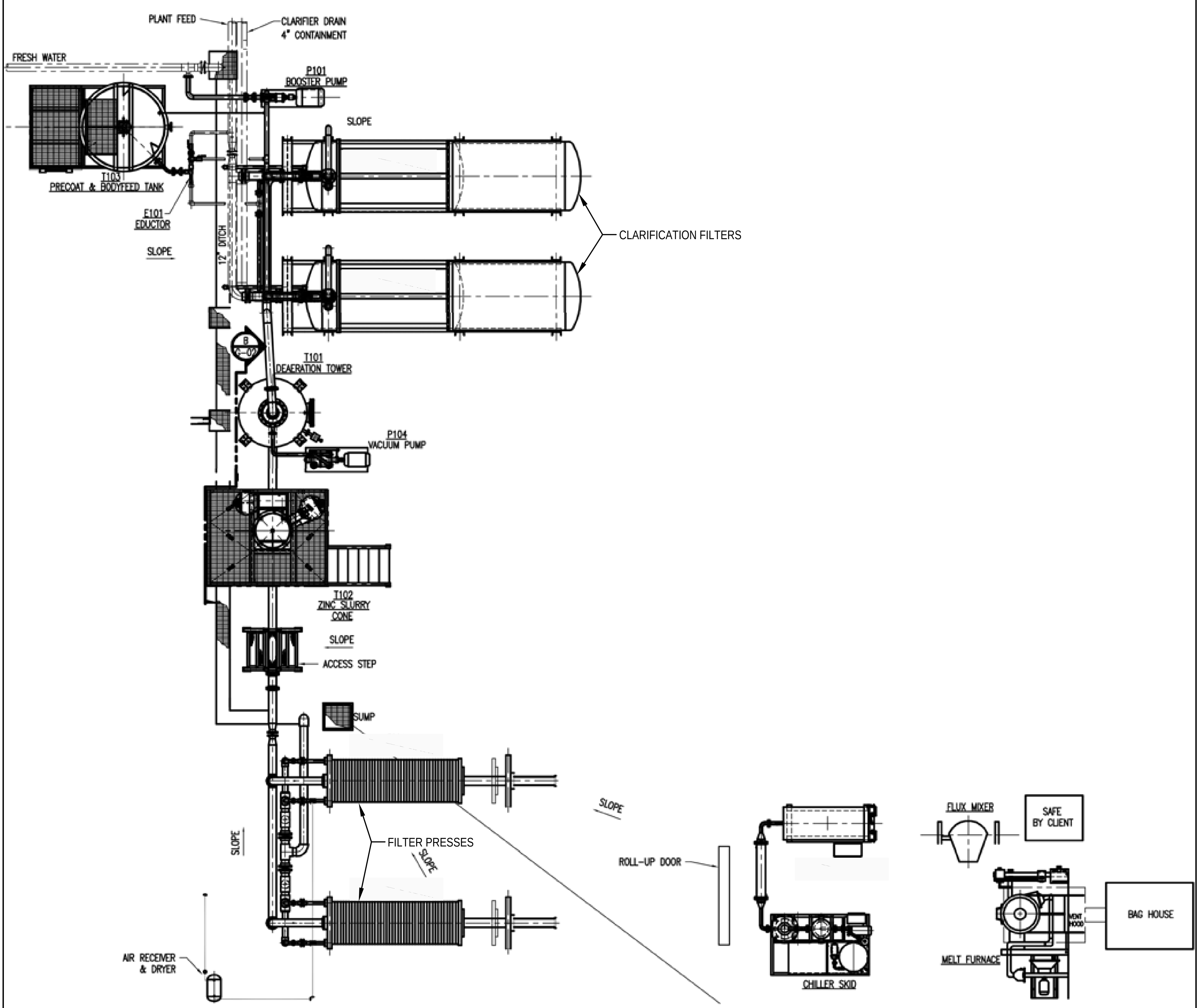
PROJECT NO.	DWN	CKD	REV
V23201097.006	SF	LR	0

OFFICE EBA-VANC

DATE April 14, 2011

Figure 4.10-2

Q:\Vancouver\Drafting\Environmental\V232\V23201097\006\V13101438.015_FIG 4.10-3,4.11-1-2_R0.dwg [FIGURE 4.10-3] April 14, 2011 - 10:09:23 am (BY: FOURNIER, SAMUEL)



NOTE:

- All units shown are in feet.
- Base drawing from Summit Valley Equipment and Engineering, Merrill Crowe Plan General Arrangement, dated April 20, 2010.

APPROXIMATE SCALE 1:100

1 0 1 2 4m

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YELLOWKNIFE GOLD PROJECT

Merrill Crowe Circuit
- Conceptual

PROJECTION	DATUM
N/A	N/A

Scale: 1:125

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FILE NO.
V13101438.015_FIG 4.10-3,4.11-1-2_R0.dwg

PROJECT NO.	DWN	CKD	REV
V23201097.006	SF	LR	0

OFFICE	DATE
EBA-VANC	April 14, 2011

Figure 4.10-3

4.11 PROCESS PLANT

The processing plant design is based on a nominal 3,000 tpd feed rate. The plant will process ores from the Ormsby and Nicholas Lake deposits. Initial production will be from the Ormsby open pit. This will be followed by blending in ore from Nicholas Lake. A maximum 25% weight ratio (750 tpd) of Nicholas Lake ore is assumed to be blended with Ormsby ore for the current flowsheet. The capacity of processing circuits includes a 90% availability factor. The conceptual process design is based on the results of laboratory testwork performed on samples obtained from these deposits that were conducted at Inspectorate Americas PRA Metallurgical Division.

The key production design parameters are summarized in Table 4.11-1.

TABLE 4.11-1: PROCESSING PLANT DESIGN PARAMETERS

Parameter	Unit	Quantity
Nominal Capacity	tpd	3,000
Operating Days	dpy	365
Plant Utilization	%	90
Design Capacity	tpd	2,780-3,330
Mill Operating Rate	tph	116-139
Design Head Grade	Au g/t	5.3

The processing plant facilities include the following circuits and systems:

- A three stage crushing circuit with run of mine open stockpile. Crushed product would be stored in a fine ore bin with 4,500 tonnes of live capacity;
- Ball Mill primary grinding and gravity classification circuit;
- Bulk Flotation and concentrate regrinding reporting to a two stage flotation cleaning circuit;
- A cyanide leach circuit consisting of six leach tanks providing a residence time of 72 hours of final flotation concentrate;
- A Merrill Crowe zinc precipitation circuit and propane fired melting furnace;
- A barren bleed cyanide destruction system using the SO2/Air process;
- Tailings and residue disposal to Winter Lake with reclamation of supernatant for process water; and
- Reagent storage, mixing, and distribution systems.

The processing equipment and facilities are housed in a pre-engineered heated building; the leach tanks, thickeners, and water tanks are located outside the building to reduce the building footprint and cost.

A simplified process flowsheet is shown in Figure 4.10-2 and conceptual GA drawings are shown on Figures 4.11-1 and 4.11-2.

Ancillary services and facilities include:

- Assay Lab to service mine and process requirements; and
- Fresh and potable water systems to service site requirements.

The process plant design will incorporate drainage arrangements to ensure that any potential spills are contained within the process plant area such that they can be cleaned up and disposed of in an environmentally acceptable manner. The plant site will be strategically located on competent rock to ensure sound foundations for the mills and associated equipment and facilitate minimal ore haulage distances for the life of operations.

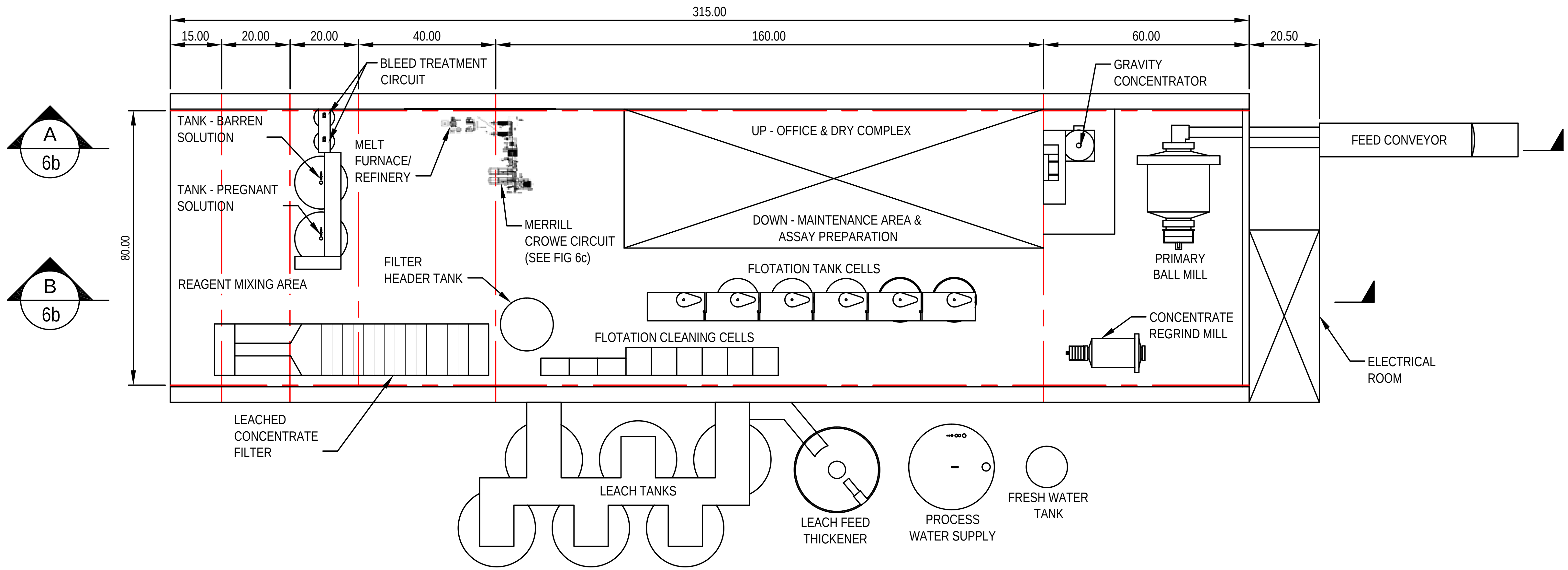
4.11.1 Crushing and Ore Reclaim

Run-of-mine (ROM) ore is delivered from the mine 24 hr/d by ore trucks directly to the primary crusher or to a stockpile which is sized to accommodate up to fifty days of production or ~150,000 tonnes of ore. This stockpile holds ore of any grade above cut-off and is considered separate from the low grade stockpile. The crushing plant is a mobile system mounted on trailers that includes a ROM hopper equipped with grizzly to protect the circuit from receiving oversize material. Undersize goes to a 32 in (10 cm) by 42 in (107 cm), 200 hp jaw (149 kW) crusher fed by a vibrating grizzly feeder and a crusher discharge conveyor equipped with a tramp iron magnet at the head pulley. First stage crushing reduces the ore to minus 4 in (10 cm). Two more stages of crushing are accomplished by 100 HP (75 kW) 20" by 54" 100 HP jaw crusher followed by cone crushing that operates in closed circuit with vibrating screens (Figure 4.11.3). The crushed product of minus 3/8 in (2 cm) is delivered by a 36 in (91 cm) conveyor to a fine ore bin or surge hopper. Crushed ore is reclaimed from the bin and conveyed to the mill by a 36 in (91 cm) feed conveyor.

4.11.2 Primary Grinding

Feed is delivered from the fine ore bin by conveyor to a 15 ft (4.6 m) diameter by 23.5 ft (7.2 m), 3,100 hp (2,313 kW) rubber lined ball mill. The ball mill overflow is discharged and the slurry directed by cyclone feed pumps to the cyclone distributor. Approximately a third of the cyclone underflow goes to the gravity concentrator trash screen and the remainder gravitates back to the ball mill which operates with a 40% ball charge and a slurry density of approximately 72% solids. The mill is sized to produce a product of 80% passing 130 micron in the cyclone overflow. The cyclone overflow is directed by gravity to the flotation feed conditioning tank (Figure 4.10-1).

The trash screen undersize from the gravity concentrator scalping screen goes to the batch centrifugal concentrator. The gravity concentrate is removed approximately every 30 minutes by automatic back flush and discharged into a settling cone to be upgraded on a shaking table. The shaking table produces a final gravity concentrate for direct smelting. The table middling stream goes back to the regrind mill discharge pump box and table tailing is returned to the primary mill cyclone feed pump box.



NOTE:
- All units are in feet.

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YELLOWKNIFE GOLD PROJECT

Conceptual Mill Building
General Arrangement Floor Plan

PROJECTION N/A		DATUM N/A	
Scale: N.T.S.			
FILE NO. V13101438.015_FIG 4.10-3,4.11-1-2_R0.dwg			
PROJECT NO. V23201097.006	DWN SF	CKD LR	REV 0
OFFICE EBA-VANC	DATE April 14, 2011		

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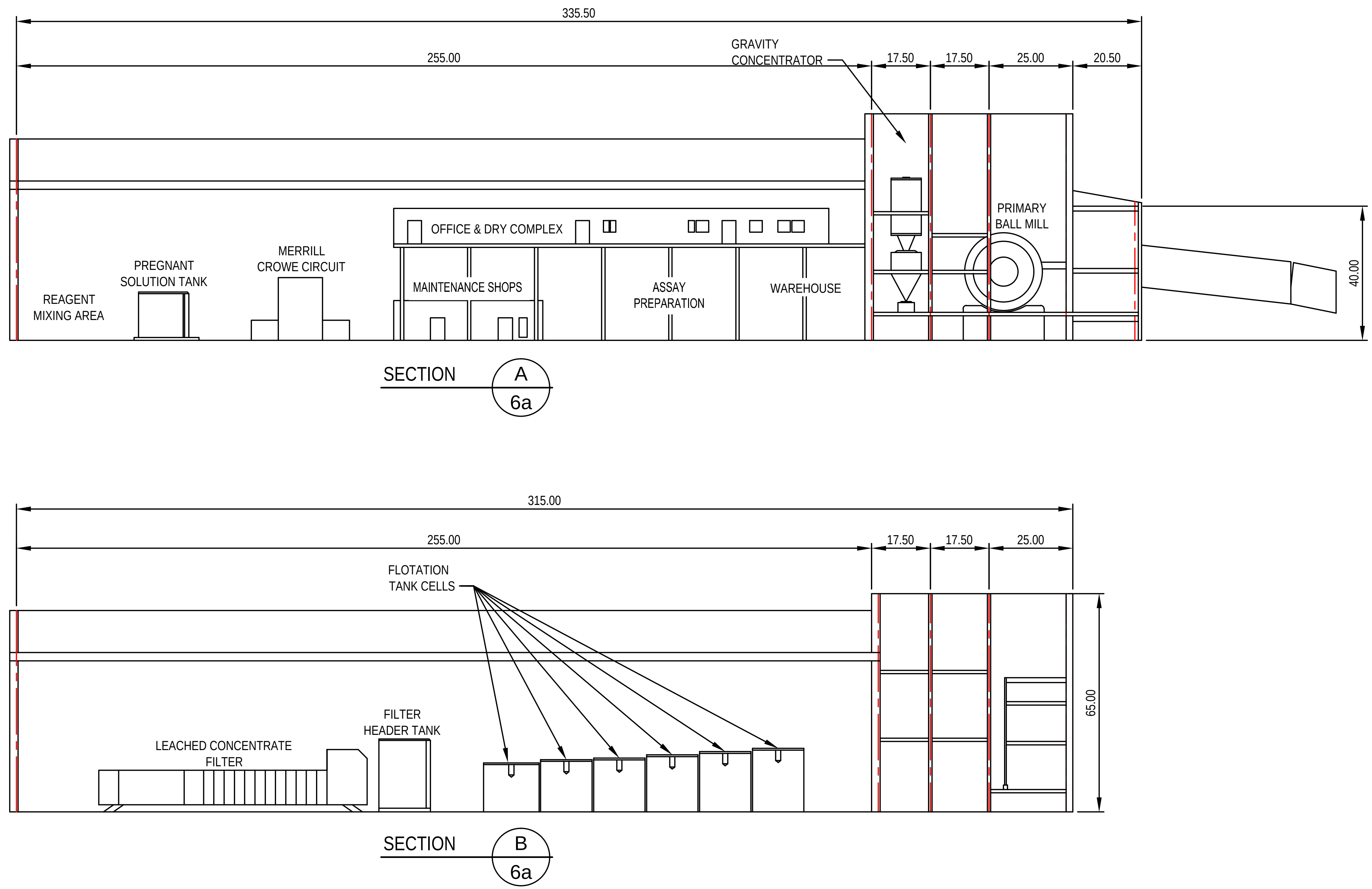
Figure 4.11-1



NOTE:
- All units are in feet.

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YELLOWKNIFE GOLD PROJECT

Conceptual Mill Building
General Arrangement Sections

PROJECTION: N/A	DATUM: N/A
Scale: N.T.S.	
FILE NO.: V13101438.015_FIG 4.10-3,4.11-1-2_R0.dwg	

PROJECT NO.	DWN	CKD	REV
V23201097.006	SF	LR	0

OFFICE	DATE
EBA-VANC	April 14, 2011

Tyhee NWT Corp

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Figure 4.11-2

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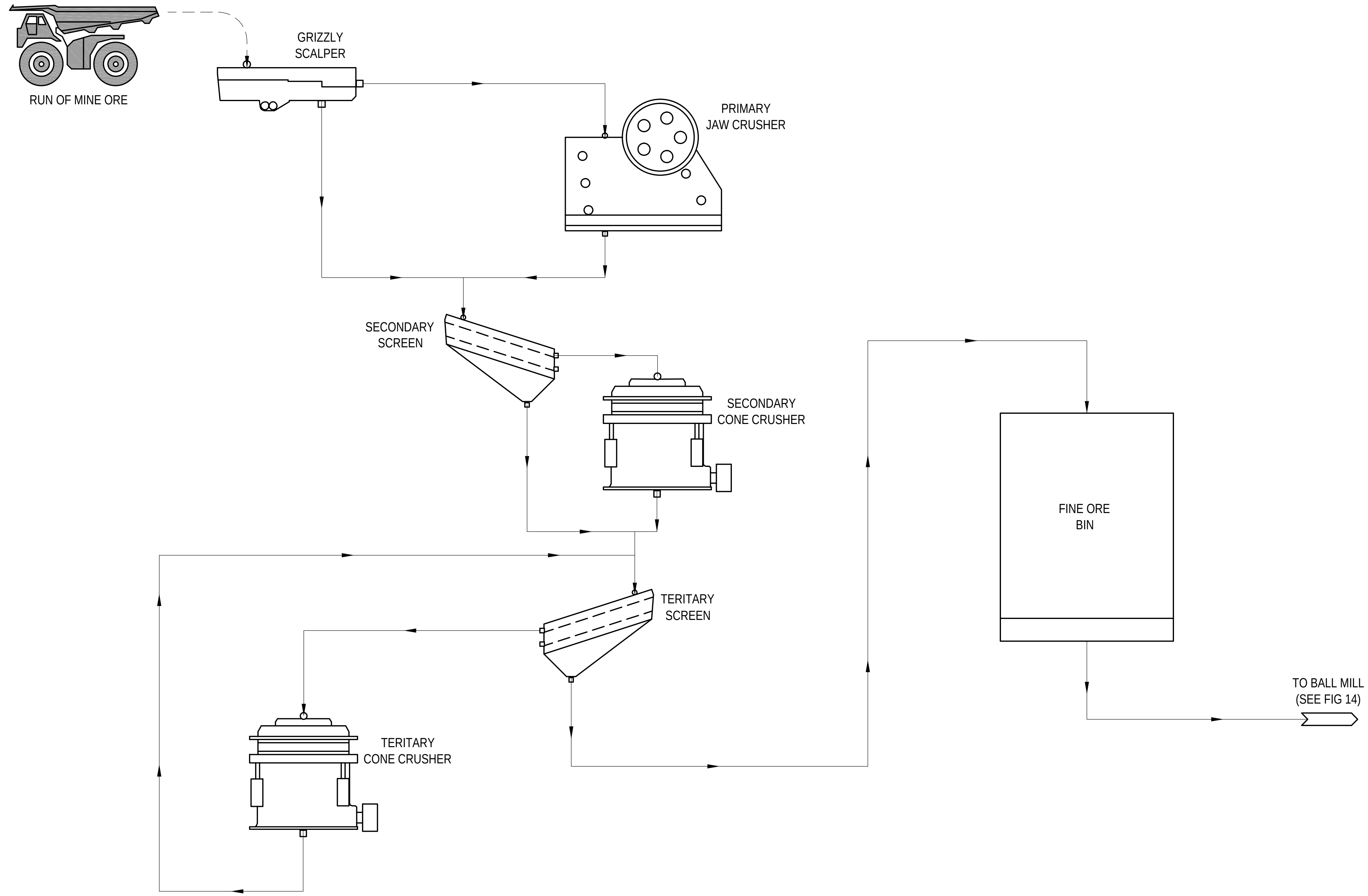

LEGEND

Primary Flow Circuit

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YELLOWKNIFE GOLD PROJECT

Crushing Circuit
- Conceptual

PROJECTION	DATUM
N/A	N/A

Scale: N.T.S.

FILE NO.
V23201097.006_FIG 4.10-1-2,4.11-3_R0.dwg

PROJECT NO.	DWN	CKD	REV
V23201097.006	SF	LR	0

OFFICE	DATE
EBA-VANC	April 14, 2011

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Figure 4.11-3

4.11.3 Flotation

The flotation scavenger concentrate produced by the last two cells is pumped to the primary ball mill feed chute box. The scavenger flotation tail is sampled with an in line sampler prior to discharge into the final tailing pump box. The ball mill cyclone overflow goes to the flotation conditioning tank (Figure 4.10-1) where process water can be added if necessary. The feed line to the conditioning tank is fitted with an in-line flotation feed sampler. Slurry from the conditioning tank overflows into the first of six 40 m3 flotation cells providing a total residence time of 45 minutes for both roughing and scavenging. Frother (Methyl Isobutyl Carbinol; MIBC) and collectors Potassium Amyl Xanthate (PAX) and AeroFloat 208 (A208) are dosed stage-wise to the circuit from separate reagent head tanks. The rougher flotation concentrate produced from the first four cells is sampled with an in-line sampler prior to being pumped to the regrind circuit. The design mass recovery of the rougher concentrate is 8% of the flotation feed mass, but is expected to vary from 6% to 10% depending on the source of the ore.

4.11.4 Regrinding and Thickening

The rougher flotation concentrate is pumped to the regrind mill cyclone feed pump box. The cyclone underflow gravitates to regrinding in a 125 hp (93 kW) Vertimill®, (or equivalently sized ball mill) to produce a regrind product size of 80% passing 40 microns in the cyclone overflow. The cyclone overflow is fed by gravity to the first of two stages of flotation cleaning cells (Figure 4.10-1). The first cleaner concentrate is advanced to a second cleaning stage and the tailing is scavenged. The 1st cleaner scavenger concentrate is re-directed back to the regrind mill discharge pump box. The 1st cleaner scavenger tailing reports to the bulk scavenger flotation feed. Second cleaner concentrate is sent to a high rate thickener ahead of the leach circuit. The thickener overflow is sent to a process water tank, while the underflow is pumped to the leach circuit.

4.11.5 Leaching and Filtration

The cyanide leach circuit consists of six tanks in series providing a nominal residence time of ~72 hr (Figure 4.10-2). Barren solution recovered from the Merrill Crowe circuit is added to the first leach tank to obtain a slurry density of about 50% solids. The leach tanks are located outside the mill building but covered and adequately insulated. Placing cyanide leach tanks outside is common practice as the slurry is warmed during prior processing and the tanks are insulated and mixed with air sparging. However the extreme cold for this site makes the use of outside tanks an issue that will be re-visited for more detailed examination during the feasibility study.

Cyanide and hydrated lime can be added to any of the leach tanks and air is added via air spargers in each tank to facilitate the leaching reaction. Leached residue slurry from the last tank flows by gravity to the surge tank used to feed a 75 m^2 horizontal belt filter (or alternately a plate filter). The pregnant leach solution (PLS) goes to the PLS holding tank. The filter cake is washed in two stages, first with barren solution and then with fresh water. The washed filter cake is discharged then re-pulped and pumped to the final flotation tailing pump box.

4.11.6 Merrill Crowe

The Merrill Crowe zinc precipitation circuit consists of a prefabricated modular plant (see Figure 4.10-3). The PLS is pumped to a clarifier filter press pre-coated with diatomaceous earth. The clarified solution goes to a de-aeration tower. Zinc dust is injected to the de-aerated solution and the resulting precipitate is filtered in a recessed plate filter. The collected precipitate is retorted to collect mercury and then smelted to produce doré.

A portion of the barren stream will be treated by SO_2-Air treatment to prevent a build-up of potential contaminants in the leach circuit. The treated barren bleed will be disposed with the washed cyanide leach residue and bulk flotation tailing in the tailings containment area.

Gold Room

The zinc precipitate is smelted in a propane fired melting furnace with a mixture of pre-weighed fluxes. The molten charge is poured into moulds to recover the gold and silver in doré bars which are weighed and stored in the safe prior to shipment. Fumes from smelting process are treated in a gas scrubbing system.

In addition to gold and silver derived from concentrate leaching, a substantial proportion of the precious metals are recovered directly from the gravity concentration circuit. Rougher gravity concentrate stored in the gravity concentrate settling cone, is upgraded to a high grade concentrate on a shaking table for direct smelting. The tabled concentrate is recovered in a collection bin and transferred to the furnace. A permanent magnet is suspended over the table during the tabling operation to remove steel fines produced from grinding balls. The dewatered tabled concentrate is calcined, mixed with fluxes and smelted.

4.11.7 Cyanide Detoxification and Tailings Disposal

A portion of the barren cyanide stream "barren bleed" is treated by the SO_2-Air cyanide detoxification process. The proportion of barren bleed stream is adjusted depending on characteristics of the concentrate being leached.

There are two detoxification reactor tanks installed in series; each with a residence time of approximately one hour. The pH in the reactors is maintained at approximately 8.5 using hydrated lime. Sodium meta-bisulphite is added to reduce the WAD cyanide, which constitutes the majority of the total cyanide concentration. The residual WAD cyanide concentration is monitored with a cyanide analyzer, which samples both reactors on a semi-continuous basis. Copper sulphate is dosed from the head tank to the second Cyanide Detoxification Reactor as required to assist the destruction of the iron cyanides. The detoxified bleed stream and the re-pulped washed cyanide residue are pumped to the tailings pump box forco-disposal with the flotation tailings. The final tailings which contain a total of less than 1.0 ppm total cyanide are pumped to the Winter Lake tailings disposal area via a 1.8 km long high-density polyethylene (HDPE) insulated and heat traced pipeline; a spare line will be installed for back-up.

4.11.8 Arsenic Treatment

Results of the metallurgical testwork on the processed tailings suggest that treatment for arsenic may be required. The reduction of Arsenic in mill process tailings by the addition of Ferric Sulphate is an industry accepted treatment practice and would be implemented at the YGP to ensure compliance with MMER. Testwork to date suggests that the tailings stream would be subjected to doses of ferric sulphate (dosage rates and concentrations to be determined following further lab testwork) that would reduce arsenic concentration in the mill process tailings entering the TCA to a level compliant with the MMER discharge criteria. Subject to further testwork, it is expected that the addition of ferric sulphate would most likely be in line and after the cyanide destruct circuit to minimize interference with the cyanide destruct process. An excellent example of successful ferric sulphate treatment for the reduction of arsenic was the Lupin Mine in Nunavut.

4.11.9 Reagents and Services

Collectors

Potassium Amyl Xanthate (PAX) and AeroFloat 208 are added to the flotation circuit to float sulphides and free gold. The collectors are received in drums and mixed in batches in an agitated mix tank using a drum tipper and hoist. The reagents are diluted to 10% of the original shipped concentration. The resulting respective solutions are transferred to a storage distribution tank then pumped to header tanks and dosed via timed dosing valves into the flotation circuits. The header tank overflows return back to the distribution tank.

Frother

Methyl Isobutyl Carbinol (MIBC) is added to assist with froth formation, which in turn facilitates sulphides and fine precious metal recovery. MIBC is received on site in drums, and is pumped up to a header tank located in the flotation area and dosed undiluted to the flotation circuits with dosing valves.

Copper Sulphate

Copper sulphate is added to the SO_2-Air detoxification circuit. It will be mixed manually in a mixing tank to 10% solution strength, and pumped to a head tank for dosing into the second detoxification tank reactor to assist with iron cyanides destruction.

Sodium Cyanide

Sodium cyanide is received in bulk bags and stored for use in a reagent compound. Using a lift truck, hoist and bag breaker, cyanide is mixed with water to 10% strength in the cyanide-mixing tank. This solution is transferred to the cyanide storage tank for distribution to the cyanide leach circuit. Two dosing pumps have been allowed for, given the absence of a head tank feeding the leach circuit. A third dosing pump is used to transfer cyanide solution into the Eluate Tank at the start of each elution cycle.

Sodium Meta-bisulphite

Sodium meta-bisulphite is received in bulk bags and stored for use in a reagent compound. Using a lift truck, hoist and bag breaker, sodium meta-bisulphite is mixed with water to 10% strength in the sodium meta-bisulphite mixing tank. This solution is transferred to the sodium meta-bisulphite storage tank for distribution by a dosing pump to the cyanide detoxification reactors.

Hydrated Lime

Hydrated lime is received in one tonne bulk bags and stored in a reagent compound. Using a lift truck, hoist and bag breaker, hydrated lime is mixed with water to 10% strength in the lime mixing tank. This slurry is transferred to the agitated lime storage tank for distribution to the cyanide leach circuit via a pressurized loop equipped with "red jacket" valves; one of two circulation pumps will circulate the lime slurry through the loop. An alkaline area spillage sump and pump, common to all alkaline reagent mixing operations, has been included to transfer spillage to the final tailing sump.

Flocculant

Flocculant is required in the two high rate thickeners to assist solids settling and overflow clarification. Twenty-five kg bags of flocculant are added into a hopper feeding into a mixing tank via a screw conveyor. The selected flocculant is made to the recommended strength, and after mixing, is transferred to the storage tank. It is dosed via a pair of helical rotor pumps (one duty/one standby) to the thickener. When added to the thickener, the auto-dilution control dilutes the flocculant further to a factor of approximately 10.

A safety shower will be installed in the reagent mix area. This area will be bunded, the different reagents being bunded separately and directed to the appropriate part of the plant.

4.12 WASTE MANAGEMENT

All solid non-combustible and non-hazardous waste will be disposed of in a landfill or other approved onsite location. Combustible waste and kitchen refuse will be incinerated using CA MODEL CA-100 incinerator from ECO Waste Solutions or equivalent (see specification sheet in Appendix O.) Waste oil will be burned in a waste oil burner.

4.12.1 Process Effluent and Mine Discharge

Disposal of process effluent including cyanide stream and flotation tailings are discussed in Section 4.11 above.

4.12.2 Ormsby Tailings Containment Area and Nicholas Settling Pond

The following sections provide descriptions of: the Ormsby Tailings Containment Area (TCA), which will receive process effluent, pit mine discharge, and treated sewage; and, the Nicholas Area settling pond, which will receive underground mine discharge.

4.12.2.1 Ormsby Tailings Containment Area

Tailings from the Ormsby mill processing facility will be pumped to and contained within a Tailings Containment Area (TCA) located at Winter Lake (Figure 4.3-1). The proposed location and extent of the TCA will accommodate 7.6 Mt dry weight of tailings over an eight year period with an average dry density of 1.7 t/m^3 after consolidation. The tailings particle specific gravity (SG) is approximately 2.8; and the tailings have a particle size ranging from 80% to 98% passing the #200 mesh (0.074 mm).

As noted in Section 4.2 of the Golder Tailings Alternative Assessment Report (Appendix L), tailings deposits in cold climates may have reduced density relative to deposits in warm climates due to ice content. For tailings deposited as slurry, ice contents in cold climates have been observed to increase the total volume of a deposit by 15% to 30%, depending on how the facility is operated.

A factor of 25% over and above the estimated deposited tailings volume has been used for the YGP to accommodate the potential for ice entrainment within tailings that will be stored in the TCA.

Sub-aerial slurry deposition (where tailings are discharged overland and run downhill to the water pond) has been used at the following mines: the historic Discovery Mine adjacent the site; Giant Mine, Yellowknife; Copper Cliff Mine, Ontario; Hudson's Bay Flin Flon, Manitoba; Kidd Creek Mine, Ontario; and Nanisivik Mine (later stage), Nunavut. The Meadowbank Gold Project in Nunavut is currently using sub-aerial deposition and operation of a reclaim pond.

Where the TCA perimeters against an undisturbed area, the tailings containment dams will comprise of internally lined structures keyed into the bedrock, namely; Southwest Dam, South Dam, Southeast Dam, East Dam, Saddle Dam, North Dam and the southern leg of the West Dam (Figure 4.3-1). The portion of the West Dam that divides Winter Lake (the northern arm) will be a rock fill dam that will blind off with tailings. This dam embankment structure will be constructed in stages according to the mine tailings storage requirements. The northern portion of the lake will be drained to accommodate the boundaries of the proposed open pit. During operations, water seepage through this structure will be collected and managed within a containment ditch located in the northern portion of the drained Winter Lake. Any seepage that is collected in the containment ditch will then be pumped back into the TCA. Over time, tailings deposition at the dam will contribute to creating an impermeable boundary that will eliminate seepage in the long run. All tailings dam structures will be constructed to a design crest elevation of 297 masl using suitable material borrowed from the Ormsby Pit area. Material will be blasted, crushed, hauled, placed and engineered to construct the dam structures. The West Dam, South Dam and Southeast Dam will be constructed prior to the commencement of tailings deposition. The remaining dams will be constructed during the mine life as they are only required for containment at higher elevations. Initial deposition of tailings within the TCA will commence with spigot discharge along the upstream face of the West Dam to blind off the structure and limit future seepage northwards into the drained portion of Winter Lake. Tailings will continue to be discharged upstream of the West Dam and will be augmented by additional spigot points around the perimeter of the TCA to maximise tailings storage capacity within the facility. The estimated final tailings elevation will be approximately 292.5 masl with a water cap elevation of 293.5 masl which equates to a freeboard and wet year water storage allowance of 3.5 metres for all dams.

During operation of the TCA, a water cap of approximately 1 metre will be maintained over the majority of the tailings surface. For closure and reclamation it is the intent to construct a material cap, either with or without a liner, over the exposed tailings instead of maintaining a water cover. This material cover will be a more effective long term closure scenario by returning the mine site to its pre-mining undisturbed state thereby ensuring minimal environmental impacts on the receiving environment and will be easier to maintain.

The Tailings Management Plan will include a periodic release of water (as described in Section 4.13.1) via a pipeline from the Winter Lake tailings containment area to the downstream receiving environment through a diffuser at the upstream end of the Narrow Lake inlet stream. This will control the maximum water level within the TCA facility.

4.12.2.2 Nicholas Settling Pond

Groundwater seepage into the underground workings at the Nicholas Lake site will be pumped to a settling pond shown on Figure 4.1-2, which is located in a previously disturbed area to the north of Nicholas Lake. As indicated in Section 2.10.8.3, such flows may range anywhere from 8 to 1300 m^3/day, depending on bedrock conductivities. Based on the conservative level of 1300 m^3/day of discharge and a retention time of seven days, a two-metre deep pond is proposed that will have an area of 4550 m^2 (similar to linear dimensions of 65 x 70 x 2 metres).

4.12.3 Water Balance

A water balance model was developed to provide an estimate of the amount of makeup water required for the process plant in an average year, 10-year wet and 10-year dry conditions. It also provides a design basis for the tailings dam in terms of the total volume of water impoundment. The water balance is described in detail in Section 4.13.1.

The long-term (1945-2009) and short-term (2004-2010) annual precipitation data used in the water balance was obtained for the Yellowknife Airport meteorological station (ID 2204100). This station, located 83 km southwest of the project site, is the closest climate station operated by the Meteorological Service of Canada.

It is assumed that the initial Winter Lake volume is approximately 783,000 m^3 at the present lake level of 286 masl.

During an average operating year with a daily production rate of 3,000 tonnes, a total of approximately 739,000 m^3 of fresh water is required from Giauque Lake to supply the mill. This result was established under the following assumptions:

- (1) That a maximum 30% of the tailings inflow water can be used as reclaim during the winter months (November to April) and 97% can be used during the rest of the year; and

- (2) stored tailings water can be used for reclaim during the spring and summer months (May to October).

The total amount of tailings reclaim was found to be approximately 1.4 M m^3 which corresponds to an annual average of 64% of the total inflow of the combined tailings, and a total storage volume of about 4,000 m^3 can be used during the spring and summer months to make up for the additional required water for the process plant to operate. A total amount of approximately 900,000 m^3 discharge to the environment would be required during the spring and summer months in order to maintain a volume of 783,000 m^3 at the end of the year. With 739,000 m^3 of fresh water make-up, Giauque Lake with a surface area of 16,537,000 m^2 would be expected to drop by approximately 5 cm. The monthly water balance for the TCA is illustrated in Table 4.13-4 and the annual water balance schematic for the process plant and TCA during an average year condition is shown in Figure 4.13-1.

During a 10-year wet operating year with a daily production rate of 3,000 tonnes, a total 739,000 m^3 of fresh water is required from Giauque Lake to supply the mill. This result was established under the same assumptions as the average conditions for the allowable amount of tailings reclaim and stored water reclaim. A total amount of approximately 1.1 M m^3 discharge to the environment would be required during the spring and summer months in order to maintain a volume of 783,000 m^3 at the end of the year. The monthly water balance for the TCA during 10-year wet conditions is illustrated in Table 4.13-5 and the annual water balance schematic for the process plant and tailings pond under 10-year wet conditions is shown in Figure 4.13-2.

During a 10-year dry operating year with a daily production rate of 3,000 tonnes, a total 739,000 m^3 of fresh water is required from Giauque Lake to supply the mill. This result was established under the same assumptions as the average conditions for the allowable amount of reclaim. A total amount of 742,000 m^3 discharge to the environment would be required during the spring and summer months in order to maintain a volume of 783,000 m^3 at the end of the year. The monthly water balance for the TCA during 10-year dry conditions is illustrated in Table 4.13-6 and the annual water balance schematic for the process plant and tailings pond under 10-year dry conditions is shown in Figure 4.13-3.

In summary, fresh water makeup is necessary for all three scenarios where a maximum of 30% of the tailings inflow water can be used as reclaim during the winter months and 97% for the rest of the year. In order to cover the tailings with at least 1 m of water, a minimum volume of 530,000 m^3 is required. It was found for all three scenarios that the lowest annual volume was always greater than the required minimum. All releases to the environment from the TCA during spring and summer will meet the discharge criteria set out under the MMER

During a 100 year wet event, the pipeline installed alongside the main dam will be used to maintain water levels. If the mine is producing during a 100 year dry event, excess water necessary to maintain production in the mill can be sourced from the TCA and Giauque Lake.

4.12.4 TCA Dam Design and Construction

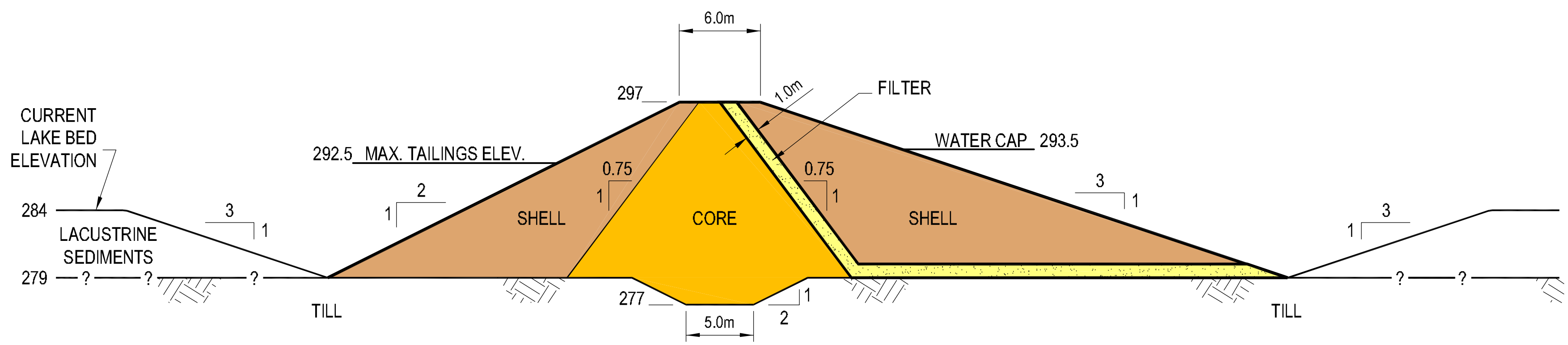
Prefeasibility level design earthworks have been considered for the construction of the TCA and will include the TCA dams, and diversion berms/ditches. Subsurface information collected to date from the geotechnical drilling has been used for the foundation design.

The dams are to be low permeability dams. Seepage control measures using frozen core dams will not be considered as part of the design. The need for an HDPE or bituminous impermeable liner in the dam to prevent seepage (such as Coletanche geomembrane) has been considered and will be assessed in more detail in future studies.

Earthworks design assumptions include:

- The dam components will include (1) low permeability core, (2) shell (NAG rock from stripping), and (3) filters (local eskers).
- Dry construction will be considered for the main dam, West Dam, which will be founded in the lake.
- Cofferdams (either sheet piling or aquadams) may be installed upstream and downstream of West Dam with the enclosed water subsequently pumped out and discharged into Winter Lake. Construction during winter conditions when Winter Lake is frozen to the lake bed will also be considered during detailed design.
- The excavation of the lacustrine sediments under the West Dam footprint (approximately 4 m in thickness) will result in approximately 100,000 m^3 of lake bottom material requiring removal. It is unlikely that any of the lake bottom material will be suitable for use during construction and will be disposed of in the south end of Winter Lake.
- Silt curtains will be installed downstream of West Dam during construction to contain disturbed sediment laden water.

A typical cross-section of West Dam is shown in Figure 4.12-1.



LEGEND

- CORE = FINE GRAINED TILL OR LACUSTRINE DEPOSITS
- SHELL = RANDOM PIT PRE-STRIPPING
- FILTER = GRANULAR ESKER DEPOSITS

SCALE 1:500

5 0 5 10 20m

ISSUED FOR USE

YELLOWKNIFE GOLD PROJECT

Typical TCA Dam Cross-Section - Conceptual

PROJECTION N/A		DATUM N/A	
Scale: N.T.S.			
FILE NO. V23201097.006_FIG 4.12-1_R0.dwg			
PROJECT NO. V23201097.006	DWN LM	CKD LR	REV 0
OFFICE EBA-KELOWNA	DATE April 18, 2011		

Tyhee NWT Corp

EBA Engineering Consultants Ltd.

Figure 4.12-1

4.12.5 Seepage Control and Collection Systems

The preferred method to prevent seepage from the TCA is for an impermeable geomembrane to be installed in the dam. Seepage ponds/interception ditches with pump back systems may need to be provided to manage seepage from the TCA in the event an impermeable geomembrane is not installed. In this case, monitoring wells would need to be installed to measure seepage from the TCA during operations.

4.12.6 Tailings Delivery, Reclaim Water Pipelines

The mill tailings will be pumped 1500 m to 3,700 m and be deposited along the extent of the tailings containment area. It is estimated that 6,060 m^3 will be pumped into the tailings containment area per day at 37% solids concentration by weight. Once the tailings begin separating, water will flow downslope into the reclaim pond located on the northern boundary of the tailings dam. The water will be sampled and treated, before being pumped approximately 2,100 m back into the mill. It is estimated that 5,900 and 1900 m^3 of water will be pumped back to the mill per day during summer and winter months respectively. A 120 hp pump in a 200 mm diameter pipe will be used to pump the tailings to the tailings dam. A 60 hp pump in a 200 mm diameter pipe will be used to pump the reclaim water to the mill. Figure 4.3-1 shows the tailings deposition layout and piping infrastructure.

Detailed design for the proposed Winter Lake TCA will be addressed in the feasibility study.

4.12.7 Waste Rock Storage

Recent static testing of the Ormsby and Nicholas Lake mineralized and unmineralized waste rock indicates that the waste should be currently categorized as either potentially acid generating (PAG) or the potential for acid generation is uncertain (section 4.12.9.1). Further studies will define areas of PAG rock versus non-acid generating (NAG) rock and a segregation criteria will be defined that will enable the practical segregation of problematic rock types. Use of NAG waste rock material as construction material may be possible (such as for haul roads, dams for the tailings containment area and sub-grade fill for infrastructure), but verification testing will be needed to identify and segregate NAG rock from uncertain and PAG rock.

Waste rock produced from the Ormsby mining operations (both open pit and underground) will be placed on surface to the northwest of the Ormsby open pit as shown on Figure 4.1-1. The Ormsby waste rock storage facility will accommodate a total of approximately 74 Mt at an average in-situ dry density of 2.1 t/m^3. The dimensions of the pile are approximately 2,200 m long, 500 m wide by 108 m high, with a maximum elevation of 392 masl. Where possible, PAG waste rock will be placed such that it will be adequately covered by NAG waste rock.

The waste rock location was chosen due to its short haul distance from the pit and the ability to manage runoff. Drainage from the waste rock pile will be contained within a catchment basin, tested and treated as needed before being discharged to the TCA or directly to the receiving environment. Surface runoff will be intercepted, collected and pumped into the tailings containment area.

Short and long-term monitoring will consist of visual inspection and collection and analysis of seepage. If acid-generation/metal leaching is identified through monitoring efforts, mitigation measures such as increased capping requirements, drainage and monitoring will be put in place.

Nicholas Lake underground mining operation will produce ~ 340,000 t of waste rock (Figure 4.1-2) a majority of which will be used for operating requirements including road base, stope backfill and general construction. No specific waste dump design has been done since the amount of permanent surface waste rock is minimal. A previously disturbed area has been designated as an expanded waste rock area if required. Waste rock storage facilities will be designed with average final side slopes of 1H: 2.5V which in combination with some surface till placement will allow for re-vegetation of the slopes as part of reclamation and closure. Waste will be stacked in 15 m compacted lifts by end dumping from haul trucks and spreading by dozer.

4.12.8 Low Grade Stockpile

A low grade stockpile at Ormsby for marginal ore will be created just east of the PAG stockpile. All runoff and catchment will be constructed and treated similar to that of the PAG stockpile, as low grade ore will have high sulphide content and is considered PAG. The low grade stockpile at its largest size (near the end of open pit mining operations) will be approximately 900,000t with an average diluted grade of just over 1 g/t gold. The intent is that this stockpile may be milled and processed if:

- metals prices warrant at any stage of the mine life, or
- blending with high grade ore is required to meet mill feed requirements, or
- capital cost recoveries have been achieved toward end of mine life making it economic to mill and process this material on its own

In the event the low grade stockpile is not milled and processed, it will be treated as PAG material and disposed of accordingly.

4.12.9 Acid Rock Drainage Potential

4.12.9.1 Potential Acid-Generating (PAG) and Non Acid-Generating (NAG) Waste

Ormsby Waste Rock

Static test results to date on the Ormsby, unmineralized, amphibolite-facies volcanic rock waste from the open pit outline[12] rock indicate that this rock type has consistently low buffering capacity and generally low sulphide content. As a result, this rock group has a

[12] Based on 2008 open pit footprint

variable potential for acid rock drainage to develop: 30% of the samples tested classified as NAG (i.e. NPR > 3), 23% as PAG (NPR < 1), and the remaining 48% as uncertain (1< NPR <3). Furthermore, for some samples, the release of aluminum, arsenic, cadmium, copper and lead in leachate has the potential to approach and/or exceed the most stringent CCME guidelines for the protection of aquatic life in drainage water that comes in close contact with this rock. Therefore, while there is apparent potential for localized acidity (as evident by occasional high sulphide content and acidification of some PAG samples during kinetic testing) and potential for metal leaching (as demonstrated by elevated arsenic leach rates from one of the humidity cell samples), a lag time is expected prior to acidification should ARD actually develop. The existing rock piles and on-site field leaching tests continue to produce neutral drainage with constituent concentrations that are below the Water License discharge criteria and below Metal Mine Effluent Regulations after years of exposure.

The bulk[13] ARD potential of unmineralized amphibolite waste rock from the open pit area is uncertain (NPR 1.6) and as such, its long-term weathering behaviour remains unknown. Until further studies define areas of potentially acid generating (PAG) rock versus non-acid generating (NAG) rock and a segregation criteria is defined that will enable the practical segregation of problematic rock types, the entire lithology is considered to be potentially acid generating and leachable for arsenic and aluminum. As such, the rock must be managed in a way to minimize environmental effects to the receiving environment in the long-term.

Use of NAG unmineralized amphibolite waste rock material as construction material may be possible, but verification testing will be needed to identify and segregate NAG rock from uncertain and PAG rock.

The results for the Ormsby mineralized amphibolite-facies volcanic rock waste from within the open pit[1] outline indicate that most samples analyzed contain higher sulphide content than the unmineralized amphibolite, but also has a variable ARD potential: 22% of the samples tested classified as NAG (i.e. NPR > 3), 44% as PAG (NPR < 1), and the remaining 33% as uncertain (1< NPR <3). Although neutralisation capacity is generally low, similar to unmineralized amphibolite, this rock does contains reactive carbonate minerals such that a lag period is expected prior to the onset of acidic conditions, should these develop at all. The bulk ARD potential of this rock is uncertain (NPR 1.1). Continuation of laboratory humidity cell tests and field barrels test will further refine predictions for these materials, as will reassessment of classifications of these samples into waste and ore categories. Until further information is available, this rock will be managed as leachable PAG rock and as such, will require measures to prevent negative effects to the receiving environment.

[13] The bulk ARD potential of the rock is defined as the sum of neutralizing capacity of all samples divided by the sum of the acid potential of all samples for this rock unit.

Ormsby argillite waste rock has a tendency to contain higher sulphide such that this unit is classified as PAG (NPR of 0.4). This lithology is currently expected to form a minor portion of the anticipated waste material (<5%); it is present as layers in greywacke and as such, cannot be segregated from the greywacke.

The transitional greywacke appears to have bimodal sulphide content, with typically low sulphide content (<0.5% total sulphur), but with portions that spike to high values (up to 3.7% total sulphur). The bulk ARD potential of the transitional greywacke is classified as PAG (NPR of 0.8).

The few samples (4) of Burwash greywacke have an uncertain ARD potential (bulk NPR of 1.6). Until further information is available and an effective PAG-NAG segregation criterion is defined, management and mitigation measures will be required for these units. ARD reports are located in Appendix H Preliminary results from the Ormsby metallurgical test program suggest that the flotation tailings are NAG and that the concentration chemicals in the flotation process water are below MMER effluent levels for chemical constituents. The treated cyanidation residue (10% of the mill input) is PAG and the process water contains concentration of copper and zinc that are above MMER effluent limits. Blending of the two streams at the anticipated ratio of nine parts flotation tailings to one part treated cyanidation residue classify as a NAG blend. This blend does, however, contain relatively high sulphur which can oxidize and release chemical constituents (such as metal salts) to the receiving environment.

Nicholas Lake Waste Rock

The mineralized granodiorite waste rock is silicified; buffering capacity and sulphide content are generally low (average 0.26wt% S). The ARD classification of the seven samples tested varies between PAG and uncertain. The bulk ARD potential is classified as uncertain (NPR of 1.1). The leaching and weathering characteristics of this rock group have not been investigated.

The unmineralized granodiorite waste rock tested has similar characteristics to the mineralized granodiorite: sulphide content is low (0.24wt% S average) and buffering capacity is low. Most of the 21 samples have an uncertain ARD potential and the bulk ARD potential is classified as uncertain (NPR 1.5). The leaching and weathering characteristics of this rock group have not been investigated.

Field test results for mineralized and unmineralized granodiorite initiated in 2008 using material from the existing rock piles continue to yield neutral drainage but show chemical concentrations that, on occasion, have exceeded MMER effluent levels for arsenic and zinc. Further testing is required to define the reactivity of the granodiorite and meta-sediment rock, their propensity to generate ARD and to leach metals, and to define criteria that will allow segregation of PAG and NAG rock.

The meta pelite and meta wacke waste rock tested are classified as either uncertain or PAG; most NPR values are close to 1.0. The bulk ARD potential is uncertain (NPR 1.1). The bulk of the rock has an average sulphur content of 0.44wt% and low buffering capacity. The leaching and weathering characteristics of this rock group have not been investigated.

Further testing is required to define the reactivity of the granodiorite and meta-sediment rock, their propensity to generate ARD and to leach metals, and to define criteria that will allow segregation of PAG and NAG rock.

Quartz vein and fracture zone waste rock are mostly PAG, having an average sulphide content of 0.96wt% and low buffering capacity. The bulk ARD potential of this rock group is PAG (NPR 0.26). This rock requires management methods that will control ARD and prevent potential long-term effects to the receiving environment.

4.12.10 Solid and Hazardous Wastes

Solid waste generally includes non-hazardous and hazardous waste. Examples of non-hazardous waste include industrial (wood, metal scraps, packaging materials) and household or municipal (food, paper, plastic, sewage) waste. Hazardous waste may include waste oil, used batteries, laboratory crucibles and chemicals and reagents.

Solid wastes generated will be managed in accordance with existing regulations and issued licenses or permits. The project will preferentially use non-hazardous materials to reduce the volume of wastes that require special handling. Where hazardous materials are used, such as explosives and reagents, they will be stored in containment areas as approved under the appropriate regulations. Waste disposal of hazardous material will be in an approved project site or in an approved off-site facility specially designed to handle that type of waste. The actual locations have not been determined and will be defined as the feasibility and detailed design studies are completed. The basic philosophy will follow the basic waste management principles identified in Table 4.12-1.

TABLE 4.12-1: SOLID WASTE MANAGEMENT PRINCIPLES

Principle	Method
Reduce	Improve inventory control, modify equipment and processes
Reuse	Return chemical and other containers to the supplier, metal salvage
Recover	Extract materials or energy from waste
Residual Mgmt.	All other materials not captured above to be appropriately landfilled

Non-hazardous waste such as food waste, paper and other combustible non-hazardous material will be incinerated on-site. Incinerator ash will be collected and disposed of in an approved location. Items such as scrap metal, plastics, tires, vehicles and electrical equipment will be disposed of in an on-site landfill, on surface and in an approved manner.

4.12.11 Domestic Sewage

Sewage wastes from the operation will be processed through a sewage treatment plant that will be incorporated into the camp design with final specifications provided in the feasibility and design phases. The sewage plant will likely consist of a series of large holding tanks

(5,000 L capacity) where anti-bacterial treatment will be applied (primary treatment level) and the solids pumped out periodically and disposed of offsite, possibly in Yellowknife. The treated liquids may be combined with the mill tailings and pumped to the TCA.

4.13 WATER MANAGEMENT OBJECTIVES

The primary objectives of the water management plan for the YGP are to:

- minimize the releases of mine-affected water from the tailings containment area (TCA) and the waste rock storage area (WRSA) to local water bodies during mine operation;
- provide the process plant with a reliable water supply throughout the year;
- minimize disruption and damage to mine development caused by flood events; and
- dewater the open pit operations to maintain stability and facilitate mining during operations.

The water management plan is based on the 2010 Ormsby Resource site plan. It focuses on identifying adequate water supply for the process plant and examining the potential effects of the mine development on the environment. The water balance model was established on a monthly basis. The model analysis and results of this work are described below in Section 4.13.1.

Note that climate data and analysis and hydrological analysis are described in Appendix P of this report.

4.13.1 Water Balance

The current mine process area will be confined to the Ormsby open pit area on the north side of Winter Lake. The daily production rate is estimated to be 3000 tonnes per day (tpd) with 75% supplied by Ormsby and 25% supplied by the Nicholas Lake resource. All process tailings will be deposited and contained in the Winter Lake Tailings Containment Area (TCA). The proposed dam crest elevation is 297 m with a corresponding storage capacity of 11.9M m^3. The function of this dam in Winter Lake is to separate the TCA from the upper portion of the lake to accommodate the open pit mine.

The process water can be obtained from two sources, as reclaim from the TCA, with treatment as required and freshwater makeup from Giauque Lake. Ormsby open pit dewatering will be pumped to the TCA at the predicted discharge rates listed in Table 4.13-1. The dewater rate is computed for an average year, 10-year wet and 10-year dry condition assuming an average observed hydraulic conductivity. The dewater rate was also computed for the Nicholas Lake resource. It is, however, not considered as contributing to the TCA due to remoteness.

TABLE 4.13-1: ORMSBY OPEN PIT FINAL BUILD-OUT MAXIMUM DEWATER RATE												
Dewater Rate (m^3/month)	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average Year	31,000	28,000	31,000	30,000	58,486	45,738	17,229	15,434	33,289	31,000	30,000	31,000
10-Year Wet	31,000	28,000	31,000	30,000	70,406	64,756	25,041	18,424	37,295	31,000	30,000	31,000
10-Year Dry	31,000	28,000	31,000	30,000	48,204	29,335	10,491	12,855	29,833	31,000	30,000	31,000

A water balance model was developed to provide an estimate of the amount of makeup water required for the process plant in an average year, 10-year wet and 10-year dry conditions. It also provides a design basis for the tailings dam in terms of the total volume of water impoundment.

Inflows into the tailings pond would consist of:

- water content of the tailings slurry;
- direct precipitation on the TCA;
- runoff from catchment area above the TCA;
- tailings dam seepage return;
- minewater discharge (pit dewatering); and,
- pumped Round Lake inflows.

Outflows and losses would consist of:

- reclaim;
- seepage from the TCA;
- water retained in voids;
- direct evaporation from the TCA; and
- discharge to the environment.

Domestic sewage was not considered in the water balance as this component would only reflect 1% of the total TCA inflows. The domestic sewage component was therefore considered insignificant in terms of volume. Natural groundwater inflow and outflow for the Winter Lake tailings containment area were not considered in this water balance because of insufficient data. The exact amount of seepage is not necessary as seepage is normally collected and pumped back to the TCA. For the purpose of this project, the amount of seepage from the TCA was assumed to be 1 L/s. This value should be refined in the detailed design phase of this project. The daily water and mass balances for the mineral processing plant was provided by Laurion Consulting Inc. Daily values were converted to monthly values in order to create a monthly water balance. To estimate the amount of precipitation contributing as an inflow into the tailings pond, the runoff distribution determined in the hydrological analysis was applied, as shown in Table 4.13-2.

TABLE 4.13-2: DISTRIBUTION OF RUNOFF TO THE POND FROM DIRECT PRECIPITATION

Month	Runoff Distribution	Average (mm)		10-Year Wet (mm)		10-Year Dry (mm)	
		Precip.	Precip. distributed as Runoff	Precip.	Precip. distributed as Runoff	Precip.	Precip. distributed as Runoff
January	0	13	0	17	0	10	0
February	0	12	0	16	0	9	0
March	0	8	0	10	0	6	0
April	0	11	0	14	0	8	0
May	26	8	54	11	70	6	40
June	42	20	86	26	112	15	63
July	17	28	35	36	46	21	26
August	7	38	14	49	18	28	10
September	9	33	18	43	24	24	13
October	0	13	0	17	0	9	0
November	0	17	0	22	0	12	0
December	0	6	0	8	0	4	0
Annual	100	208	208	269	269	153	153

Since the water quality of Round Lake is very poor, it was decided to pump its monthly water volumes into the TCA for treatment before release. Table 4.13.3 summarizes the release rates from the TCA to downstream Narrow Lake. The discharges to Narrow Lake are restricted in order to match the natural hydrograph of the local watersheds (see Section 6.2.1.1 of this DAR). During the high flow months of May and June, the water releases are maximized in order to drain the TCA to reach the initial storage volume by the end of December. It is assumed that the initial Winter Lake volume in January is approximately 783,000 m^3 for a lake level of 286 m. Stored water in the TCA was assumed to remain constant on an annual basis. Table 4.13-3 summarizes the TCA release rates on a monthly basis.

TABLE 4.13-3: MONTHLY TCA RELEASES (M^3)											
Jan	Feb	Mar	Apr	May*	Jun*	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	353,285 - 552,330	-233,686 – 362,102	35,424	17,712	3,880	53,568	0	0

Note: *Depending on hydrological conditions

The calculated inflow and outflow quantities from the hydrological and mining components are summarized in Table 4.13-4, Table 4.13-5 and Table 4.13-6, respectively.

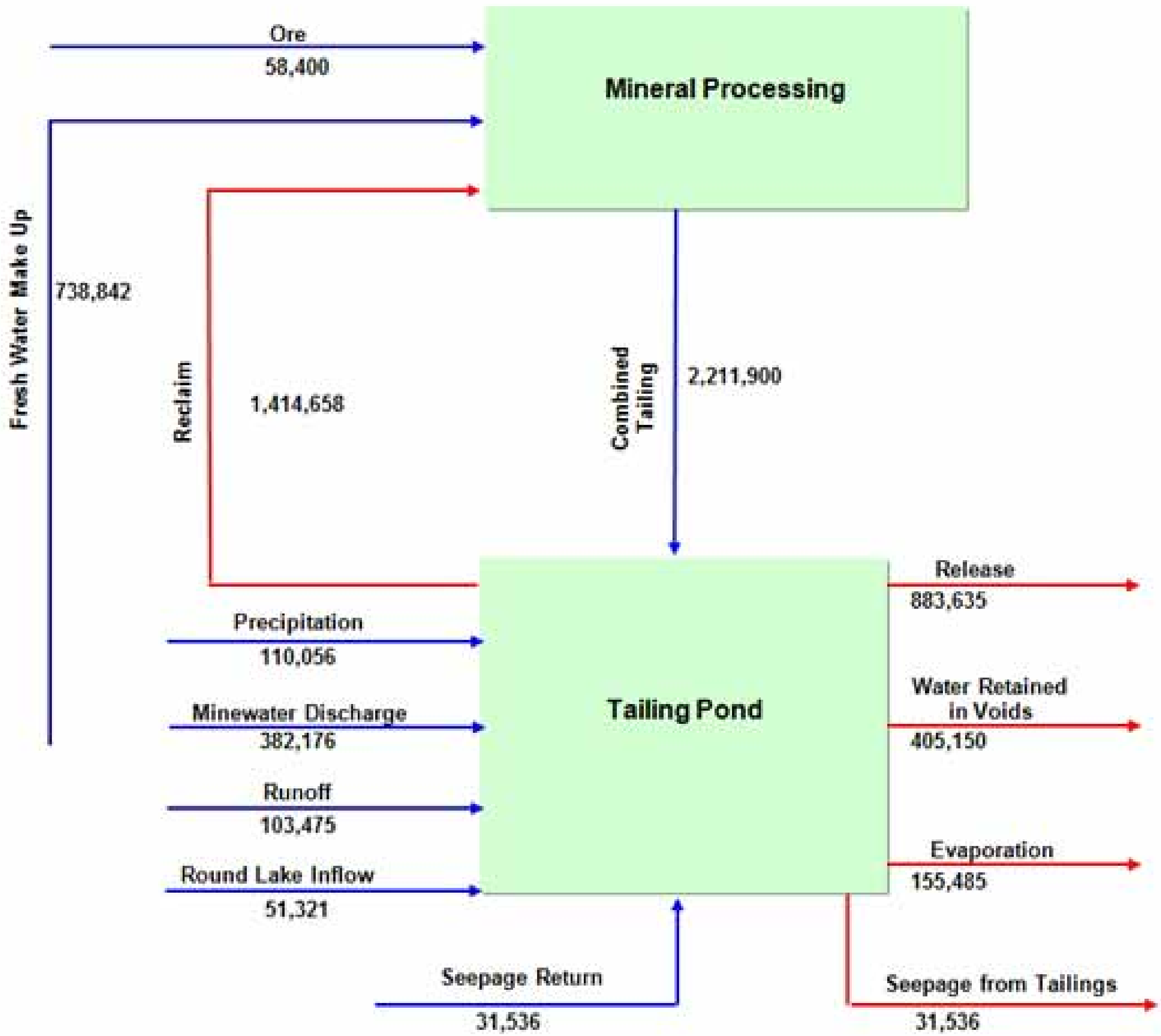
During an average operating year with a daily production rate of 3,000 tonnes, a total of approximately 739,000 m^3 of fresh water is required from Giauque Lake to supply the mill. This result was established under the following assumptions: (1) that a maximum 30% of the tailings inflow water can be used as reclaim during the winter months (November to April) and 97% can be used during the rest of the year; and (2) stored tailings water can be used for reclaim during the spring and summer months (May to October). The total amount of tailing reclaim was found to be approximately 1.4M m^3 which corresponds to an annual average of 64% of the total inflow of the combined tailing, and a total storage volume of about 4,000 m^3 can be used during the spring and summer months to make up for the additional water required for the process plant to operate. A total amount of approximately 900,000 m^3 discharge to the environment would be required during the spring and summer months in order to maintain a volume of 783,000 m^3 at the end of the year. With 739,000 m^3 of fresh water make-up, Giauque Lake with a surface area of approximately 16,537,296 m^2 (determined by EBA) would be expected to drop by approximately 5 cm. The monthly water balance for the TCA is illustrated in Table 4.13-4 and the annual water balance schematic for the process plant and TCA during an average year condition is shown in Figure 4.13-1.

During a 10-year wet operating year with a daily production rate of 3,000 tonnes, a total of approximately 739,000 m^3 of fresh water is required from Giauque Lake to supply the mill. This result was established under the same assumptions as the average conditions for the allowable amount of tailing reclaim and stored water reclaim. A total amount of approximately 1.1M m^3 discharge to the environment would be required during the spring and summer months in order to maintain a volume of 783,000 m^3 at the end of the year. The monthly water balance for the TCA during 10-year wet conditions is illustrated in Table 4.13-5 and the annual water balance schematic for the process plant and tailings pond under 10-year wet conditions is shown in Figure 4.13-2.

During a 10-year dry operating year with a daily production rate of 3,000 tonnes, a total approximately 739,000 m^3 of fresh water is required from Giauque Lake to supply the mill. This result was established under the same assumptions as the average conditions for the allowable amount of reclaim. A total amount of approximately 733,000 m^3 discharge to the environment would be required during the spring and summer months in order to maintain a volume of 783,000 m^3 at the end of the year. The monthly water balance for the TCA during 10-year dry conditions is illustrated in Table 4.13-6 and the annual water balance schematic for the process plant and tailings pond under 10-year dry conditions is shown in Figure 4.13-3.

In summary, fresh water makeup is necessary for all three scenarios where a maximum of 30% of the tailings inflow water can be used as reclaim during the winter months and 97% for the rest of the year. In order to cover the tailings with at least 1 m of water, a minimum volume of 530,000 m^3 is required. It was found for all three scenarios that the lowest annual volume was always greater than the required minimum. All releases to the environment from the tailings containment area during spring and summer will meet the MMER discharge criteria.

TABLE 4.13-4: WATER-BALANCE SUMMARY AVERAGE YEAR CONDITIONS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
ROM Ore Water Content	4,960	4,480	4,960	4,800	4,960	4,800	4,960	4,960	4,800	4,960	4,800	4,960	58,400
Required Water supply to the plant	182,900	165,200	182,900	177,000	182,900	177,000	182,900	182,900	177,000	182,900	177,000	182,900	2,153,500
Plant Inflow	187,860	169,680	187,860	181,800	187,860	181,800	187,860	187,860	181,800	187,860	181,800	187,860	2,211,900
Combined Tailings	187,860	169,680	187,860	181,800	187,860	181,800	187,860	187,860	181,800	187,860	181,800	187,860	2,211,900
Plant Outflow	187,860	169,680	187,860	181,800	187,860	181,800	187,860	187,860	181,800	187,860	181,800	187,860	2,211,900
Tailing (m^3)	187,860	169,680	187,860	181,800	187,860	181,800	187,860	187,860	181,800	187,860	181,800	187,860	2,211,900
Precipitation (m^3)	0	0	0	0	28,678	45,752	18,794	7,193	9,639	0	0	0	110,056
Runoff (m^3)	0	0	0	0	26,963	43,016	17,671	6,763	9,063	0	0	0	103,475
Round Lake Inflow (m^3)	0	0	0	0	13,373	21,335	8,764	3,354	4,495	0	0	0	51,321
Mine Discharge (m^3)	31,000	28,000	31,000	30,000	58,486	45,738	17,229	15,434	33,289	31,000	30,000	31,000	382,176
Seepage Return (m^3)	2,678	2,419	2,678	2,592	2,678	2,592	2,678	2,678	2,592	2,678	2,592	2,678	31,536
Tailings Pond Total Inflows (m^3)	221,538	200,099	221,538	214,392	318,038	340,233	252,997	223,283	240,877	221,538	214,392	221,538	2,890,464
Seepage from Tailing (m^3)	2,678	2,419	2,678	2,592	2,678	2,592	2,678	2,678	2,592	2,678	2,592	2,678	31,536
Water Retained in Voids (m^3)	34,410	31,080	34,410	33,300	34,410	33,300	34,410	34,410	33,300	34,410	33,300	34,410	405,150
Evaporation (m^3)	0	0	0	0	0	49,497	55,965	39,547	10,476	0	0	0	155,485
Tailing Reclaim (m^3)	56,358	50,904	56,358	54,540	182,224	176,346	182,224	182,224	176,346	182,224	54,540	56,358	1,410,647
Storage Reclaim (m^3)	0	0	0	0	676	654	676	676	654	676	0	0	4,011
Release (m^3)	0	0	0	0	445,118	292,933	35,424	17,712	38,880	53,568	0	0	883,635
Tailings Pond Total Outflows (m^3)	93,446	84,403	93,446	90,432	665,107	555,322	311,377	277,247	262,248	273,556	90,432	93,446	2,890,464
Monthly Fresh Water Make Up (m^3)	126,542	114,296	126,542	122,460	0	0	0	0	0	0	122,460	126,542	738,842



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ISSUED FOR USE

CLIENT

Tyhee NWT Corp

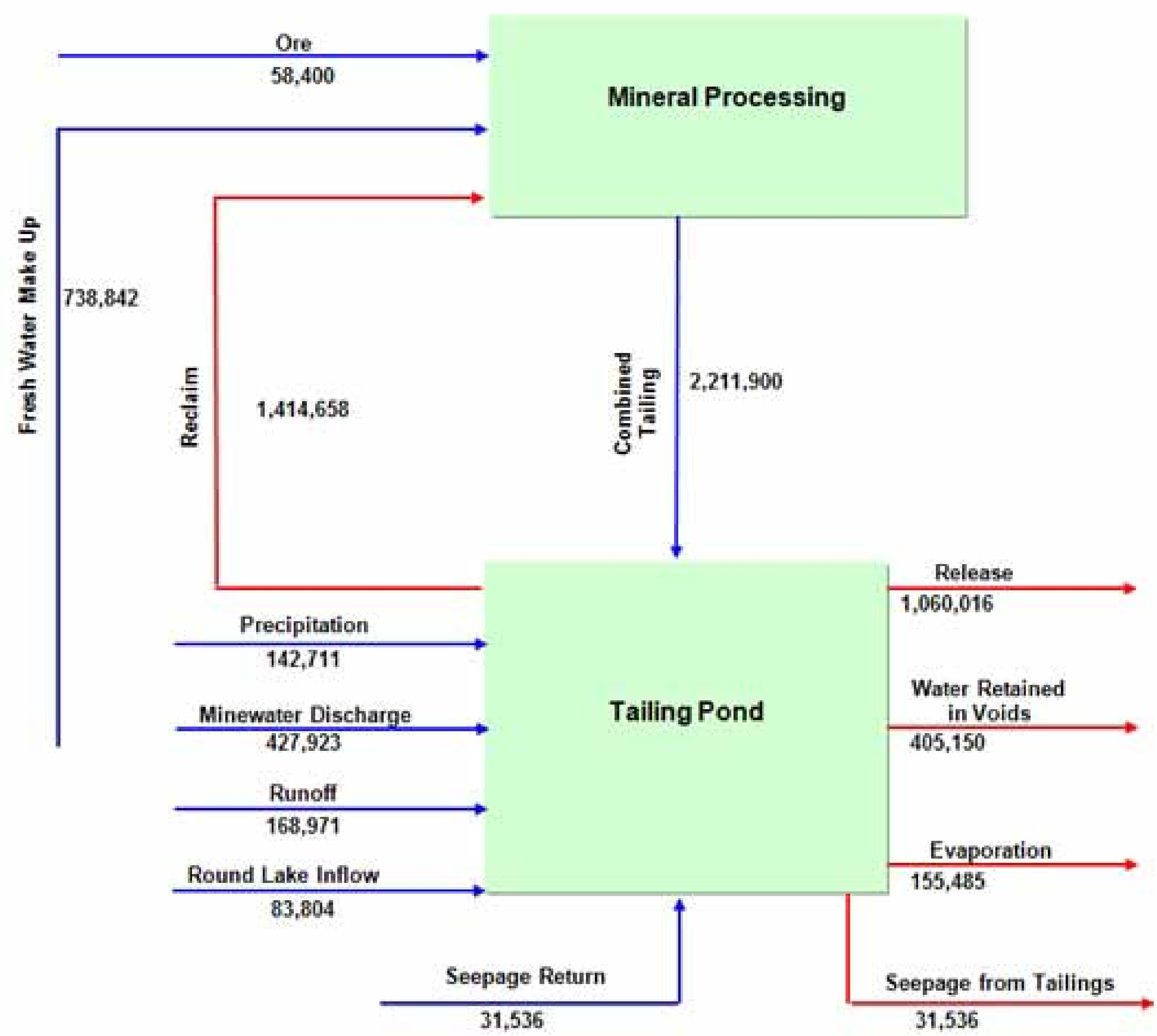
EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT

Annual Water Balance
3,000 tpd Average Year

PROJECT NO.	DWN	CKD	REV	
V23201097	KW	RH	0	Figure 4.13-1
OFFICE	DATE			
EBA-VANC	April 14, 2011			

TABLE 4.13-5: WATER-BALANCE SUMMARY 10-YEAR WET CONDITIONS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
ROM Ore Water Content	4,960	4,480	4,960	4,800	4,960	4,800	4,960	4,960	4,800	4,960	4,800	4,960	58,400
Required Water supply to the plant	182,900	165,200	182,900	177,000	182,900	177,000	182,900	182,900	177,000	182,900	177,000	182,900	2,153,500
Plant Inflow	187,860	169,680	187,860	181,800	187,860	181,800	187,860	187,860	181,800	187,860	181,800	187,860	2,211,900
Combined Tailings	187,860	169,680	187,860	181,800	187,860	181,800	187,860	187,860	181,800	187,860	181,800	187,860	2,211,900
Plant Outflow	187,860	169,680	187,860	181,800	187,860	181,800	187,860	187,860	181,800	187,860	181,800	187,860	2,211,900
Tailing (m^3)	187,860	169,680	187,860	181,800	187,860	181,800	187,860	187,860	181,800	187,860	181,800	187,860	2,211,900
Precipitation (m^3)	0	0	0	0	37,187	59,327	24,371	9,327	12,499	0	0	0	142,711
Runoff (m^3)	0	0	0	0	44,030	70,243	28,855	11,043	14,799	0	0	0	168,971
Round Lake Inflow (m^3)	0	0	0	0	21,837	34,838	14,311	5,477	7,340	0	0	0	83,804
Mine Discharge (m^3)	31,000	28,000	31,000	30,000	70,406	64,756	25,041	18,424	37,295	31,000	30,000	31,000	427,923
Seepage Return (m^3)	2,678	2,419	2,678	2,592	2,678	2,592	2,678	2,678	2,592	2,678	2,592	2,678	31,536
Tailings Pond Total Inflows (m^3)	221,538	200,099	221,538	214,392	363,999	413,556	283,117	234,810	256,325	221,538	214,392	221,538	3,066,845
Seepage from Tailing (m^3)	2,678	2,419	2,678	2,592	2,678	2,592	2,678	2,678	2,592	2,678	2,592	2,678	31,536
Water Retained in Voids (m^3)	34,410	31,080	34,410	33,300	34,410	33,300	34,410	34,410	33,300	34,410	33,300	34,410	405,150
Evaporation (m^3)	0	0	0	0	0	49,497	55,965	39,547	10,476	0	0	0	155,485
Tailing Reclaim (m^3)	56,358	50,904	56,358	54,540	182,224	176,346	182,224	182,224	176,346	182,224	54,540	56,358	1,410,647
Storage Reclaim (m^3)	0	0	0	0	676	654	676	676	654	676	0	0	4,011
Release (m^3)	0	0	0	0	552,330	362,102	35,424	17,712	38,880	53,568	0	0	1,060,016
Tailings Pond Total Outflows (m^3)	93,446	84,403	93,446	90,432	772,318	624,491	311,377	277,247	262,248	273,556	90,432	93,446	3,066,845
Monthly Fresh Water Make Up (m^3)	126,542	114,296	126,542	122,460	0	0	0	0	0	0	122,460	126,542	738,842



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ISSUED FOR USE

CLIENT

Tyhee NWT Corp

EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT

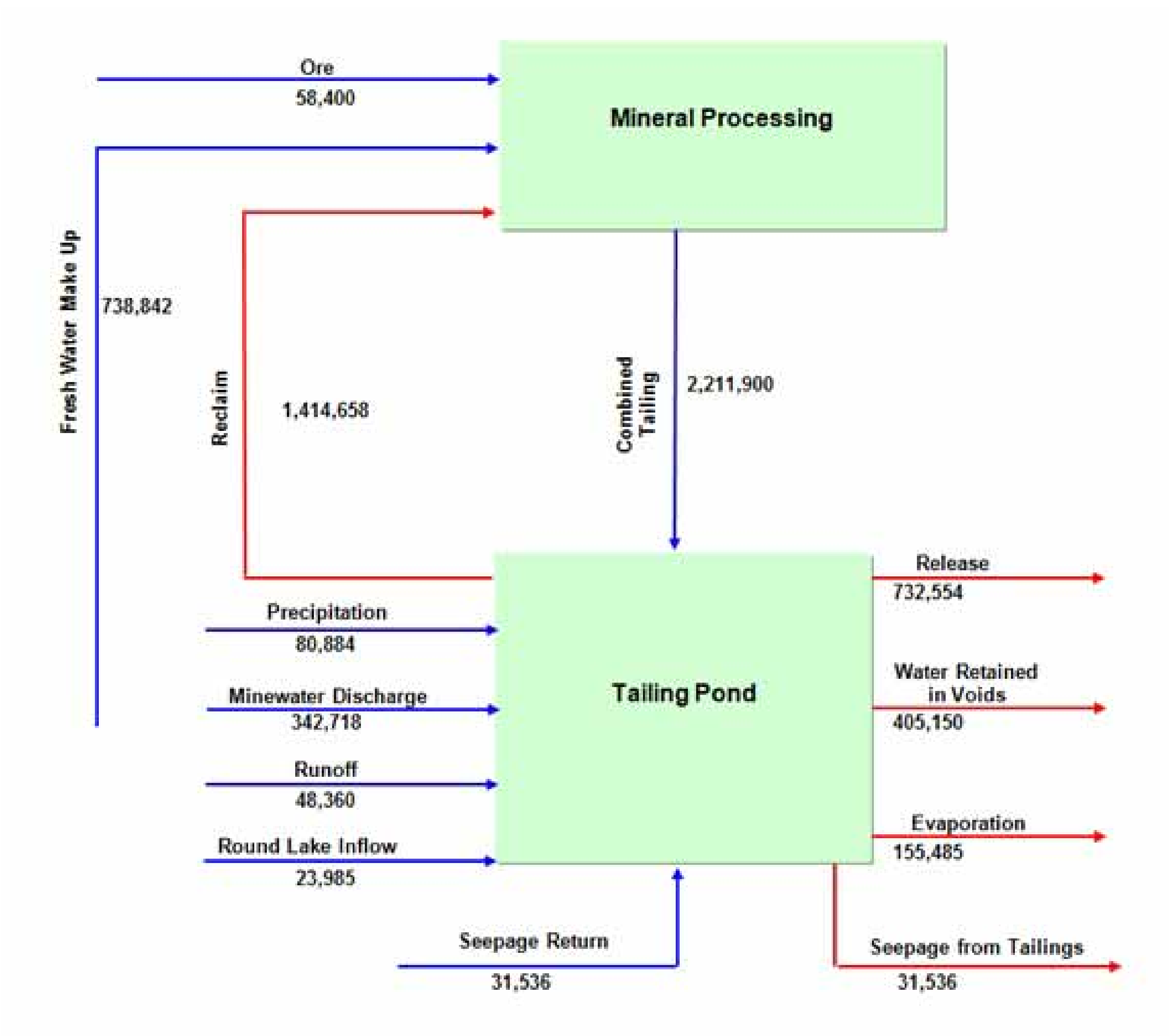
Annual Water Balance
3,000 tpd 10 Year Wet

PROJECT NO.	DWN	CKD	REV
V23201097	KW	RH	0

OFFICE	DATE
EBA-VANC	April 14, 2011

Figure 4.13-2

TABLE 4.13-6: WATER-BALANCE SUMMARY 10-YEAR DRY CONDITIONS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
ROM Ore Water Content	4,960	4,480	4,960	4,800	4,960	4,800	4,960	4,960	4,800	4,960	4,800	4,960	58,400
Required Water supply to the plant	182,90	165,20	182,90	177,00	182,90	177,00	182,90	182,90	177,00	182,90	177,00	182,90	2,153,500
Plant Inflow	187,86	169,68	187,86	181,80	187,86	181,80	187,86	187,86	181,80	187,86	181,80	187,86	2,211,900
Combined Tailings	187,86	169,68	187,86	181,80	187,86	181,80	187,86	187,86	181,80	187,86	181,80	187,86	2,211,900
Plant Outflow	187,86	169,68	187,86	181,80	187,86	181,80	187,86	187,86	181,80	187,86	181,80	187,86	2,211,900
Tailing (m^3)	187,86	169,68	187,86	181,80	187,86	181,80	187,86	187,86	181,80	187,86	181,80	187,86	2,211,900
Precipitation (m^3)	0	0	0	0	21,077	33,625	13,813	5,286	7,084	0	0	0	80,884
Runoff (m^3)	0	0	0	0	12,602	20,104	8,258	3,161	4,235	0	0	0	48,360
Round Lake Inflow (m^3)	0	0	0	0	6,250	9,971	4,096	1,568	2,101	0	0	0	23,985
Mine Discharge (m^3)	31,000	28,000	31,000	30,000	48,204	29,335	10,491	12,855	29,833	31,000	30,000	31,000	342,718
Seepage Return (m^3)	2,678	2,419	2,678	2,592	2,678	2,592	2,678	2,678	2,592	2,678	2,592	2,678	31,536
Tailings Pond Total Inflows (m^3)	221,53	200,09	221,53	214,39	278,67	277,42	227,19	213,40	227,64	221,53	214,39	221,53	2,739,38
Seepage from Tailing (m^3)	2,678	2,419	2,678	2,592	2,678	2,592	2,678	2,678	2,592	2,678	2,592	2,678	31,536
Water Retained in Voids (m^3)	34,410	31,080	34,410	33,300	34,410	33,300	34,410	34,410	33,300	34,410	33,300	34,410	405,150
Evaporation (m^3)	0	0	0	0	0	49,497	55,965	39,547	10,476	0	0	0	155,485
Tailing Reclaim (m^3)	56,358	50,904	56,358	54,540	182,22	176,34	182,22	182,22	176,34	182,22	54,540	56,358	1,410,647
Storage Reclaim (m^3)	0	0	0	0	676	654	676	676	654	676	0	0	4,011
Release (m^3)	0	0	0	0	353,28	233,68	35,424	17,712	38,880	53,568	0	0	732,554
Tailings Pond Total Outflows (m^3)	93,446	84,403	93,446	90,432	573,27	496,07	311,37	277,24	262,24	273,55	90,432	93,446	2,739,38
Monthly Fresh Water Make Up	126,54	114,29	126,54	122,46	0	0	0	0	0	0	122,46	126,54	738,842



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Tyhee NWT Corp

EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT

Annual Water Balance
3,000 tpd 10 Year Dry

PROJECT NO.	DWN	CKD	REV
V23201097	KW	RH	0

OFFICE	DATE
EBA-VANC	April 14, 2011

Figure 4.13-3

4.14 SUPPORT INFRASTRUCTURE

There is existing physical infrastructure in the study area. This includes roads (winter and all-season), buildings, the developer's exploration facilities, and historic mining infrastructure and other industrial works.

There is an 1100m long gravel airstrip as well as a floatplane wharf at Giauque Lake. Tyhee NWT Corp's existing camp consists of modular trailers for accommodation and offices, and facilities for storage, equipment repair, and core logging. Drinking water is obtained from Giauque Lake, and electrical power is supplied by an on-site diesel generator.

The proposed mine site infrastructure facilities layout, shown on Figures 4.1-1 and 4.1-2 are based on the terrain analysis of the site, the results of the 2009–2010 geotechnical investigations, the surficial geology, and the permafrost distribution. Foundations of the proposed structures will be placed on competent unfrozen bedrock, either exposed or covered by a thin veneer of surficial material that will be removed prior to construction. Each of the proposed infrastructure facilities is discussed separately in the sub-sections below.

4.14.1 Ormsby Infrastructure

4.14.1.1 Power Generation

Power at the site will be provided by an on-site diesel power plant located to the northeast of Ormsby pit as shown in Figure 4.1-1. The power demand for a 3,000 tpd operation is estimated at a peak load of 8.63 MW (15 minute thermal average) with an average running load of 6.07 MW for an annual project energy consumption of 50 GWh. For design purposes, a peak demand load of 9 MW has been allowed. Power will be generated on site using an estimated five (5) diesel powered generating units (4 active, 1 standby). The power plant will be located in proximity to the process plant building and overhead power lines will deliver power to the other surface facilities and the substation near the mining operations.

4.14.1.2 Camp

The proposed Ormsby camp will be a modular facility for a minimum of 200 permanent employees. The camp will be sized to accommodate visitors, consultants, and other temporary personnel during operations.

The camp could consist of nine 24-person dormitories, a kitchen/diner unit, a unit comprised of recreation, TV, exercise, and laundry facilities connected by an arctic corridor. A fully contained water and sewage treatment plant and an incinerator for disposal of non-hazardous solid wastes will be incorporated into the camp layout.

The proposed Ormsby camp is located approximately 200 m upwind of the mill from the prevailing north-easterly winds, on the west side of the proposed access road from Nicholas Lake to Ormsby. The camp facility will be located within an area measuring approximately 375 m by 60 m that will be blasted in the bedrock slope at approximate elevation 300 m. The access road at this location will be realigned to minimize the volume of rock cut into the bedrock slope. However, to house a sewage and water treatment plant, a parking lot, and temporary facilities that may be required during construction, an additional platform measuring approximately 30 m by 200 m will be prepared at elevation 310 m further northeast along the haul road.

The distance between the proposed camp facilities and the existing airstrip is between approximately 100 and 300 m. The proximity of the proposed camp to the airstrip from the health and safety standpoint will be reviewed during detailed feasibility studies.

An alternate camp site closer to Giauque Lake is currently under review. Current plans indicate a fly-in fly-out scenario with employees working a two-week-on and two-week-off rotation. During the feasibility phase, optimization of camp size and work rotation will be reviewed. Water use for the camp is calculated at 18,250 m^3/year based on a per person water use of 250 l/day.

Potable water for the camp may be drawn from Giauque Lake (which will likely require treatment) or from groundwater well(s). The potable water supply will be confirmed during detailed design.

4.14.1.3 Warehouse, Maintenance, and Associated Infrastructure

Truck shop and warehouse will be located on the first floor of a two-storey heated building to the immediate northeast (alternate location is due east) of Ormsby pit, as shown in Figure 4.1-1. The second floor of the building will be occupied by offices.

The truck shop building will be erected on a concrete pad placed at the north end of the platform at the northeast location or at the south end of the platform at the east location. The rest of the platform area will be used for parking, maintenance yard, and the truck shop laydown area.

The building holding the assay and metallurgical laboratory will be located adjacent to the mill building. This lab is designed to process approximately 150 to 200 samples per day.

A changehouse, for use by all personnel to shower and change into street clothes, will be located in the mine dry area.

4.14.1.4 Fuel Storage

Two alternate locations for the diesel storage site were selected close to the workshop as well as the mill and the power generation plant as shown on Figure 4.1-1, as the majority of fuel will be supplied to these operations. The fuel storage facilities are deemed to be far enough away from the open pit as to not be impacted by potential flyrock.

Site storage facilities at both Ormsby and Nicholas Lake totalling 28M L (incl. contingency) of diesel will be required to supply the equipment fleet (10.5M L) and the on-site diesel electric power generating plant (13M L) with fuel for one year. This is sufficient for 12 months operation as delivery by road will only be possible on the winter road during a 6 to 8 week period (at full axle loading) each year.

Diesel storage at Ormsby will consist of a truck unload facility with metering, filtration, and pumping to six bulk storage tanks, each with a capacity of 3.5 ML. A platform will be prepared by cut and fill of exposed bedrock to accommodate the proposed facilities. The tanks do not require heating or insulating. The tanks will be contained within a bermed impermeable area to provide spill containment for 4M L Appropriate spill response equipment will be stored and maintained at all tank farm facilities.

Transfer pumps will deliver diesel to day tanks, the power station, and a truck fill station for site vehicles. Within the day tank area, smaller tanks will also be provided for clean lube oil, dirty sump oil, and make-up water.

4.14.1.5 Explosives Storage

Explosives required on site, currently estimated at one year's requirements of 5,000 t will be stored in two separate buildings approx. 1.3 km southwest of Ormsby pit as shown on Figure --. A larger building will be used for the AN explosive storage. A smaller building will be used for detonation supplies (caps). A level rectangular platform will be prepared by cut and fill of a ridge top at elevation 312 m.

An emulsion plant will be located on top of a bedrock ridge approximately 350 m southeast of the explosive storage facilities and connected by an access road to the explosive storage magazines and to the Ormsby open pit as shown on Figure 4.1-1. A square level platform will be prepared by cut and fill of a bedrock outcrop at the 302 m elevation.

An approximately 2,300 m long access road will be constructed using run-of-mine waste rock to connect the proposed explosive storage facilities with the Ormsby open pit (Figure 4.1-1).

The proposed explosive storage facilities and an emulsion plant will comply with the Table of Distances designated in the Northwest Territories WCB regulations and with any requirements by Natural Resources Canada (NRCan).

4.14.1.6 Airstrip

The existing airstrip (Figure 4.1-1), located on the historic Discovery Mine tailings cap, provides wheeled aircraft landing capabilities year round during daylight hours. Seasonal access by floatplane on Giauque Lake is available.

As part of the Discovery Mine reclamation, Indian and Northern Affairs Canada (INAC) under their Contaminants and Remediation Directorate (CARD) planned to decommission the existing airstrip. Tyhee NWT Corp applied for and received an amendment to its current land use permit from the Mackenzie Valley Land and Water Board (MVLWB) that allows Tyhee NWT Corp to continue using the airstrip to support ongoing advanced exploration activities and site access needs. INAC expressed a concern over whether continued use of the airstrip might conflict with their efforts to mitigate the frost boil phenomena and its possible implication on long-term reclamation integrity.

EBA (2005) in Appendix M documents a site investigation of the airstrip, apron and access road area conducted in the late summer of 2005. The purpose of this site investigation was to support continued operations of the airstrip and provide data for a potential upgraded design for its long-term use during the operational phase of the YGP. EBA's investigation included two areas of frost boil occurrence near the airstrip with the objective that the data collected might assist INAC in determining the mechanism of frost boil formation. Standpipe piezometers (standpipes) and thermistor cables were installed during the site investigation.

Initial readings of the instrumentation were taken soon after installation. Follow-up monitoring commenced in 2006 and continues annually with the submission of an annual geotechnical report filed with the MVLWB as required by the amended land use permit. Each annual report presents the monitoring results for one full year and describes other information related to the operation of the airstrip, apron and access road. Recommendations for finalization of an upgraded airstrip structure design, as required by the amended permit conditions, are also presented.

The annual reports have confirmed the existing airstrip should be sufficient to perform, without rutting or settlement, under normal conditions for the Buffalo, Twin Otter and the Cessna Caravan. Special consideration can be provided to allow the Dash 7 to land outside of the period when the structure is soft. Recommendations for accommodating a Dash 7 at all times are provided. Annual reports have been filed up to and including 2010 and will continue throughout the current land use permit term which expires in February 2012.

Discussions with the Department of Indian and Northern Development's (DIAND) Contaminants and Remediation Directorate (CARD) were undertaken to address the following:

- Define different types of damage that could potentially occur to the airstrip, or apron and access road, through continued use of the airstrip.
- Define monitoring activities or signals that would be indicative of the damage.
- Develop the contingency plan as specific activities to deal with each of the potential mechanisms.

As a result of the discussions with INAC- CARD, it was generally agreed that once the planned upgraded design is implemented, aircraft up to the size of a DASH 7/8 could use the runway with no impact on the underlying tailings cap. Tyhee NWT Corp has filed this information with the MVLWB as required by its current land use permit. The EBA (2007) report describing the proposed design airstrip upgrade and all other annual geotechnical reports are included in Appendix M.

4.14.1.7 Winter Road

The YGP is accessible by road on a seasonal basis via an 55 km winter road starting at Prosperous Lake, approximately 20 km NE of Yellowknife (Figure 1.4-1). Tyhee NWT Corp has used this seasonal access in the past and will continue to use this access to move equipment and supplies for exploration activities, construction and operation of the YGP.

4.14.1.8 Local YGP Haul Roads

The present road layout at the site will be utilized and additional roads developed to provide all-weather access to the surface facilities. Road construction required on site will consist of upgrades to existing roads from the airstrip to the Ormsby site and to Giauque Lake, plus relatively short access roads to new facilities.

A 1,500 m long by 26 to 30 m wide heavy haul road will be constructed using run-of-mine waste rock to connect the Ormsby pit with the main waste rock dump to the west and with the crusher to the north.

An all-weather road approximately 9 km long will likely be required to transport ore from the Nicholas Lake Main Zone to the mill. This road may initially be a seasonal road and upgraded to an all-weather road as mining operations at Nicholas Lake are fully implemented.

All mine haulage roads will be designed and constructed in accordance with the SME Mining Engineering Handbook, (Hartman, 1992) and Information Circular 8758 Design of Surface Mine Haulage Roads – A Manual (Kaufman and Ault, 1977). It has been assumed that all access and haul roads will be constructed from non-reactive (NAG) overburden from the pit or underground operations and/or locally available borrow sources.

4.14.1.9 Water

A fresh water collection system, pump house, and distribution system will provide potable water, process make-up water, and fire protection water from Giauque Lake to the various facilities and installations. Water will be pumped approximately 2 km and with a head of roughly 50 m.

The process water will be obtained from two sources, as reclaim from the TCA, with treatment as required and freshwater makeup from Giauque Lake. A freshwater pumphouse will be prepared at the approximate elevation of 270 m by the shoreline of Giauque Lake as shown on Figure 4.1-1.

4.14.1.10 Reagent Storage

The remote mine site, accessed overland by winter road only, necessitates a one year inventory of reagents, consumables, and supplies.

It is common practice to ship these materials to the mine sites in 20 ft (6 m) containers and as such separate buildings are not needed. The only requirement is that the cyanide containers are stored in a fenced locked area. The containers typically have a net weight of 20 t. The estimated storage requirements are listed in Table 4.14-1.

TABLE 4.14-1: ONE YEAR REAGENT AND CONSUMABLE INVENTORY

	Tonnes	20 ft Container
Grinding media & liners	1,500	75
Reagents	600	30
Sodium Cyanide	300	15
Total	2,400	120

A fire protection system will be established for Ormsby facilities. Water for this system will be supplied by Giauque Lake.

4.14.2 Nicholas Lake

4.14.2.1 Power Generation

About 20 % of the overall power generation requirements will occur at Nicholas Lake, with 2 diesel powered generating units (1 active, 1 standby) located in a separate powerhouse immediately north of the camp (Figure 4.1-2).

4.14.2.2 Camp and Associated Infrastructure

A small 50 person camp will be located at Nicholas Lake (Figure 4.1-2). Warehouse facilities will be in the same building as the camp. All equipment maintenance activities will be conducted at the Ormsby maintenance facility.

4.14.2.3 Fuel Storage

Approx. 7M L of diesel will be stored at Nicholas Lake for the on-site electric power diesel generators as well as serving the mobile equipment fleet. The storage facility will be immediately northeast of the camp.

The tanks will be contained within a bermed area to provide spill containment for 4M L. The 6 bulk storage fuel tanks each have a capacity of 3.5 M L (Section 4.3.7). Appropriate spill response equipment will be stored and maintained at all tank farm facilities.

Transfer pumps will deliver diesel to day tanks, the power station, and a truck fill station for site vehicles. Within the day tank area, smaller tanks will also be provided for clean lube oil and dirty sump oil.

4.14.2.4 Explosives Storage

Explosives will be stored at both Ormsby and Nicholas Lake in approved storage and handling facilities.

4.14.2.5 Access Road

Access to Nicholas Lake and transportation of ore to the Ormsby processing facility is expected to be by one of two alternatives, the existing winter road access or an all-weather road that may be constructed. The final operating scenario will be determined following the feasibility study and detailed engineering.

4.14.2.6 Local Haul Roads

Local haul and access roads will be developed to provide access to the surface facilities. A heavy haul road will be constructed using run-of-mine waste rock to connect the Nicholas Lake underground mine portal with the ore stockpile and waste rock dump to the north.

As mentioned in section 4.14.2.5 above, an all-season road approximately 9 km long may be constructed to transport ore from the Nicholas Lake Main Zone to the Ormsby mill following the feasibility study and detailed engineering.

All mine haulage roads will be designed and constructed in accordance with the ***SME Mining Engineering Handbook***, (Hartman, 1992) and Information Circular 8758 ***Design of Surface Mine Haulage Roads – A Manual*** (Kaufman and Ault, 1977). It has been assumed that all access and haul roads will be constructed from non-reactive (NAG) overburden from the mining operations and/or locally available borrow areas.

4.14.2.7 Water

A fresh water collection system, pump house, and distribution system will provide potable water and fire protection water from Nicholas Lake to the various facilities and installations. Water will be pumped approximately 0.5 km and with a head of roughly 25 m.

A freshwater pumphouse will be prepared at the approximate 330 m elevation of Nicholas Lake as shown on Figure 4.1-2.

4.14.2.8 Fire Protection

A fire protection system will be established for Nicholas Lake facilities. Water for this system will be supplied from Nicholas Lake.

4.15 HUMAN RESOURCES

4.15.1.1 Work Force

The total mine workforce to be employed is estimated at 326 persons with 164 people on site at any one time. The crew schedule will be 2 weeks on and 2 weeks off, working 12 hour shifts with a separate shift for day and night. Maintenance will run the same roster with day and night shift to support mining operations. Management and technical personnel may be on a varied schedule but will primarily be on a 2 week rotation with Yellowknife considered the point of hire. It is anticipated that the mine will operate 350 days per year and the process plant 365 days per year. Shut-downs will occur from time to time for maintenance.

The expected total workforce near the start of the operation can be seen in Table 4.15-1.

TABLE 4.15-1: SUMMARY OF STAFFING REQUIREMENTS

Area of Operation	# Employed
Administrative	9
Health and Safety	3
Environmental	5
Warehousing	13
Camp	19
Ormsby Open Pit	162
Nicholas Lake Underground	84
Process Plant	31
Total	**326**

Note: these numbers include maintenance personnel

General and Administrative and Other Support Staff

General and administration personnel inclusive of the General Manager are estimated at 9 persons. The majority of this group will work on the dayshift only.

Other support staff includes health and safety, environmental, warehousing and camp workers and are estimated at 40 persons. The majority of this group will work dayshift only on a two-week on, two-week off schedule.

Mining

Owner-operated mining and associated operations manpower requirements are estimated at 246 persons. The crew will need to take care of all mining, equipment maintenance, road maintenance, crusher feeding, and waste dump compaction. The personnel breakdown is shown in Table 4.15-1 above.

Process Plant

Process operating plant, laboratory and maintenance personnel are estimated at 31 persons. The same two-week on site and two-week off site rotation is planned. Management and support staff will be on a more varied Shift Schedule

Training Program

The socio-economic study area consists of communities that are more likely to experience effects due to their close proximity to the proposed project site, as well as their possible contribution to the project workforce. The primary study communities include: Yellowknife, N'Dilo, Dettah, Behchoko, Gameti, Wekweti, and Whati. Members of these communities have historically and more recently participated in various other mining projects in the Slave Geological Province. It is anticipated that Tyhee NWT Corp will provide training, employment, business opportunities, and/or other benefits to these communities.

Communities located near the minesite are shown on Figure 4.15-1.

To implement the training, the project plan includes a full-time Trainer to coordinate and deliver specific training sessions. Operating personnel including front line supervisors, security personnel and supervisor and the Human Resources/Safety manager will assist the Trainer. Outside help will be arranged from suppliers of equipment and materials that are being used at the mine. A training room will be included in the mine office.

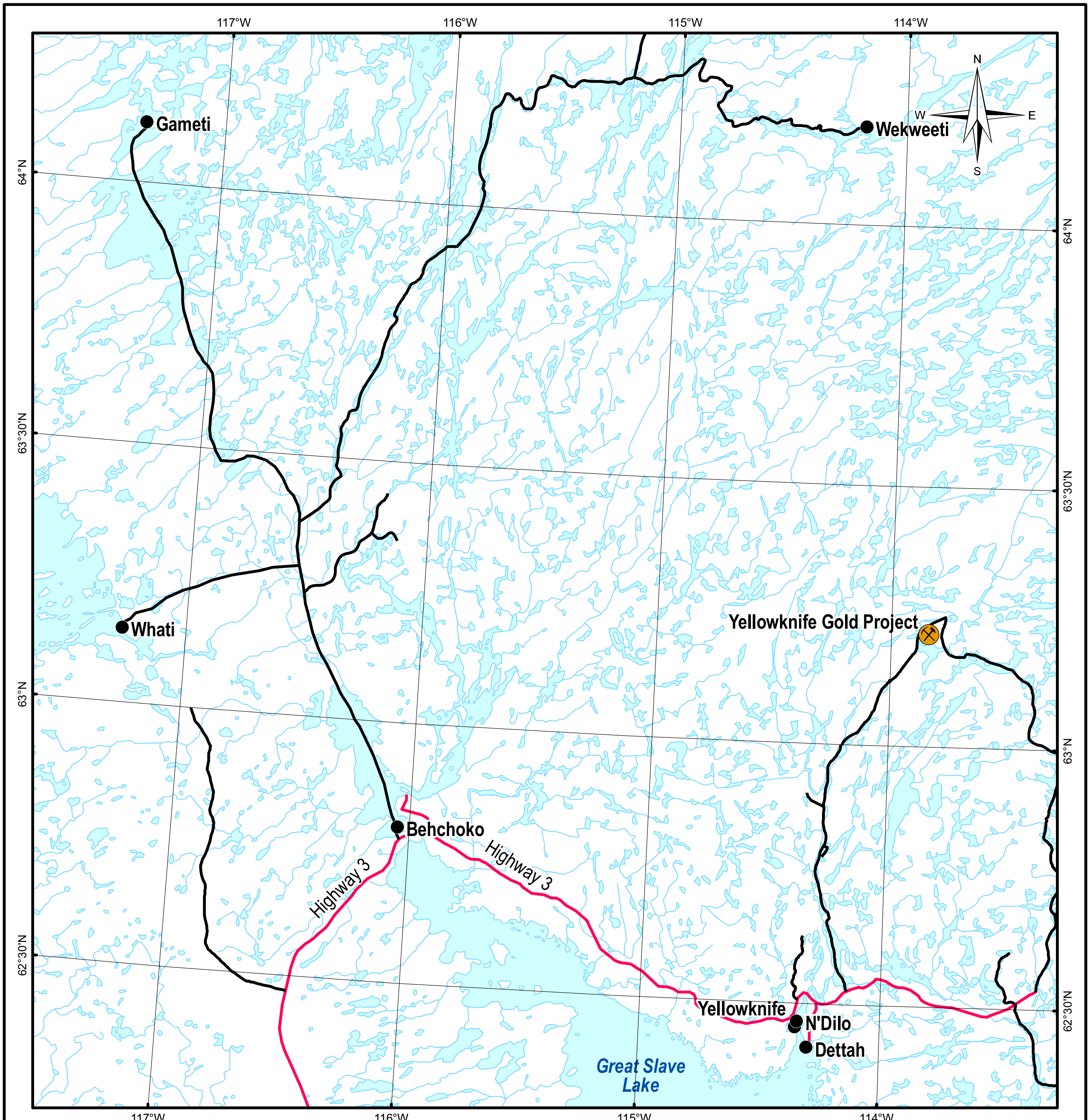
Safety related training will be given a high priority and a requirement of all employees and contractors. The training plan will consist of the following:

- Site orientation;
- Mine site general safety rules;
- Reporting of incidents, injuries and near misses;
- Use of personal protective equipment;
- Hazardous materials information system; and
- Basic first aid training will be offered to all employees.

Job specific training, such as:

- Site specific emergency response procedures that will be developed;
- Industrial first aid; and,
- Fire fighting.

Selected employees will be trained in Emergency Medical Services (EMS) and mine rescue crews will be on site. An Emergency Response plan will be distributed to all employees and posted for easy access in case of emergency. This plan would include medi-evacuation options to Yellowknife.



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LEGEND

- Site Location
- Communities
- Road
- Winter Road
- River
- Waterbody

YELLOWKNIFE GOLD PROJECT

Communities Located Near Yellowknife Gold Project

PROJECTION: NWT Lambert			DATUM: NAD83
Scale: 1:1,200,000 (20 10 0 20 Kilometres)			
FILE NO.: V23201097-DAR-065.mxd			
PROJECT NO.: V23201097	DWN: SL	CKD: RH	REV: 0
OFFICE: EBA-VANC	DATE: April 14, 2011		

Tyhee NWT Corp

EBA Engineering Consultants Ltd. eba

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Figure 4.15-1