NIBLACK MINING CORP.
NIBLACK PROJECT

UNDERGROUND EXPLORATION PLAN OF OPERATIONS

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SECTION 1.0 - INTRODUCTION

The following report details the proposed 2007 underground exploration program for Niblack Mining Corp.'s ("NMC" or the "Company") Niblack Property. An initial 6,000 feet of underground workings are planned from a single adit entry level. The main focus of the underground work will be to provide a platform for continued exploration diamond drilling. The project is expected to take two years to complete.

This report is an update to an earlier report (Underground Exploration Plan of Operations, Rev 0) submitted June, 2006, and later revised December 15, 2006. The original report was prepared by Knight Piésold Consulting on behalf of Niblack Mining Corporation. This report, prepared by Niblack Mining Corporation, includes revisions recommended by the Alaska Department of Natural Resources and Alaska Department of Environmental Conservation.

From the mid-1970s until the end of 2006, there have been 199 diamond drill holes completed on the Niblack Property. The results of drilling compiled by Niblack Mining Corp. and previous property owners, most notably Abacus Mining and Exploration Corp. (formerly Abacus Minerals Corp.), indicate the presence of a significant zone of ore grade mineralization at the Lookout Zone. Because of the significant costs associated with drilling the deeper mineralization from surface it was decided the best way to continue exploration was from underground. In addition to providing better drill access to deeper mineralization, an adit would allow confirmation of continuity between existing drill hole intersections, and allow better characterization of mineralization and underground conditions.

All surface disturbances including road, waste rock disposal/storage areas, portal, etc., will be confined to privately owned patented claims. Total surface disturbance requiring post-closure reclamation is approximately 5.5 acres.

Baseline environmental studies were started at the end of the 1996 drill program and continued throughout the 1997 season. Baseline surface water quality and hydrology monitoring programs were initiated, and have continued in 2005 and 2006.

A similar program to that presented herein was proposed by Abacus Minerals Corp. in 1997 for which full permits were received. The proposed development work never commenced, largely due to the onset of depressed market conditions within the mining sector that lasted from the late 1990s until recent times.

SECTION 2.0 - PROJECT DESCRIPTION

2.1 PHYSIOGRAPHY

The Niblack property is located on Prince of Wales Island in south-eastern Alaska. The claims lie to the south of Niblack Anchorage, a protected bay off Moira Sound. The camp sits at the head of the anchorage above a small tidal flat. The property is accessed by float plane, boat or helicopter.

The terrain is mountainous and rugged, with steep to moderate slopes. Elevations range from sea level to peaks of 2600 feet and greater. Lookout Mountain, where the proposed adit will be built, has an elevation of 2300 feet. The slopes are covered with temperate rain forest. Most of the surface facilities will be screened from the bay by this dense forest cover The forest gives way to sparse vegetation only at the highest elevations, generally 1800 feet and above. Temperatures are moderate and rainfall is high, with annual average precipitation of approximately 190 inches. Winter brings mixed snow, rain and sunshine, with January temperatures hovering around the freezing point.

2.2 REGIONAL GEOLOGY AND LITHOLOGY

The property is underlain by a bimodal sequence of volcanic flows and volcaniclastic rocks that have undergone regional greenschist facies metamorphism. Zircon U-Pb age dating of a quartz crystal rhyolite places the age of the rock units at 595 Ma. The sequence has undergone three episodes of folding. Hydrothermal alteration has been documented visually and chemically, as has gossan development. Stratabound massive sulphide mineralization is found dominantly within the felsic rocks. Gossanous gold-rich material is present in spatial association with the massive sulphide.

For the purposes of discussing stratigraphy and accounting for facies changes, the property is divided into four geographic areas of which the latter three correspond to areas of mineralization: Wascal, Dama, Lookout, and Niblack Mine. The lithogeochemical study that has been used in concert with hand sample and thin section observations to determine stratigraphy is an ongoing process. The problems of recognizing primary lithologies through the veil of hydrothermal alteration have been addressed, and identifying stratigraphic units is still challenging in some places. Recognition of VMS-related alteration facies (both mineralogical and chemical) that may cross-cut stratigraphy is also a continuing process. Over 1500 rock and core samples have been analyzed for trace and major elements. Lithogeochemical statistical analyses of data will likely continue to take place.

Within the area of proposed development, there are seven stratigraphic units on the property. From oldest to youngest they are classified as:

- Sediments,
- Mafic Flows and Sediments;
- Aphyric Felsic Flow/Intrusive;

- Quartz-Feldspar Porphyry Rhyolite;
- Rhyolite Flows;
- Rhyolite Volcaniclastics; and
- Pillowed Mafic Flows and Tuffs.

The thickness of the units varies due to facies changes and structural complications. As well, six distinct mafic dykes have been identified.

Within the Lookout area, stratigraphy is comprised of three main units; the Footwall unit, the Hanging Wall unit, and the Lookout unit. Alteration is common in both the Lookout and Footwall units, whereas the Hanging Wall unit is generally unaltered. The Footwall unit consists of three dominant rock types: andesitic laminated sediments; massive rhyolite and magnetic mafic flows; and amygdaloidal flows. The Lookout unit, which contains the mineralization, consists of two rock types: crystalline rhyolite tuffs, and massive polylithic breccias and flows. The Hanging Wall unit is composed of mafic flows and andesitic laminated sediments. Lookout zone drilling has been located on an overturned limb of a property scale fold structure. Within this area the stratigraphic footwall becomes the structural footwall to mineralization.

The Niblack prospect has the reputation of being highly deformed, and thus is interpreted to have complex and disrupted geology. Nevertheless, a structural model has been developed for the property that has proved successful in predicting geology at depth and defining additional zones of mineralization. The bimodal sequence of volcanics has been folded into large scale broad moderately recumbent folds (F1), with an associated S1 schistosity. These F1 folds are overprinted by small one to two foot scale drag/isoclinal folds (F2) of unclear distribution. Local small scale F3 folds have also been observed. These episodes of folding are thought to influence ore distribution to varying degrees. L1 lineations have been observed in the form of elongate clasts or grains but are not aligned with the F1 fold axis direction. Late brittle deformation is in evidence in the form of a few property scale faults of unclear offset. These have been mapped as the Niblack Fault, the Conundrum Fault, the Blue Belle Fault and the Dama 'Baseline' Fault.

Composition and style of mineralization at the Niblack property is relatively consistent with that of classical VMS deposits. Three general styles of mineralization are present;

- massive and locally banded Cu-rich +/- Zn-rich,
- interstitial/matrix Zn-rich +/- Cu-rich, and
- limonitic Au-Ag rich.

Lead is uncommon, but generally restricted to the interstitial style. Gold and silver are ubiquitous within the aforementioned types of mineralization.

Manganese alteration associated with jasper-chert-magnetite has been thought to be a stratigraphic equivalent to the VMS-bearing exhalitive horizon, thus the distribution of manganese alteration (piedmontite) is used as an exploration tool. Areas of strong quartz-sericite alteration are also considered to be indicators of proximity to mineralization.

Gold-rich VMS mineralization is currently known to be present in four areas of the Niblack property: Dama, Lookout, Lindsy/88 and Niblack Mine. Massive pyritic VMS mineralization has also been found at other areas on surface.

Sulphides are in steeply dipping lenses at Dama, Lookout and the historic Niblack Mine area (ca. 1905). Plunge direction is variable and may be shallow to 45^{o}. Lens dimensions are best understood at Lookout, where maximum strike length is 1600 feet and dip extent is 800 feet, open down plunge and down dip.

2.3 PROPERTY DESCRIPTION

The Niblack property is located approximately 30 miles southwest of the town of Ketchikan in the mouth of Moira Sound, Prince of Wales Island on Craig A 1 USGS Map Quadrangle geographic map sheet (Figure 2.1), roughly centred at Latitude 55º 03' 53", Longitude -132º 08' 48". The property is composed of 17 patented claims, 101 staked federal lode claims and 2 Alaska State tideland claims (Figure 2.2). The claims are within Township 78 South, Range 88 East, Copper River Meridian, Sections 27, 28, 29, 32, 33, 34 and 35; and Township 79 South, Range 88 East, Copper River Meridian, Sections 1, 2, 3 and 4, Ketchikan Recording District, Alaska. Work contemplated herein will be conducted on patented claims within mineral survey numbers 553, 644, and 1437. All claims are owned 100% by Niblack Mining Corp. subject to a variable 1%-3% NSR to Barrick Gold Corp. and a 15% NPI to Cook Inlet Region Inc. ("Cook Inlet"), an Alaska Native Corporation.

NMC acquired the Niblack property in 2005 as a result of a spin-out from Abacus Mining and Exploration Corp., with the objective of advancing the Niblack Property through the delineation of an economically viable ore deposit. A number of mineralized zones have been explored since the late 1800s. The Company and predecessor Abacus have completed work on the Dama zone, Niblack Mine, Mammoth zone, Lindsy zone and Lookout zone. A resource estimate of 2.8 million tons of 0.087 troy ounces per ton ("oz/t") gold, 1.14 oz/t silver, 1.7% copper and 3.3% zinc has been calculated for the Lookout zone. This resource estimate was prepared in 1997 and does not fully meet the criteria set forth in JORC (1996) and CIM (2000), and thus is presented for historical interest only.

2.4 PROPERTY HISTORY

The Niblack area has been explored for minerals since the initial copper discovery at Niblack Anchorage was reported to have been made in 1899. Wright and Wright (1908) described how the property "...was first developed in 1902-3 by the Wakefield Mineral Lands Company [more correctly The G.M. Wakefield Mineral Land Company, herein "Wakefield"] and in 1904 was leased by the Niblack Copper Company [herein "Niblack Copper"]...." Available records show that the mine shipped ore from 1905 through 1908, producing just over 30,000 tons grading about 3.2 % copper, 0.04 oz/t gold and 0.68 oz/t silver.

There are documents in the Company's files in Vancouver that purport to contain production records for the Niblack Mine. Among these is an undated one page letter on the letterhead of the "Trustees Estate of George M. Wakefield", 746 Wells Building, Milwaukee, Wisconsin. Table 2.1 summarizes the data contained in the Wakefield letter. The grades quoted have been calculated from tonnages shipped and total metal reported. It is not known with certainty whether these totals are based on assayed heads or represent recovered metal, but appear to be the former.

The historic Niblack Mine is developed on five levels to a depth of about 230 feet below sea level, with access by a shaft inclined at 70° to the south, located in the present camp yard, but which is now caved in. Mine plans show that ore was won from lenses dipping south at approximately 70° and varying in thickness from 2 to 30 feet. In late 1908, litigation between Niblack Copper and Wakefield caused closure of the mine. Several exploration adits were driven in the general area, at unspecified dates. Most are very short and some are still accessible for mapping and sampling.

In the period of 1974 to 1976, Cominco American Incorporated ("Cominco") optioned the patented claims from Wakefield, and staked an additional 33 mining claims. Work consisted of line cutting, geological mapping, soil sampling and geophysical surveys. Six diamond drill holes totalling 2893 feet were completed in the area of the Niblack Mine. Three holes intersected short intervals of copper mineralization, but the results of the overall program were not encouraging. Therefore, Cominco withdrew from the project and allowed the option to lapse.

In 1977, The Anaconda Company (later Anaconda Minerals Company "Anaconda") staked 118 claims, acquired the patented claims from Wakefield, and carried out line cutting, geology and geochemistry. Gold bearing limonitic mineralization was discovered on surface at Lookout Mountain, at the "Anaconda Pit". One diamond drill hole (LO-01) extended for 1132 feet, remaining in hanging wall strata throughout its entire length.

In 1982, Noranda Exploration Incorporated ("Noranda") optioned the property, with the underlying obligations, from Anaconda, who retained a 15% Net Profits Interest ("NPI"). This NPI was later acquired and is retained by Cook Inlet. Noranda entered into a joint venture with Occidental Minerals Corporation ("Occidental"), whose interest was subsequently acquired by Nerco Minerals Company, to be held by its subsidiary, NERCO Metals Inc. ("Nerco") and thence by Pacific Northwest Resources ("PNR"). Noranda conducted geological mapping and geophysical surveys, and diamond drilled 18 holes in the Lookout Mountain area.

In 1984, Lac Minerals (USA) Incorporated ("Lac") entered into a joint venture with Noranda and at the same time acquired the PNR interests. Over the next six years, work consisted of detailed geological mapping, soil geochemical sampling, and two electromagnetic ("EM") surveys. From 1984 to 1989, Lac completed 20 diamond drill holes. The property was then held on care and maintenance until the 1992 field season.

Lac resumed work in 1992, initially focusing on re logging of drill core, extensive rock sampling for a lithogeochemical study, detailed structural geology studies, and various ground and airborne geophysical surveys, including EM, magnetics, induced polarization ("I.P.") and radiometrics. A further 15 diamond drill holes were completed in 1992 and 1993. In late 1994, Lac was acquired and retained as a subsidiary by Barrick Gold Corporation ("Barrick").

In early 1995, Abacus Mining and Exploration Corp. acquired the rights (and obligations) in the Niblack property from Lac and Noranda in return for cash, shares and share purchase options, and provision for payment of a Net Smelter Return Royalty ("NSR") to Lac. Details of the arrangements are available from Niblack Mining Corp. and the Company's counsel. Teck-Cominco (formerly Teck Corporation) owned a "back in" option on the Niblack property that was gained through a financing agreement with Abacus. The agreement grants Teck-Cominco the right to back in to a 51% participating position on the property. This back in right would involve, upon receipt of a positive pre-feasibility study from Niblack Mining Corp., Teck-Cominco financing a formal feasibility study and, if warranted, putting a mine into production.

Abacus explored the Niblack property between 1995 and 1997. Work included compilation of existing data, an extensive line cutting program, soil geochemical sampling, geophysical surveys, trenching in the area of the old Niblack Mine, prospecting and geological mapping, and structural geology studies. Diamond drilling on the Niblack property from 1995 to the end of the 1997 program totalled 101 holes (83,740 feet).

In 1996, Abacus purchased the PNR interest for a combination of cash and shares. As part of the original arrangement with Lac and Noranda, Abacus acquired a 38 % interest in two centrally located patented claims (the "Trio and Broadgauge claims"). In May and June of 1997, the Company entered into agreements to acquire the rights of six parties owning the residual 62% interest in these claims, for a combination of cash and shares. The completion of the agreement is subject to a final US$10,000 payment. This will give Abacus (Niblack Mining Corp.) full control of the Trio and Broadgauge claims and thus of the entire Niblack property, subject to the various obligations and third party rights as outlined above.

In 2005 Niblack Mining Corp. acquired the rights (and obligations) in the Niblack property through a Plan of Arrangement with Abacus. Since acquisition, Niblack Mining Corp. has performed extensive review and reinterpretation of existing data, and completed seven diamond drill holes, totalling 6200 feet. Table 2.2 summarizes diamond drilling from 1975 to the end of 2006.

During 2006, the Company acquired an option to terminate the Teck-Cominco's 51% back-in right for shares and warrants, and the issuance of stock on commercial production. Exploration on the property included 32 drill holes totalling 27,400 feet. In addition, 5,000 feet of road workings were completed to facilitate the proposed underground program.

2.5 PROPOSED UNDERGROUND EXPLORATION PROGRAM

2.5.1 Overview

The main focus of the underground program will be to provide a drill platform for drill testing the down dip extent of the mineralization at the Lookout zone. In addition, the underground workings will crosscut through a narrow section of mineralization allowing a more detailed geological evaluation. The crosscut will also allow drill testing of the Mammoth zone which is very difficult to access from surface because of the dip of the mineralization and the topography.

Surface drilling in the area of the Lookout zone has traced massive sulphide mineralization to a depth of approximately 400 feet above sea level (ASL). To test this mineralization from surface requires holes of between 1400 feet and 1800 feet (depending on dip of hole, location of hole, etc.). Many of the deeper holes at the Lookout zone are still in sulphide mineralization indicating a tremendous potential for increasing the resource at depth. At the end of the 1997 exploration program it was decided that any future exploration at the Lookout zone would be more economically completed from underground.

Surface drilling to date indicates many complexities to the mineralized zones and much greater density of drilling is required to allow confident correlation of zones. Short underground drill holes provide the most control and are the most practical way to achieve this goal. In addition, the underground program will provide exposure of the geology at depth that will provide a better understanding of the overall controls on mineralization. The planned underground program will intersect the mineralized horizon at approximately the 400-foot level and provide a short exposure of ore grade material at the Lookout zone.

One of the prime purposes of accessing the Lookout zone from the north is to provide an opportunity to further test the Mammoth zone. The Mammoth zone is thought to be a structural repeat of the Lookout zone but has had very little exploration to date. One of the reasons for such little work is the geometry of the zone and the topography; the Mammoth Zone dips moderately into Lookout Mountain. This makes drilling from either above or below the zone very difficult. The Mammoth Zone is considered a high priority exploration target.

2.5.2 Proposed Underground Adit

The proposed underground workings will be collared at the 400-foot elevation on the north slope of Lookout Mountain, above the existing camp facilities at the head of Niblack Anchorage. A road has been constructed to connect the collar location with the camp and tidewater as shown on Figure 2.3A.

The proposed underground development, nominal size 14.5 feet wide by 13 feet high, will consist of a 3090 feet access drift from which a footwall drift of some 920 feet and a hanging wall drift of 1140 feet will be driven. Additional drifts near the portal will be driven 500 ft to the east and 500 ft west to provide drill access to the Mammoth area. The main access drift will initially be driven 20 to 30 feet level then down dip at -16% for 150 feet and then the drift will be driven level for 20 to 30 feet from which a cross-cut will be driven at -15% for approximately 75 feet to establish a sump; from this point the drift will be driven at +4.7% for 1670 feet and -4.7% thereafter. Drifts located close to the portal and those located in the footwall and hanging wall drifts will be driven at +2%. A settling system is to be incorporated in the main sump to settle out solids.

The underground development is designed so that the back portion of the main access drift is a decline, and configured to allow for a concrete plug to be installed if the drift is abandoned. Upon closure, the design ensures submersion of rock located at the back of the main access drift, and within the footwall and hanging wall drifts, thereby preventing oxidation and mitigating the potential for acid generation. The initial 2000 feet of the main access tunnel, which will be built at an incline, is within rocks that are net acid-consuming. The portal site will be suitably supported using rockbolts, and a cover approximately 15 feet long will be installed at the portal to protect the area from any materials that may fall from the slopes above the portal. The exact nature of the portal will be determined after stripping.

In order for the development to proceed in a safe and efficient manner, remuck stations will be driven at approximately 500-foot intervals and safety bays (refuge stations) installed as per the prevailing safety regulations.

The remuck stations will be used as drill stations as they become available (the contractor will always use the remuck station closest to the face). Drilling from the footwall and hanging wall will be done from the drift. The drift at the drill locations may require some back be removed to accommodate the drilling machine. The drift will be ventilated by forced air fans and flexible ducting. The size of the fans and quantity of air will conform to the regulatory requirements that reflect the SME rating for the equipment that is in use in the drift.

It is expected that approximately 25,000 to 50,000 feet of diamond drilling will be completed from the underground drifts.

In the event that operations are temporarily terminated, the drift entrance will be covered to ensure that no person can inadvertently enter the drift.

2.5.3 Access Road

An access road for the site was built between June and October, 2006. Construction of the road, which provides access from tidewater to the portal site and land camp area, was initiated after securing necessary permits. These include Nationwide Permit 14, issued by the Army Corps of Engineers, and Fish Habitat Permit – Title 14, which followed on-site inspection of stream crossing locations by a fish habitat specialist. A site-wide Storm Water Pollution Prevention Plan has been submitted to appropriate government agencies. A detailed wetlands survey was commissioned by Niblack Mining Corp. in February 2006 (Appendix 1), and a Preliminary Jurisdictional Determination covering the area of proposed development received Army Corp approval March 31, 2006. No areas of wetland were disturbed during the road construction.

Figure 2.3A presents the alignment for the access road to the old camp, portal and staging area. The road is at a gradient of up to 8% with a 16-foot-wide running surface. Total estimated length of the road is some 5000 feet. Where appropriate, culverts were installed where minor drainages occur. Camp Creek is crossed by a single log-stringer style bridge. The road surface consists of blasted rock that was quarried on site. Acid base accounting and multi-element analysis was performed on the quarry rock and it was determined to be non-acid generating material with low metal content (Average NP:MPA = 15.84). Aside from the staging area near the foreshore, the road is back from the beach in heavily forested areas. Minimal visual evidence of the road is apparent from Niblack Anchorage. Emphasis was placed on erosion control during access road construction.

The type of equipment used for road development consisted of two back-hoes, a single boom tracked mounted drill, and two articulated dump trucks. The excavation was a typical cut and fill operation where the road was excavated by ripping and the broken material deposited on the open side of the roadway.

2.5.4 Waste Piles

A large portion of the waste rock from the exploration drift will be non-acid forming/non-metals leaching (~46,600 yd^3 of a total 60,900 yd^3 of waste rock) and be part of the non-acid generating/non-metals leaching ("NAG") waste rock pile. The NAG waste rock pile will be located on the hill slope down-gradient from the exploration adit (Figure 2.3A and 2.3B). Surface-water run-on from areas upland of the NAG pile will be diverted around the pile and discharged to the nearest natural drainage way. Precipitation, snowmelt and contact water runoff from the NAG pile will be captured in down-gradient detention/sediment ponds, the sediment from the runoff settled in the ponds, and collected water routed to undisturbed forest floor or back into existing drainage channels.

Approximately 14,300 yd^3 of the waste rock from the exploration drift will be potentially acid forming/potentially metals leaching ("PAG") and be placed in a separate pile (Figure 2.3A and 2.3B). The PAG waste pile will be temporary and is designed to store PAG waste until the end of the project, after which the material will be relocated back underground. The PAG pile will be located atop a lined base which will capture leachate and route it to a small settling pond for preliminary settling prior to piping to a larger holding pond for mixing with water from the exploration adit. The lined base of the PAG pile will have a footprint of approximately 25,000 ft^3, and will be sloped to provide drainage to the small settling pond at the toe of the PAG pile area. The estimated peak flow rate from both runoff and leachate from the PAG pile averages 20 gallons per minute (gpm). This peak flow rate is dominated by the 25-year, 24-hour design storm of 6 inches. Surface water run-on from the contributing catchment upland from the PAG pile would be diverted around the pile and discharge back into the nearest down-gradient channel.

Cross sections and liner details for the waste piles are provided in Figures 2.3C and 2.3D. A leak detection system will be installed at the lowest point beneath the liner of the PAG facility and will include a pipe to a collection bucket for water quality monitoring purposes. Additional detail on the NAG waste rock pile and the temporary PAG waste rock site are provided in relevant permit applications submitted to ADEC (Wastewater Treatment and Discharge Application Under the Waste Management Permit and the Industrial Solid Waste Application Under the Waste Management Permit).
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2.5.5 Settlement Ponds, Waste Water Treatment, and Land Application System

A flow chart depicting water collection and treatment concepts is provided in Figure 2.3E. Detail on facility design is provided in Figures 2.3B and 2.3F. A peak discharge of 20 gpm from the PAG pile (based on a 25 year 24-hour storm event) will be combined with the approximately 120 gpm estimated to discharge from the exploration adit at its maximum development length to give a total peak flow rate to the water treatment facility of 140 gpm. Parameters used in the MODFLOW adit discharge model are provided in Section 2.5.15.2.

The combined flow from the adit and PAG pile will discharge to a common water treatment holding pond that will be constructed with an impermeable HDPE liner (Figure 2.3F). If water treatment is required due to high dissolved constituents and/or low pH, water from the water treatment holding pond will be pumped to a mixing tank and lime added to neutralize the pH and reduce trace metal and other dissolved constituents. The treated water will be discharged to a water treatment settling pond to settle residual solids from the lime treatment. Sludge from the ponds and mixing tank will be discharged to the PAG pile. If treatment of the adit and PAG pile water is not required, the water will bypass the mixing tank, and be piped directly to the secondary settling pond. Both the treatment and settling holding ponds are sized to store approximately 27,000 ft^3 each – equivalent to 24 hours of flow at a rate of 140 gpm.

Water from the secondary settling pond would be land applied using a drip emitter system. Based on an estimated soil infiltration rate of approximately 6 inches per day (in/d), in order to apply 140 gpm, an application area of approximately 1.25 acres would be required. If a rotation of 4 days were used to rest each area, then 4 zones of 1.25 acres each, or a total of 5.0 acres would be needed for land application.

Additional detail on sediment ponds, waste water treatment, and land application systems are provided in relevant permit applications submitted to ADEC (Wastewater Treatment and Discharge Application Under the Waste Management Permit and the Industrial Solid Waste Application Under the Waste Management Permit).

2.5.6 Surface Facilities

Core sampling and preparation will be done at the historic camp site, and it is proposed that a 24-man barge camp located at the staging area be utilized for the 2007 surface drill program and underground exploration program. The staging area for the barge landing also requires construction. Some slight modification to these locations may be proposed subject to final ground inspection. Figure 2.3A presents a preliminary layout of surface facilities for the proposed development program.

2.5.7 Barge and Dock Landing Facilities :

There are no facilities at present to allow for docking of barges or float planes. It is planned to construct a dock facility at Niblack Anchorage that will accommodate the 20-foot tide variance and allow for heavy equipment to be unloaded (Figure 2.3A). The barge landing will consist of a bulkhead constructed from concrete blocks and backfill. The dock facility will consist of a float and walkway secured to pilings. The barge landing and dock facility will be so designed to facilitate minimal disturbance of areas below high tide levels. A staging area constructed above the barge landing facility will accommodate loading and off-loading of supplies and equipment. Additional detail on the barge landing and dock facility are provided in relevant permit and lease applications.

To protect important eelgrass habitat in the lower intertidal and offshore areas, propulsion systems will not be used on landing craft, tugs, self-propelled barges or other craft using the barge landing site when tidal stage is less than half (7.6’ mean lower low water). A recent survey mapped and inventoried the distribution of eelgrass within the lower intertidal and offshore areas surrounding the site (Appendix 2). The survey indicates that eelgrass is absent within the immediate area that the barge and dock landing facilities are constructed.

Minor supply needs and emergency requirements will be provided by float plane, boat and/or helicopter.

2.5.8 Camp and Ancillary Facilities

Niblack Mining Corp. will use a fully permitted 24-man barge camp for housing personal. The camp will include an approved waste water treatment system and drinking water plant. The barge camp will be secured to the dock facility with shore access provide by a hinged walkway (Figure 2.3A). Niblack Mining Corp. will apply for all appropriate permits not already in place.

Core logging, sampling and preparation will be done at the historic camp site. Laydown areas around the historic camp site will be constructed for long term drill core storage.

2.5.9 Portal and Ancillary Facilities

The portal excavation will be completed to provide both the entrance to the underground and also a level working area of sufficient size to allow for equipment repair shop/lunchroom, diesel generating facilities, ventilation equipment and a lay down area for supplies to ensure efficient operation of the development. Laydown areas located at switchbacks in the road near to the portal provide additional areas for generator and compressor equipment. The generator will power underground equipment, ventilation fans and auxiliary lighting. Laydown areas will also be available for temporary waste rock staging before routing to the appropriate waste rock storage site.

The portal brow and the initial portion of the drift will be supported based upon mining industry standards.

2.5.10 Fuel Storage

A fuel storage facility will be installed as shown on Figure 2.3A Estimated daily fuel consumption for the underground work is 1000 gallons of diesel per day. Based on a 14-day delivery schedule and a 7-day safety margin, on-site storage of 21,000 gallons would be required. An additional 1000 gallons (maximum) of gasoline will be stored on site for service vehicles. Appropriate containment structures will be constructed at the fuel storage facility to contain 110% of the design holding capacity.

2.5.11 Magazine Locations

One potential location for a powder magazine is shown on Figure 2.3A. Subject to further investigation an alternate site may be proposed. Any such site will be located at a distance from camp and portal locations that meets regulations, with every effort made to isolate the magazine using existing topography. Detonating caps (Nonel) will be stored within a second magazine at an appropriate separation distance from the main powder magazine.

Using a 30-day re-supply cycle the maximum amount of explosives in the magazine at anyone time is estimated at:

- 7,000 pounds of Water Gel explosives;
- 700 pounds of stick powder;
- 500 pounds of Nonel; and
- 1,000 feet of detonating cord.

2.5.12 Equipment

It is expected that the equipment used underground will consist of a 3.5 cubic yard scoop-tram, 15 to 30 ton underground haulage truck and a two boom hydraulic jumbo. The type of equipment used for constructing surface facilities settlement and treatment ponds, and waste pile sites is expected to include back-hoes, a single boom tracked mounted drill, and articulated dump trucks. A light duty truck or similar utility vehicle will be used for transporting personnel, minor supplies, and drill core.

2.5.13 Waste Rock Characterization

Three types of analyses are used in the waste rock characterization; whole rock, multi-element, and acid-base accounting. The combined results of these analyses allow the potential environmental impacts of the underground exploration to be predicted. The analyses have been performed on samples collected from drill core and surface outcrop of the three main geological units and their respective sub-units. The samples are considered representative of the rock types that will be extracted during the underground development. A geological model, based on extensive drilling and surface mapping, allows confident projection and extrapolation of geological units to depths currently inaccessible to drilling.

2.5.13.1 Purpose of Whole Rock and Multi-Element Analyses of Rock Types

The purpose of determining the chemical composition of the various stratigraphic units and rock types is to obtain a detailed understanding of the major constituents that make up the rock mass. These studies are also necessary to determine if metals are in sufficient concentrations within the host rock to be of environmental concern, should they be rapidly mobilized and allowed to enter the environment.

2.5.13.2 Whole Rock Analysis

The Lookout area of the Niblack property is comprised of three stratigraphic units; the Footwall unit, the Hanging Wall unit, and the Lookout unit (Figure 2.4). Alteration is common in the Footwall and Lookout units, and largely absent in the Hanging wall unit. The Footwall unit consists of three dominant rock types: andesitic laminated sediments; massive rhyolite and magnetic mafic flows; and amygdaloidal flows. The Lookout unit, which contains the mineralization (Figure 2.4), consists of two rock types: crystalline rhyolite tuffs, and massive polylithic breccias and flows. The Hanging Wall unit is composed of mafic flows and andesitic laminated sediments. All units are cut by a significant number of mafic dykes and sills.

Whole rock analysis data for each of the three stratigraphic units is presented in Table 2.3. In order to calculate the mean values for a suite of samples containing one or more values below the level of detection for a particular analysis, the values were calculated using the detection limit as a probable value. For example, a sample containing <0.01% Cr_2O_3 was given a value of 0.01% Cr_2O_3.

All of the samples, regardless of location, are dominated by silica. Average values for each stratigraphic unit range from 52.19% to 66.03% (reported as SiO_2) and individual samples ranged from 39.78% to 76.11%. Aluminum and iron followed silica in dominance. Aluminum is consistent throughout all of the stratigraphic units and averaged 12.43% to 14.25% (reported as Al_2O_3). Individual samples ranged from 7.71% to 16.84%. Iron, which averaged between 7.09% and 10.66% (reported as Fe_2O_3) exhibited more variability than aluminum. Individual samples ranged from 2.17% to 21.11%.

The analysis also indicates there is a greater variability of concentrations in the secondary constituents than in the primary constituents, both among stratigraphic units and among individual samples. Sodium averaged 2.88% to 4.48% (reported as NaO) with an individual sample range of 0.05% to 6.67%. Magnesium averaged 2.00% to 5.28% (reported as MgO) and ranged between 0.17% and 12.10%. Potassium averaged 0.19% to 1.78% (reported as K_2O) and ranged from 0.05% to 4.84%.

Calcium values among stratigraphic units had the greatest variability. The Lookout unit samples contain an average of 1.26% (reported as CaO), and individual values ranged between 0.08% and 4.11%. The Footwall unit samples contain an average of 3.17%, and ranged between 0.21% and 6.03%. The Hanging Wall unit had the greatest calcium concentrations. The average is 5.57%, and the range is 0.96% to 10.58%. This is consistent with field observation of significant calcium carbonate (calcite) within all of the main rock units. Other carbonate species identified in the field include iron and manganese rich varieties (e.g. ankerite, and rhodochrosite), however their occurrence is rare in comparison to calcite.

A relatively high proportion (3.5% to 6.5% on average, with a range of 1.14% to 13.13%) of all samples consists of organic carbon, as determined by the loss on ignition (LOI) (Table 2.3).

2.5.13.3 Multi-element Analysis

Selected samples from each stratigraphic unit were submitted for a multi-element scan using AES-ICP (Table 2.4). Again, in order to calculate the mean values for a suite of samples containing one or more values below the level of detection for a particular analysis, the values were calculated using the detection limit as a probable value. For example, a sample containing <1 ppm copper was given a value of 1 ppm copper.

Metals of environmental concern commonly associated with volcanogenic massive sulphide deposits include copper, zinc, lead, arsenic, antimony, cadmium, and barium. Lead, arsenic, antimony, cadmium and barium were predominately within the normal range of metal concentrations for average crustal rocks. Each metal also has a trigger limit, or level above which it is of potential environmental concern. Samples tested for antimony and lead, with trigger limits taken at 20 ppm and 30 ppm respectively, had no concentrations above these limits. Only 1 of 55 samples contained barium concentration of over 500 ppm. Of the 34 samples tested for arsenic and cadmium, 2 contain arsenic concentrations over 20 ppm (both at 30 ppm) and 3 contained cadmium concentrations over 1 ppm (1.2 ppm, 1.5 ppm and 33 ppm).

The trigger limit for copper is taken at 290 ppm, which is five times average crustal concentration. Of the 34 samples tested for copper 3 were over the trigger limit – 2 from the Footwall unit and 1 from the Lookout unit. The range of values was between 1 ppm and 1150 ppm, while unit average concentrations ranged between 75 ppm and 197 ppm.

The trigger limit for zinc was taken at 410 ppm, which is also five times average crustal concentration. The range of values was 30 to 9200 ppm, with unit averages ranging between 111 and 1083 ppm. Of the 34 samples tested for zinc, 5 had concentrations above the trigger limit – 4 from the Footwall unit and 1 from the Lookout unit. The Footwall unit has average concentrations above the trigger limit, whereas the Lookout and Hanging Wall unit have average concentrations below the trigger limit.

Sample NBCO6011, a porphyritic mafic flow from the Footwall unit, has concentrations of both zinc and cadmium significantly greater than the other samples. It also has high concentrations of other metals, such as gold. This sample has a large effect on the average metal concentrations for the Footwall unit.

2.5.13.4 Acid-Base Accounting (ABA)

Acid-base accounting tests are static tests designed to measure the balance between potentially acid generating minerals and acid neutralizing minerals in various rock types. The difference between the two values is termed the net neutralization potential (NNP). For the purpose of this report, samples that have a deficiency in the net neutralization potential are regarded as potentially acid generating, while those with a large excess of net neutralization potential are regarded as non-acid generating.

The most commonly used acid-base accounting (ABA) test is the Sobek (EPA-600) method. In this method, the maximum potential acidity (MPA) of a sample is determined from its total sulphur (S) content. However, only the sulphide-sulphur (S=) component of the total sulphur in a sample is convertible to sulphuric acid, whereas the sulphate (SO_4) component is not. Samples are therefore tested for sulphide-sulphur (S=) and for sulphate-sulphur (SO_4) to determine the major source of total sulphur in the samples. The maximum potential acidity (MPA) is expressed in parts per thousand (ppt) of sample.

The total sulphur of a sample is determined by heating in a Leco induction furnace and measuring the sulphur dioxide (SO_2) released from the sample with an infra-red detector. The sulphate-sulphur (SO_4) content of a sample was determined by an acid leaching processing and gravimetric analysis. The sulphide-sulphur (S=) content is determined by bromine and nitric acid digestion and gravimetric analysis.

The neutralization potential (NP) of a sample was determined by the Sobek (EPA-600) method through an addition of acid, heating and then titration. It is expressed in ppt of sample. Normally, the majority of neutralization potential (NP) of a sample is made up of carbonates. However, the majority of the neutralization potential can be made up of slow reacting minerals such as aluminosilicates. This is not fully accounted for by the Sobek (EPA-600) method of acid-base accounting. In order to determine the neutralization potential due to carbonate content, a carbon assay is also carried out. Inorganic carbon is determined by heating the sample in a Leco induction furnace followed by a gasometric measurement of CO_2. The inorganic carbon value is multiplied by a constant to calculate the carbonate neutralization potential (CaNP).

2.5.13.5 General Results of Acid-Base Accounting

Complete acid-base accounting results are presented in Table 2.5. Two separate suites of samples were submitted for acid-base accounting. The first suite, designated by NBCO, was obtained from the Footwall, Hanging Wall and Lookout units. These samples underwent full acid-base testing, whole rock analysis and multi-element scans. The second suite of samples, which were obtained from the Hanging Wall unit, was designated with NBCA sample numbers. These samples were submitted for paste pH, total sulphur, maximum potential acidity, neutralization potential, net neutralization potential, and net neutralization potential ratio analyses. On the basis of correlation analyses, NBCA samples have been assumed to have similar proportion of sulphide-sulphur as the NBCO samples.

2.5.13.6 Maximum Potential Acidity

The relationship between sulphide-sulphur and total sulphur in the NBCO samples is illustrated in Figure 2.5. There is a strong correlation between sulphide-sulphur and total sulphur, with sulphide-sulphur comprising 97.5% of the total sulphur (r^2=0.99). There is a lack of correlation between sulphate-sulphur and total sulphur (Figure 2.6), and between sulphate-sulphur and sulphide-sulphur (Figure 2.7). Figures 2.6 and 2.7 also illustrate that most samples have almost no sulphate. The maximum sulphate-sulphur concentration in the NBCO samples is approximately 0.5%.

Maximum potential acidity (MPA) is calculated by multiplying the total sulphur value by the constant 31.25. This constant assumes total sulphur is dominated by sulphide-sulphur. The distribution of the maximum potential acidity values for all of the samples is presented in Figure 2.8. Over 50% of the samples contained less than 5 ppt of acid generating potential.

Only 9 of the 67 samples tested have paste pH values of less than 7.0 (Table 2.5, Figures 2.9 to 2.11). Most (seven) of these samples, one of which has a paste pH of 3.4, were obtained from the Lookout unit. The remaining two, which were both approximately neutral, were obtained from the Footwall unit.

Samples with neutral or low paste pH values were also generally the same samples having low neutralization potentials and high total sulphur values (Figures 2.10 through 2.11). However, several samples that have NP:MPA ratios less than 3:1 (potentially acid generating), have paste pH values greater than 7. This is particularly evident for samples within the Footwall unit. Paste pH is therefore not considered to be a reliable method for characterizing the acid generating potential of rocks on the Niblack project.

2.5.13.7 Neutralization Potential

The distribution of neutralization potential (NP) of all samples is presented in Figure 2.12. More than 50% of the samples, 36 of 67, have a neutralization potential of greater than 25 ppt.

However, different minerals neutralize acidity at different rates. Most carbonates, for example, are fast reacting and readily available neutralizing minerals. Aluminosilicates, on the other hand, contribute to the neutralization potential but are very slow reacting. Carbonate neutralization potential (CaNP) is used to determine the neutralization potential resulting from carbonate minerals. There is good correlation between the carbonate neutralization potential and the bulk neutralization potential for all samples tested (Figures 2.13 and 2.14). Based on the CaNP/NP ratio, carbonate minerals make up 78% of the neutralization potential, with the remaining 22% made of slow reacting non-carbonate minerals. Field observations of outcrop and drill core indicate calcium carbonate (calcite) to be the primary carbonate species present in all units.

2.5.13.8 Net Neutralization Potential and Neutralization Potential Ratio

There are two ways to present the overall acid generating potential of a sample tested by acid-base accounting. These are the net neutralization potential (NNP) and the neutralization potential ratio (NPR). The net neutralization potential is the difference between the neutralization potential and the maximum potential acidity, whereas the neutralization potential ratio is a ratio of the neutralization potential (NP) to the maximum potential acidity (MPA). For the purposes of this report, NPR is used to discriminate rock that is potentially acid generating (PAG) versus rock that is definitively non-acid generating (NAG). For reference purposes, a frequency distribution of NNP values is presented in Figure 2.15.

Regulatory guidelines for classifying waste as non-acid generating vary widely between different jurisdictions, and a conservative classification scheme has been adopted for the Niblack project. Samples with neutralization potential ratios greater than 3:1 are considered to be non-acid generating, and samples that are less than 3:1 are considered to be potentially acid generating. A sample with a NPR of 3:1 has three times as much potential to neutralize acid as to create it, whereas a sample with a NPR of less than 1:1 will have greater potential to produce acid then neutralize it. Figure 2.16 presents a log-log plot of the neutralization potential ratio verses sulphide-sulphur. For this plot, sulphide-sulphur values for the NBCA samples were calculated using the relationship illustrated in Figure 2.5. The Footwall unit is dominantly acid generating, while the Hanging Wall unit is dominantly non-acid generating. The Lookout unit comprises a mixture of non-acid generating and acid generating samples.

A frequency distribution of the neutralization potential ratios (NPR) for each stratigraphic unit is presented in Figures 2.17 through 2.20. While the majority of the samples, 40 of 67 samples, are non-acid generating, the main source of the potentially acid generating samples (14) is the Footwall unit (Figure 2.18). Most of the remaining potentially acid generating samples (9) are from the Lookout unit (Figure 2.19). This figure again illustrates the Lookout unit consists of both acid generating and non-acid generating rocks.

The majority of Hanging Wall samples are non-acid generating, and have high neutralization potential ratios (NPR). Of the 28 Hanging wall samples, only 4 are plotted as potentially acid generating (Figure 2.20). Of the 4 potentially acid generating samples, 1 has a sulphide-sulphur value of less than 0.1 and is therefore regarded as non-acid generating (Figure 2.16).

2.5.13.9 Review of ARD Testing

A review of the 1997 test work and data has been completed to 2006 standards and in relation to the proposed exploration program. The primary conclusions are that the data is of high quality and is representative of the main rock units that will be encountered underground. By virtue of depth and the impracticality of obtaining data along the full length of the proposed underground workings, data has been projected from surface and existing drill holes to the areas of proposed underground tunnelling. There is sufficient confidence in the geological model to project the data, but variations in what has been projected and what is actually encountered may occur. A rigorous operational characterization plan (summarized in Section 2.5.14) will ensure any variations encountered will be recognized and that waste rock is managed appropriately.

Additional ABA sampling was conducted in 2006 to augment the 1997 data. Sampling in 2006 was primarily directed at obtaining additional data from under sampled parts of the Hanging Wall unit, and included a surface transect vertically above the alignment of the underground workings as well as sampling of new drill holes collared above the portal site. The 2006 data are consistent with the 1997 data, and are presented together under separate cover in the Operational Characterization Plan (Appendix 3).

2.5.13.10 Acid Generating Potential of Waste Rock

The neutralization potential ratio (NPR) for each unit is shown in Table 2.5, together with a weighted neutralization potential ratio. Both the Footwall and the Lookout stratigraphic units are deemed to be potentially acid generating overall, even though some of the samples in each unit were non-acid generating. The Hanging Wall units are overall not acid generating. Each of the three main units contain smaller sub-units with variable acid generating potential that are typically separated by sharp distinguishable contacts. This is particularly evident in the Lookout unit, which has acid generating potential within mineralized zones, and commonly contains negligible sulphide and is non-acid generating outside of the mineralized zones.

The discussion of acid base accounting of Niblack exploration tunnel waste is presented in terms of the criteria selected to distinguish potentially acid-generating waste (PAG) from non-acid generating waste (NAG):

- PAG rock if NP/MPA <= 3
- NAG rock if NP/MPA > 3

This criterion provides a 3-fold excess in neutralizing potential relative to acid production potential for waste rock proposed for permanent surficial disposal. On average, the acid neutralization potential measured by carbonate C concentration (CaNP) is somewhat less than the acid neutralization potential estimated by direct acid titration (NP). As previously discussed, the median CaNP/NP ratio of all samples for which both NP and CaNP data are available is 0.78. This indicates carbonate minerals make up 78% of the NP, with the remaining 22% made of slow reacting non-carbonate minerals. The median CaNP/NP ratio for the three main rock units is 0.83 for the Hanging Wall unit, 0.76 for the Lookout Unit, and 0.76 for the Footwall Unit (see Operational Characterization Plan, Appendix 3). These data indicate the majority of the measured acid-consumption is due to carbonate minerals, which is generally the most available and effective form of natural neutralizing. The remaining NP is presumably basic silicate minerals, which react more slowly and are thus less effective.

Carbonate minerals are generally the most chemically available and effective forms of natural acid neutralization. However, iron and manganese carbonates are an exception—these minerals provide little or no net neutralizing potential. A query of the Niblack project drill database for carbonate species identified in rock samples yielded 1428 records of calcium carbonate, 18 records of iron carbonate, and 2 records of manganese carbonate. These data indicate that although iron and manganese carbonates can be present in some places, they appear to be rare in comparison to calcium carbonate, and are thus unlikely to be present in sufficient concentration to significantly reduce acid consumption. The conservative 3-fold excess in neutralizing potential used in distinguishing NAG rock from PAG rock is designed to accommodate a reasonable percentage of non-carbonate NP and the presence of minor iron and manganese carbonates.

Key results of acid/base accounting analyses of the expected waste rock from the Niblack exploration tunnel are presented in the Operational Characterization Plan (Appendix 3), and are summarized as follows:

- Most of the rock produced from the exploration drift will be non-acid generating (i.e., ~46,600 yd^3 of waste rock will be NAG, which is ~77% of the estimated 60,900 total yd^3 of waste rock that the tunnel will produce);
- The average net-neutralizing potential of the NAG material is 50 kg/tonne $CaCO_3$ (i.e., potential to neutralize excess acid *after* all of its intrinsic acid has been produced by sulphide oxidation), the median value is 35.5 kg/tonne $CaCO_3$
- The average total sulfur content of NAG material is 0.06%, the median value is 0.01% (analytical detection limit is 0.01%);
- Most (~86%) of the total 46,600 yd^3 of NAG waste rock will be from the Hanging Wall unit;
- Most (~90%) of the early waste rock produced by the tunnel will be NAG (i.e., the first 2,500 ft of tunnel excavated will be in the Hanging Wall unit, as well as the Mammoth drift and the Footwall drift);
- Most of the PAG waste rock will be from the Footwall unit (i.e., ~8,400 yd^3, or ~59% of PAG waste rock) with lesser amounts of PAG waste rock from the Hanging Wall unit (~4,700 yd^3, or 33% of PAG waste rock) and Lookout unit (~1,200 yd^3, or 8% of the PAG waste rock);
- Most of the acid generating rock will have enough NP to prevent acid formation in a waste rock pile for over a year – this is primarily the PAG waste rock from the Hanging Wall and Footwall units; and
- Some of the Lookout unit waste rock or tunnel wall rock may produce acid within a few days to a few months after exposure to the atmosphere – 42 % of the samples from the Lookout unit (11 out of 26 samples) have negligible carbonate concentrations (e.g., below ~10 kg/tonne $CaCO_3$), so ~1,200 yd^3 of waste rock could produce acid almost immediately upon excavation. This is supported by acidic paste pH (values between 3.5 and 6) in some Lookout unit samples (Figures 2.10 through 2.11).

2.5.13.11 Metals Leaching Potential of Waste Rock

Analysis of ICP and whole rock data indicates the primary metals of environmental concern are copper and zinc. Copper and zinc are typically bound to sulphides (sulfur bearing minerals), which at Niblack principally include sphalerite ([Zn,Fe]S) and chalcopyrite ($CuFeS_2$). Metals bound as sulphide minerals may be released directly by oxidation, and acidic pore water tends to increase the solubility of most metals of environmental concern.

There are a sufficient number of PAG samples (NP/MPA <=3) that have copper and zinc concentrations in excess of adopted threshold values to warrant additional testing to evaluate metal leaching potential. Proposed tests will provide data that can be used to make estimates of water quality in the waste rock pore water, and are detailed in the Operational Characterization Plan (Appendix 3). However, reliable predictions of metal concentrations in waste rock seepage based on the proposed tests can take months to years to determine. In the absence of such data, precautionary measures for handling of the PAG waste rock include water collection and treatment facilities to ensure water quality standards are met.

Based on all currently available data, negligible metal leaching is anticipated to occur in NAG waste rock, and degradation of surface and ground waters is not expected. Samples of NAG material exhibit low metal values, low sulphide content, and excess neutralizing capacity.

The potential for metals leaching is discussed in greater detail in the Operational Characterization Plan (Appendix 3).

2.5.14 Waste Rock Management

The planned underground exploration program is shown in Figure 2.3A. Waste rock production will be dominated by the Hanging wall unit, which will account for ~45,500 yd^3 of the estimated 60,900 total yd^3 of waste rock produced by the tunnel (Appendix 3). The portal (14.5 feet wide by 13 feet high) will be collared in the Hanging Wall unit, and remain within the unit for the initial 2500 feet of development. Both the footwall drift and the Mammoth drift, built off the main access tunnel, will also be confined to the Hanging Wall unit. The last 600 feet of the main access tunnel and the entire hanging wall drift will be constructed within the Lookout and Footwall units. Stratigraphy is overturned in the area of the Lookout zone, which is why the hanging wall drift (mine terminology) is located within the Footwall Unit (geological terminology), and the footwall drift is located in the Hanging Wall Unit.

An Operational Characterization Plan (Appendix 3) has been developed to guide waste rock management. The Plan includes details on the methodology that will be used to characterize waste rock (NAG versus PAG) during the underground excavation, as well as details on waste rock segregation, handling and storage. Recommendations for kinetic tests, which are long-term tests that indicate the rate at which sulfide minerals oxidize, the rate at which this acidity is neutralized, and the rate at which sulfate and metals can be released by the oxidation process are also included within the plan.

The broad overall plan for waste rock handling includes the following:

- Identify storage locations for potentially acid generating and non-acid generating waste rock facilities;
- Characterize waste rock by collection of a representative composite sample of drill cuttings from each blast round (~10 ft of advance) and analyze on-site for Total S (alternatively, Total S analysis will be performed on representative samples obtained from a pilot hole(s) drilled immediately parallel to the drift in advance of excavation);
- Visually examine the muck pile from each blast round for the presence of zinc or copper sulphide minerals (i.e., sphalerite or chalcopyrite)—samples with visible zinc or copper sulphide minerals will be diverted to the PAG waste facility (Note: samples with visible base-metal sulphide minerals are likely to exceed the sulphide threshold for PAG waste anyway).
- Place NAG waste rock (NP/MPA ratio > 3) on the unlined waste rock disposal site;
- Place all PAG waste rock (as determined by Total S analysis, and visibly high Zn or Cu sulphide minerals), at a lined and covered temporary storage location, where runoff will be captured and treated; and
- Close the facilities by capping NAG waste rock with a vegetated cover and placing PAG waste rock back into the tunnel.

This design leaves PAG waste rock isolated underground below the water table, where oxidation and acid generation will cease as oxygen is excluded by the flooding groundwater. To reduce the potential for PAG waste to cause short-term degradation of the groundwater that floods the drift, the paste pH or drainage quality of the PAG waste will be measured before it is placed back in the drift, and if it is acidic, lime will be added to bring pore water pH to 7 or above before placement.

2.5.15 Water Management

The overall waste water management/treatment approach is summarized in Figure 2.3E. Water management plans are detailed in the Storm Water Pollution Prevention Plan (SWPPP; Appendix 4), and relevant permit applications submitted to ADEC (Wastewater Treatment and Discharge Application Under the Waste Management Permit and the Industrial Solid Waste Application Under the Waste Management Permit). A summary of facility specific water management is provided below. Additional mitigation measures and best management practices to protect water quality are listed in Section 3.1.6.

2.5.15.1 Portal Discharge Water Management

Portal water discharge management involves a three-step process that includes: 1) minimization and pre-treatment underground, 2) settling in a “frac tank” and treatment in the water treatment facility (additional settling, chemical coagulation/precipitation treatment if necessary), and 3) dispersion and land infiltration for final ‘polishing’. The

Discharge of water to a land application area, designed to disperse and infiltrate the water, will enable the project to have zero-discharge to surface waters.

Peak discharge from the exploratory adit is estimated as between 60 and 120 gallons per minute (gpm). The peak discharge estimates are based on 5,890 linear feet (ft.) of tunnel approximately 13.5 ft. x 14 ft. in cross-section. The estimates were made using a transient numerical groundwater flow model (MODFLOW) assuming a tunneling rate of 20 ft. per 24 hours, mean hydraulic conductivities for the bedrock of 2.5 x 10-6 to 6.7 x 10-6 centimeters per second (cm/s), and a drainable porosity of 0.02 (Knight Piesold Consulting, December 2006). Zones of high water inflow will be grouted or otherwise controlled so as to maintain an adit discharge rate of 120 gpm or less.

The hydraulic conductivities were first estimated by calibrating the numerical model in steady-state to groundwater elevations ranging from 50 to 1,835 ft. above mean sea level measured in five exploration boreholes. Assumed recharge values for calibrating the steady-state model were either 10% or 25% of 174 inches annual total precipitation. The lower mean hydraulic conductivity estimate and lower adit discharge estimate correspond to the lower net recharge assumption. The peak discharges occur simultaneously with advancement of the adit. Longer-term adit discharges, one year after construction, decline to between 45 and 110 gpm. These estimates would be used conservatively for determining potential long-term water treatment needs.

2.5.15.2 <u>Waste Rock Storage Sites Water Management</u>

The PAG waste rock storage facility is designed such that direct precipitation and any un-diverted upland run-on water would be collected and temporarily stored in a lined detention/sediment pond at the toe of facility. The PAG/ML site detention/settlement pond is sized to store the 4,000 ft^3 of runoff from the design storm. The average daily discharge from the detention pond after the design storm is estimated to be 20 gpm. Water collected in the detention/sediment pond will be pumped or gravity transported to the proposed Water Treatment Facility

Runoff from the waste rock piles will be minimized by diverting unaffected (run-on) water away from these areas. Pond design was based on peak flows expected in October due to heavy rainfall. A peak rainfall of just over 20 inches/month occurs in October and generally produces more flow than the freshet. A worst case 25 year 24-hour event was assumed to produce 6 inches of water in 24 hours.

Runoff from the NAG site would be managed as follows: (1) minimization by diverting upland run-on around the facilty and using dispersion terraces to route the runoff into heavily vegetated forest areas or back into existing channels; (2) natural infiltration through the waste pile and the highly permeable talus substrate beneath it; (3) infiltration through the forest floor between the toe of the NAG pile and the sedimentation ponds; (4) collection of surface runoff downgradient of the NAG site and intervening forest floor in sediment ponds along the upslope side of the main access road; and (5) routing to secondary sediment traps on the downslope side of the main access road.. This approach assumes that sediment is the only contaminant of concern in the runoff from the NAG site.

2.5.15.3 Water Treatment Facility and Land Application Water Management

The combined flow from the portal and PAG pile will discharge to a common water treatment holding pond lined with an impermeable HDPE liner. If water treatment is required due to high dissolved constituents and/or low pH, water from the water treatment holding pond will be pumped to a mixing tank and lime added to neutralize the pH and reduce trace metal and other dissolved constituents. The treated water will be discharged to a water treatment settling pond to settle residual solids from the lime treatment. Sludge from the ponds and mixing tank will be discharged to the PAG pile. If treatment of the adit and PAG pile water is not required, the water will bypass the mixing tank, and be piped directly to the secondary settling pond prior to land application. Both the treatment and settling holding ponds are sized to store approximately 27,000 ft^3 each – equivalent to 24 hours of flow at a rate of 140 gpm. The 140 gpm rate of flow is based on the maximum daily discharge of 20 gpm from the PAG pile (based on a 25 year 24 hour storm event) and the 120 gpm estimated to discharge from the exploration adit at its maximum development length.

Treated water will be land applied using a drip emitter system. Based on an estimated soil infiltration rate of approximately 6 inches per day (in/d), in order to apply 140 gpm, an application area of approximately 1.25 acres would be required. If a rotation of 4 days were used to rest each area, then 4 zones of 1.25 acres each, or a total of 5.0 acres would be needed for land application.

Because irrigation drip emitters will be used and may plug if there are suspended solids in the water, a “bag” filter will be required at the settling pond discharge to remove suspended particles as a result of the lime treatment process. It is not anticipated that the emitters will plug as a result of solids dissolved in the treated water. It is estimated that approximately 1,400 drip emitters with a flow capacity of 6 gallons per hour (gph) each will be used in each zone. The emitters will be laid out in a grid pattern in the areas shown on Figure 2.3B.

2.5.16 Hazardous Materials

2.5.16.1 Identification of Hazardous Materials

The proposed exploration activities will require three groups of hazardous materials:

- Water gel explosive, stick powder, blasting caps;
- diesel; and

- gasoline and lubricating oils.

Pertinent Material Safety Data Sheets for each substance will be made available on site.

2.5.16.2 Pollutant Control

Fuel and other petroleum products at the site will be stored in above ground tanks surrounded by earthen berms. These berms will have impervious liners on their sides and bottoms, and be capable of containing 110% of the total capacity of the fuel tanks.

2.5.16.3 Spill Prevention and Response

A Project Spill Contingency Plan (C-Plan) to handle accidental spills of fuel and other potentially hazardous products will be in place for the duration of the underground exploration program. Niblack mining Corporation's current C-Plan, which was implemented for the 2006 surface exploration program at Niblack, will be updated as appropriate to the Plan of Operations once all personnel have been hired and specific Spill Response Duties have been assigned.

The purpose of the Niblack Project Spill Contingency Plan is to outline the response to spills of potentially hazardous substances at and near the project site which may affect the environment. This planning exercise will facilitate the rapid deployment of personnel and resources to spills, so that the environmental disturbance and the resultant hazard to humans, aquatic systems, and wildlife are minimized. The C-Plan follows the format recommended by the Oil Discharge Prevention and Contingency Plan, Application Review Guidelines, July, 1994, as required by the Alaska Department of Environmental Conservation and the U.S. Coast Guard.

2.5.17 Human Health and Safety

Niblack Mining Corp will conform to all applicable regulations of the Mine Safety and Health Administration, the Alaska Department of Labour's Occupational Safety and Health Section of the Labour Standards and Safety Division, and the Alaska Workers' Compensation Act.

2.5.18 Employment

The hiring protocols of the Operator will give preference to Alaskan residents, wherever practical. Over the course of the proposed exploration activity, it is estimated that there will be 8000 man days of employment.

SECTION 3.0 - ENVIRONMENTAL BASELINE DATA AND MITIGATION MEASURES

3.1 WATER QUALITY AND HYDROLOGY

The following is a summary of water quality and hydrology data. A more comprehensive discussion of environmental baseline data can be found in the Water Quality Baseline and Site Monitoring Plan (Appendix 5). Similarly, a more comprehensive discussion of BMP's is provided in the Storm Water Pollution Prevention Plan (Appendix 4).

3.1.1 Surface Water Quality Monitoring

The Operator will implement a regular water quality monitoring program as described in the Water Quality Baseline and Site Monitoring Plan (Appendix 5), to be carried out concurrently with exploration activities. The monitoring plan will be a key component of the overall Plan of Operations conducted by Niblack Mining Corp. The plan will allow the Company to continue to define pre-project (operations) environmental conditions, manage short-term pre-development impacts, and assess the potential effects of operations and reclamation/closure. It is designed to meet Alaska Water Quality Standards at specific points of compliance related to the various facilities, and ensure long-term protection of State of Alaska water resources, land, fisheries and wildlife.

The site monitoring plan will consist of the following elements:

- Monitoring stations/locations;
- Monitoring frequency;
- Water sample collection procedures;
- Transmittal of samples (Chain of Custody)
- Flow measurements;
- Field measurements and parameter selection;
- Laboratory procedures and analyses (QA/QC);
- Data management;
- Visual monitoring;
- Reporting; and
- Corrective action protocol.

3.1.1.1 Surface Water Quality Monitoring Stations

Surface water quality monitoring has been occurring within the Niblack Project study area since 1996 in order to establish baseline water quality for the area. Samples were collected in October 1996, September 1997, April 2005 and February, May, August, October and December of 2006. Sampling will continue through 2007, during advanced exploration activities, and post-closure. The location of the existing baseline water quality sites are shown on Figure 3.1. The location, total number and description of proposed monitoring sites for compliance and ongoing baseline data collection are detailed in the

Water Quality Baseline and Site Monitoring Plan (Appendix 5), and differ from that shown on Figure 3.1.

3.1.2 Surface Water Quality Results

The surface waters within the Niblack study area can be generally characterized as follows: Slightly acidic, very soft (median hardness of 10.1 mg/L $CaCO_3$), elevated dissolved oxygen, with low concentrations of total dissolved and suspended solids, nutrients and metals (with a few exceptions). Naturally elevated metals concentrations have been periodically recorded during baseline monitoring, and include copper, and to a lesser extent zinc and cadmium. Characterization of water quality is presented in the Water Quality Baseline and Site Monitoring Plan (Appendix 5).

3.1.3 Surface Hydrology

In May of 1997, hydrology monitoring equipment was added to four of the six water quality stations. Staff gauges were installed, surveyed to benchmarks, and calibrated. Staff gauges were calibrated again in September of 1997. A record of staff gauge readings was maintained from May 26 to September 3, 1997, while geotechnical personnel were on site. In addition, an automated stream level gauge (pressure transducer) was installed at station WQ6, with data logged on the weather station logger. Upon returning to the site in April of 2005, these staff gauges and the automated stream level gauge were found to be missing and are presumed to have been lost during floods. An automated stream level gauge (pressure transducer) was re-installed in Camp Creek in 2006.

Future flow measurements will continue to be conducted throughout the life of the Niblack Project. A stage-discharge relationship will be plotted after completing sufficient staff gauge calibrations. From this, a hydrograph will be produced, illustrating the hydrological regime of each creek on a temporal scale.

Average, maximum and minimum flows for some nearby streams are presented in Tables 3.1 to 3.4. Flow conditions vary greatly from watershed to watershed but this data gives some indication of regional hydrology until site specific data is available.

3.1.4 Groundwater Quality

Two preliminary groundwater well sites were established in late 2006 (Figure 3.1), located down gradient of the proposed PAG waste site and settlement/treatment ponds. The wells utilized existing diamond drill holes in which steel casing was left in place. The wells were lined with 2 inch diameter PVC pipe, contained slotted PVC screen at their base, and were capped to prohibit infiltration of surface and rain water. Water quality data from these sites is presented in the Water Quality Baseline and Site Monitoring Plan (Appendix 5).

Five new permanent monitoring wells were established in February 2007. The number, location, and depth of the wells are based on ADEC guidance and recommendation. The wells are located in wetland at depths of 24 to 36 inches with four located down gradient of surface facilities and one located outside the area impacted by human activities to act as a control point for concurrent monitoring. Location, frequency, and analytical procedures for groundwater samples will be done in accordance with the Water Quality Baseline and Site Monitoring Plan (Appendix 5).

3.1.5 Inshore Marine Water Quality

Inshore marine water samples will be obtained and analysed for baseline reference values in the vicinity of the proposed marine landing facility. Field data will be collected using a Hydrolab profiling unit, measuring temperature, pH, dissolved oxygen, conductivity, and salinity. Additional discrete samples will be obtained and submitted to an accredited laboratory for analyses. Hydrocarbon residue monitoring will also be conducted on sediment samples near the marine landing facility. It is important to establish baseline data that can be used to monitor trends over time. This data will also be valuable to ensure that accidental release of oil is not impacting the marine environment.

3.1.6 Mitigation Measures and Best Management Practices to Protect Water Quality

A Storm Water Pollution Prevention Plan (SWPPP) has been developed by Niblack Mining Corporation to serve as a defined protocol for the management of storm water encountered during the course of the proposed underground exploration program. A copy of the SWPPP was submitted and accepted by ADEC in 2006 (Appendix 4). Management of waste waters associated with the adit and PAG facility are described under separate cover in the Niblack Waste Water Treatment and Disposal Application under the Waste Management Permit. A summary of typical best management practices are itemized below:

3.1.6.1 Sediment Source Control, General (Typical BMP's)

The following Best Management Practices (BMP's) will be followed:

- Vegetation will be removed only from those areas directly affected by project activities.
- Salvageable timber will be utilized on site for mine development, and in the construction of other surface facilities as practical (this is currently practiced).
- Highly erosive soils will be avoided where possible.
- All disturbed areas will have appropriate interim reclamation and drainage controls implemented in a timely manner, with progressive reclamation activities

implemented to ensure the site remains in a stable condition during operation of the project. Progressive reclamation activities will include fill placement and grading, growth media placement, scarification, and seeding.
- Both temporary diversions and sedimentation control systems will be monitored on a routine basis. These systems will be cleaned, repaired, and altered as necessary.

3.1.6.2 Sediment Source Control for Roads (Typical BMP's)

The following best management practices will be followed:
- Roads will be constructed on properly surveyed alignment and grades.
- All road cross culverts will be installed at the time of road construction.
- Equipment use in drainage channels will be held to an absolute minimum.
- Alteration of stream banks will be minimized and disturbed stream banks will be immediately stabilized to prevent erosion and sedimentation.
- Straw bale dams, with bale spills rather than fluffed straw or sand/gravel, will be placed parallel to fill slopes to provide a sediment barrier from road construction activities. The Alaska Department of Fish and Game, who are experienced with highway and logging road construction on Prince of Wales Island, recommend straw bale dams instead of the more typical slash windrows because they have been found to be more effective for the significant rain events typical of the area that tax many typical sediment control measures.
- Cut-and-fill slopes will be stabilized by reducing their angle to a 2H:IV whenever possible.
- Permanent erosion control measures will be constructed to last the life of the project, and repaired on an as-needed basis. Erosion control measures may include straw bale dams with bale spills, shot rock ditch blocks, and drainage ditches that divert flow into areas of undisturbed forest floor (50'). Again the Alaska Department of Fish and Game have recommended these control measures as effective for containing sediment, more so than other typical control measures such as slash windrows or silt fences that can be used effectively in other areas.

3.1.6.3 Culverts and Stream Crossings (Typical BMP's)

The following best management practices will be followed:
- All instream work will be conducted during the instream work window.
- Alteration of the stream banks will be minimized and equipment use in drainage channels will be held to an absolute minimum.
- Disturbed stream banks will be stabilized immediately and the sediment control measures described above will be used to prevent erosion and sedimentation of the streams.
- Installations, replacements, and modifications of water body crossing structures will be conducted in a manner that maintains fish and wildlife habitats.

- Stream crossing will not be constructed of any wood treated with a preservative containing creosote or pentachlorophenol.
- Stream crossings in identified fish habitat will be avoided where possible.
- Any stream crossings in fish habitat will:
  - be made from bank to bank in a direction substantially perpendicular to stream flow;
  - be constructed at a location will gradually sloping banks, not at locations with sheer or undercut banks;
  - be designed to allow for free passage of fish;
  - be constructed using bump logs to protect banks and to cushion the stream bed from machinery;
  - utilize the sediment control measures mentioned in the sediment control section; and
  - incorporate sediment control measures such as brow logs and filter fabric in the bridge design to prevent road material and other sediment from entering the creek.

3.1.6.4 Barge Landing (Typical BMP's)

The following best management practices will be followed at the barge landing site:

- The landing will be so designed to minimize and reduce the impacts to the inter-tidal zone by minimizing the size of the disturbed ares, reducing the time of exposure, and using sediment control devices.
- To protect important eelgrass habitat in the lower intertidal and offshore areas, propulsion systems will not be used on landing craft, tugs, self-propelled barges or other craft using the barge landing site when tidal stage is less than half (7.6' mean lower low water).

Additional detail on BMP's for the barge landing site are listed in the relevant permit and Lease applications for the construction and use of the barge landing facility.

3.1.6.5 Waste Rock Disposal/Storage Areas and Sediment/Treatment Ponds (Typical BMP's)

The following best management practices will be followed:

- All runoff draining from the waste rock disposal/storage areas will be collected and diverted to sedimentation ponds (NAG site) or sedimentation/treatment ponds (PAG site) respectively.
- Land application and infiltration areas will be designed to detain and infiltrate all runoff from the PAG waste rock storage area and discharge from the adit.
- Runoff from the NAG waste rock storage site will be routed from the sedimentation ponds to sediment traps, and then distributed to undisturbed forest or back into existing drainage channels.

Additional detail on BMP's and water management plans for the waste rock storage areas and sediment/treatment ponds are provided in Section 2.1.15, in the Storm Water Pollution Prevention Plan (Appendix 4), and relevant permit applications.

3.1.6.6 Spill Prevention and Response

Refer to C-Plan discussion in Section 2.5.16.3 above.

3.2 BIOLOGICAL RESOURCES

The operator will follow Best Management Practices to protect fish and wildlife species and habitat. Specifically:

- Signs will be posted in conspicuous places that inform employees and contractors of all applicable laws and regulations governing hunting, fishing, and trapping.
- Employees will be strictly prohibited from feeding animals or leaving edible materials in construction zones or work areas.
- Service and access roads along will be limited to non-sensitive locations avoiding critical wildlife habitats.
- Work vehicles will be operated at safe speeds at all times.
- Raptor nesting sites will be evaluated to assess protective measures.
- A 330 foot buffer zone will be maintained near bald eagle nests that are active during project development, if nesting is found to occur near the construction site.
- Stream flows will be maintained to provide minimum instream flow requirements necessary to support existing resident and anadromous fisheries.
- Formal consultation will occur with the U.S. Fish and Wildlife Service and the National Marine Fisheries Services on threatened and endangered species, and any applicable requirements will be adhered to.

3.3 METEOROLOGY

In May of 1997, an automated weather station was installed near the personnel camp. It recorded the following hourly:

- air temperature;
- precipitation;
- wind speed; and
- wind direction.

All recorded data was stored in a datalogger, which was downloaded in November 8, 1997. Upon return to the site in April 2005, the meteorological station and datalogger were found to be missing and presumed stolen. A new station was installed on site in the fall of 2006. Meteorological data collection will continue throughout the life of the Niblack Project.

Meteorological data is available from the Alaska Climate Research Centre for a station at Ketchikan, Alaska. Average monthly and annual temperature, precipitation and snowfall for 1971 to 2000 are presented in Table 3.5 and Figures 3.2 and 3.3.

3.4 LAND USE

3.4.1 Federal and State Parks and/or Protected Areas

The Niblack Project is surrounded by the Tongass National Forest, managed by the United States Forest Service (USFS). Operations on USFS land in the area are governed by the Tongass Land Management Plan (TLMP). The proposed exploration activity will, however, occur entirely on patented claims.

3.4.2 Patented Claims

Figure 2.2 illustrates the patented claims held by Niblack Mining Corp at the Niblack Project. The proposed exploration activities will occur exclusively on these claims. Designated post-project closure land use for these privately held lands include mineral development or other commercial uses. Wildlife habitat and recreation will also be a consideration for post-project closure use.

3.4.3 Recreation

The Operator will employ the following management practices with regard to recreation and public access:

- Public access will be restricted in the active work areas;
- All project-related roads will be constructed in compliance with current Forest Service road construction requirements;
- The Operator will protect existing public recreation access in the project area, especially for hunters or anglers, where access will not endanger or impede the public or exploration project operations;
- No unsupervised public access will be allowed to the immediate project area; and
- Public access to the area will be regulated as required to facilitate the operations and to protect the public and, to the extent possible, wildlife from safety hazards associated with the exploration activities.

3.5 WETLANDS

The National Wetlands Inventory (NWI) has classified and mapped the wetlands surrounding the Niblack Project. NWI classifications were ground-truthed during an on-site field investigation completed February 15-16, 2006 by HDR Alaska Inc. A Preliminary Jurisdictional Determination prepared by HDR Alaska Inc. received approval by the U.S. Army Corps of Engineers in a letter dated March 31, 2006 (Appendix 1). Based on the Preliminary Jurisdictional Determination, none of the proposed development work will disturb area designated as wetland.

3.6 GOVERNMENT SERVICES / PUBLIC FACILITIES

The USFS operates back-country “wilderness” cabins on Prince of Wales Island. These cabins sleep six and provide little except a wood stove and shelter and are charged out at a rate of $25 to $45 per night. There are two such Public Use Cabins operated in the vicinity of the Niblack Project. The Kegan Cove Cabin is 30 air miles southwest of Ketchikan, or can be accessed by boat (although boat access is difficult at low tide). The Kegan Creek Cabin is located just to the north of the Kegan Cove Cabin, on the southern tip of Kegan Lake. There is a half-mile long trail which links the two cabins. Both cabins allow access to hunting and fishing, during regulated seasons. The Kegan Cove Cabin is available year-round, while the Kegan Creek Cabin is only available April through November.

The proposed exploration activities at the Niblack Project will be located approximately 3.5 miles to the north of the Kegan Creek and Kegan Cove cabins. In addition, Niblack Project activities will be separated from the cabins by a headland of high relief, with heights of 1850 feet. Operations at the Niblack Project are not expected to detract from the use of either cabin in any way.

3.7 CULTURAL AND PALEONTOLOGICAL RESOURCES

Any objects of historic or archaeological interest or articles of potential significance discovered as a result of construction and/or operation at the Niblack Project will be brought to the attention of the State Historic Preservation Officer (SHPO). Construction and/or operating activities which adversely impact objects of historic or archaeological interest will cease until appropriate clearances are issued.

SECTION 4.0 - RECLAMATION AND CLOSURE PLANS

A Reclamation and Closure Plan for the Niblack Underground Exploration Project is presented under separate cover (Appendix 6). The Plan addresses conceptual reclamation principles and facility-specific reclamation plans that have been developed as a key component of the Plan of Operations for closure of the property. The plan also includes a cost estimate to be used for bonding purposes. A summary of Niblack Mining Corporation's corporate environmental policy, reclamation goals, and reclamation and closure principles are provided below. For specific reclamation and closure details refer to Appendix 6.

4.1 NIBLACK CORPORATE ENVIRONMENTAL POLICY AND RECLAMATION GOALS

NMC has adopted a Corporate Environmental Policy, which states, in summary, that the company is committed to protecting the environment, while at the same time operating the project in a responsible manner to maximize the benefits of a modern exploration and extractive industry. This is the primary policy upon which the reclamation and closure plan is derived.

NMC's long-term goals of reclamation during and after underground exploration activities are to return the land to a safe and stable condition, consistent with the establishment of productive post-project closure uses. The designated post-project closure uses for the project area are defined as mineral development or other commercial use. Wildlife habitat and recreation will also be a consideration for post-project closure use.

Niblack will adhere to the above philosophy in developing and implementing the following reclamation goals at the project site:

1. Stabilization and protection of soil materials from wind and water erosion;
2. Stabilization of steep slopes through recontouring and leveling to provide rounded landforms and suitable growth media surfaces for natural invasion and recolonization by native plants;
3. Establishment of long-term, self-sustaining vegetation communities by reseeding with native plants and promoting natural recolonization and succession;
4. Protection of surface and ground water quality, and compliance with all water quality standards during operation and at closure;
5. Protection of public health by reducing potential hazards typically associated with construction sites;
6. Protection of fisheries, wildlife habitat, and recreational resources; and
7. Minimization of long-term closure requirements, especially for ongoing care and maintenance.

NMC has incorporated sound engineering principles in this reclamation and closure plan to achieve these goals and post-closure uses.

4.2 SUMMARY OF SITE SPECIFIC RECLAMATION GOALS

The first step in the reclamation process will involve the removal and storage of topsoil and other growth media from all areas to be disturbed. Stockpiled topsoil and growth media would be seeded or covered with salvaged vegetation to reduce the potential for erosion during storage and maintain viability. This is particularly important for the PAG and NAG waste sites, where the base foundations would be cleared for geotechnical purposes.

Relocation of PAG material back underground and reclamation of the PAG site will commence upon project closure. Portal closure, including installation of cement plug, will commence after all PAG material has been relocated to the back of the adit. Other reclamation will include re-countering and topsoil placement at the NAG site, water treatment facility and sediment ponds. Later stages of final reclamation may include the removal of stormwater diversions and sedimentation ponds where they are no longer needed. All reclaimed areas will be seeded to aid erosion control and re-establish natural vegetation. A monitoring program would be implemented to track reclamation success.

Roads and associated laydown/storage areas would remain in place as required for post-closure monitoring activities and for designated post-closure land use (mineral development and other commercial uses). Post-closure operation and maintenance of the road, including culverts and bridge crossing, will be in accordance with the terms and conditions of the ADNR Office of Habitat Management and Permitting (OHM&P) Fish Habitat Permit and US Army Corps of Engineers Permit.

Reclamation of barge landing and mooring facilities will occur upon termination of the Tideland Lease, and is bonded (performance guarantee) separately from the rest of the project site. Operation, maintenance, and ultimate reclamation of the barge landing and mooring facility, will be in accordance with the terms and conditions of the ADNR Division of Mining, Land and Water Tideland Lease, and US Army Corps of Engineers Permits.

4.3 RECLAMATION AND CLOSURE PRINCIPLES

In addition to the general goals discussed above, the following reclamation and closure principles will apply for the life of the project and during closure:

1. The reclamation and closure plan will describe reclamation requirements as they relate to interim reclamation, temporary closure, and final reclamation at closure.

2. All surface disturbances associated with the Niblack Construction and Exploration Project will be bonded for an amount equal to the actual cost estimate of reclaiming the disturbed areas.

3. Bond release criteria will be developed for all reclamation activities.

4. Soil or soil-like growth media (organic material and/or suitable subsoil) will be inventoried for volume and general reclamation suitability and stored for future reclamation use. Protection from erosion will be provided.

5. Disturbed areas no longer involved in exploration activities will receive reclamation treatment within two years, as described in the reclamation and closure plan.

6. Best management practices (BMPs) for interim drainage stabilization and erosion control will be implemented during the life of the project.

7. Sediment control facilities such as dispersion terraces, ponds, dikes, and infiltration basins will be designed and installed before surface-disturbing activities begin. These facilities will be inspected regularly, and maintained according to the schedule defined in the storm water pollution prevention plan.

8. Following construction, cut-and-fill embankments and growth media stockpiles will be seeded with native grasses or covered with salvaged vegetation to reduce the potential for soil erosion and to enhance natural plant reinvasion.

9. Unchanneled runoff from disturbed surface areas will be dispersed into undisturbed forest areas, to the extent practicable. This is a key water management feature.

10. Engineered facilities and associated construction materials will be monitored during construction, operation, and a defined post-closure period. This will enhance waste management and recycle opportunities.

SECTION 5.0 - PROJECT OWNERSHIP

The Niblack Project is owned by Niblack Mining Corp of Vancouver, British Columbia, Canada. Administrative information for the Niblack Project is presented below:

Owner/Operator:	Niblack Mining Corp. Suite 615 – 800 West Pender Vancouver, British Columbia Canada V6C 2V6
U.S. Incorporation:	Abacus Alaska Inc. c/o Guess & Rudd (The Law Offices of) Suite 700, 510 L Street Anchorage, AK 99501-1986 U.S.A.
Contact:	Paddy Nicol President, Niblack Mining Corp. Suite 615 – 800 West Pender Vancouver, British Columbia Canada V6C 2V6 (604) 484-5045

The Project is located on patented mining claims as shown on Figure 2.2. Work will be conducted on patented claims within mineral survey numbers 533, 644, and 1437 (Table 5.1).

NIBLACK

SECTION 6.0 - CERTIFICATION

This report was prepared and approved by the undersigned.

Prepared by: ______________________________

Darwin Green, M.Sc., P.Geo.
Vice President Exploration

Approved by: ______________________________

Paddy Nicol, MBA
President

TABLE 2.1

NIBLACK MINING CORP
NIBLACK PROJECT

UNDERGROUND EXPLORATION PLAN OF OPERATIONS
SUMMARY OF ORE PRODUCTION
NIBLACK MINE, 1905 TO 1908

Year	Tons Shipped	Cu (%)	Au (opt)	Ag (opt)
1905	4,236	4.42	0.038	0.96
1906	10,502	2.78	0.032	0.48
1907	9,025	3.05	0.033	0.6
1908	6,705	3.32	0.082	0.93
	30,467	3.2	0.044	0.68

TABLE 2.2

NIBLACK MINING CORP
NIBLACK PROJECT

UNDERGROUND EXPLORATION PLAN OF OPERATIONS
SUMMARY OF DIAMOND DRILLING
1975 TO 2006

Year	Company	# of Holes	Feet	Core size	Hole
1975	Cominco	6	2,893	NQ*	
1978	Anaconda	1	1,132	??	
1982-83	Noranda	18	8,536	NX*	
1984-89	Lac	20	10,912	NX	
1992-93	Lac	14	15,712	NQ*	
1995	Abacus	19	12,755	NQ*	
1996	Abacus	45	34,612	NQ*	
1997	Abacus	37	36,373	NQ*	
2005	Niblack	7	6215	NQ*	
2006	Niblack	32	27,369	NQ*	
	Totals:	199	156,509		

Note: In a few cases, holes were reduced to B size for short distances because of drilling difficulties.

TABLE 2.3

NIBLACK MINING CORP
NIBLACK PROJECT

WHOLE ROCK ANALYSES
OF HANGING WALL, FOOTWALL AND LOOKOUT STRATIGRAPHY

Rock Type and Description	Stratigraphic Location	Hole Number	Sample Number	Interval From (ft)	Interval To (ft)	Interval Length (ft)	Al_2O_3 (%)	CaO (%)	Cr_2O_3 (%)	Fe_2O_3 (%)	K_2O (%)	MgO (%)	MnO (%)	Na_2O (%)	SiO_2 (%)	P_2O_5 (%)	TiO_2 (%)	Nb ppm	Rb ppm	Sr ppm	Y ppm	Zr ppm	LOI (%)	Total (%)
FOOTWALL UNIT																								
Footwall Sediments																								
Andesitic laminated sediments- weak to mod chl+e	FW	LO-100	NBC04345	248.0	258.0	10.0	12.63	2.09	0.01	5.65	0.07	2.13	0.17	5.09	69.69	0.07	0.32	2.00	2.00	124.00	32.00	78.00	1.67	99.58
Andesitic laminated sediments- weak to mod chl+e	FW	LO-107	NBC05051	1169.0	1171.0	2.0	14.26	5.51	0.01	11.22	0.06	4.44	0.26	3.15	55.77	0.19	0.80	2.00	2.00	348.00	24.00	63.00	3.65	99.32
Andesitic laminated sediments- weak to mod chl+e	FW	LO-107	NBC05054	1263.0	1265.0	2.0	15.34	4.48	0.01	12.37	0.10	3.43	0.20	5.78	51.78	0.07	0.64	2.00	2.00	48.00	14.00	21.00	4.91	99.10
Footwall Sediment Average							**14.08**	**4.03**	**0.01**	**9.75**	**0.08**	**3.33**	**0.21**	**4.67**	**59.08**	**0.11**	**0.59**	**2.00**	**2.00**	**173.33**	**23.33**	**54.00**	**3.41**	**99.33**
Footwall Flow																								
Autobrecciated massive rhyolite flow - devitrified (strong chl	FW	LO-104	NBC04739	440.0	442.0	2.0	11.47	2.74	0.01	4.16	0.08	1.68	0.11	5.17	70.14	0.09	0.47	2.00	2.00	64.00	34.00	99.00	1.95	98.06
Autobrecciated massive rhyolite flow - devitrified (strong chl	FW	LO-112	NBC05135	412.0	413.0	1.0	15.39	4.01	0.01	12.26	0.08	4.56	0.24	5.41	52.35	0.06	0.59	2.00	2.00	104.00	12.00	33.00	4.41	99.36
Autobrecciated massive rhyolite flow	FW	LO-107	NBC04998	985.0	987.0	2.0	16.52	6.03	0.01	8.05	0.38	3.82	0.42	3.90	55.66	0.13	0.66	2.00	10.00	116.00	42.00	114.00	3.03	98.60
Magnetic mafic very fine tuff / flow	FW	LO-146	NBC05802	993.0	995.0	2.0	10.65	2.14	0.01	7.88	0.08	0.81	0.16	5.64	69.13	0.08	0.39	1.00	1.00	72.00	20.00	36.00	1.45	98.41
Massive magnetic mafic flow	FW	LO-102	NBC04567	676.0	681.0	5.0	16.35	4.12	0.01	10.69	0.08	3.88	0.20	6.67	53.41	0.06	0.53	2.00	6.00	138.00	16.00	39.00	3.34	99.33
Autobrecciated feldspar porph. mafic flow - strong chl in matri	FW	LO-108	NBC06011	400.0	401.0	1.0	11.69	1.38	0.01	14.24	0.05	8.14	0.77	0.95	53.80	0.02	0.50	2.00	2.00	22.00	6.00	12.00	6.72	98.27
Massive magnetic mafic flow comple›	FW	LO-108	NBC06066	1207.0	1208.0	1.0	16.48	4.66	0.01	13.36	0.08	4.58	0.36	4.23	50.90	0.05	0.70	2.00	2.00	322.00	14.00	33.00	3.78	99.18
Footwall Flow Average							**14.08**	**3.58**	**0.01**	**10.09**	**0.12**	**3.92**	**0.32**	**4.57**	**57.91**	**0.07**	**0.55**	**1.86**	**3.57**	**119.71**	**20.57**	**52.29**	**3.53**	**98.74**
Footwall Amygdaloidal Flov																								
Amygdaloidal rhyo-dacite -mod to strong ser+sil 1-2% pyrite	FW	LO-111	NBC06101	42.0	47.0	5.0	11.73	0.21	0.01	4.01	1.59	2.10	0.04	2.21	73.27	0.08	0.44	2.00	14.00	46.00	32.00	120.00	3.00	98.68
Amygdaloidal rhyo-dacite -mod se	FW	LO-111	NBC06104	223.0	228.0	5.0																		
Amygdaloidal rhyo-dacite -mod ser (brecciated appearance	FW	LO-111	NBC06111	417.0	422.0	5.0	12.30	0.45	0.01	5.96	2.20	3.01	0.04	1.15	68.60	0.12	0.61	2.00	30.00	60.00	32.00	108.00	4.12	98.56
Amygdaloidal rhyo-dacite -mod ser (brecciated appearance	FW	LO-111	NBC06114	499.0	504.0	5.0	14.56	0.56	0.01	14.81	0.96	8.28	0.25	1.51	48.19	0.04	0.52	2.00	10.00	38.00	8.00	18.00	8.45	98.13
Amygdaloidal rhyo-dacite -mod se	FW	LO-113	NBC06148	52.0	57.0	5.0	12.83	0.21	0.01	5.30	1.52	2.32	0.04	2.73	70.44	0.09	0.47	2.00	14.00	54.00	38.00	120.00	3.62	99.57
Amygdaloidal rhyo-dacite -mod se	FW	LO-113	NBC06157	435.0	439.0	4.0	12.95	1.00	0.01	6.47	1.93	3.56	0.06	1.62	66.02	0.11	0.56	4.00	24.00	86.00	32.00	153.00	4.90	99.18
Amygdaloidal rhyo-dacite -mod ser 7% pyrite	FW	LO-113	NBC06162	578.0	583.0	5.0	14.72	0.26	0.01	20.94	2.36	7.95	0.15	0.06	39.78	0.05	0.49	2.00	24.00	24.00	10.00	18.00	12.76	99.52
Amygdaloidal rhyo-dacite -mod ser 1-6% pyrite	FW	LO-123	NBC06309	633.0	634.0	1.0	12.92	1.14	0.01	13.38	0.05	7.52	0.38	3.06	52.12	0.03	0.54	1.00	1.00	42.00	6.00	17.00	7.46	98.60
Amygdaloidal mafic flow - mod to strong carb	FW	LO-117	NBC06183	166.0	171.0	5.0	13.51	1.70	0.01	11.84	0.99	4.35	0.26	2.41	57.64	0.09	0.98	4.00	8.00	20.00	20.00	57.00	5.00	98.77
Amygdaloidal mafic flow - mod to strong carb 1-2% pyrite stringers	FW	LO-117	NBC06185	255.0	260.0	5.0	12.88	1.29	0.01	9.02	1.73	2.32	0.30	2.16	63.15	0.13	0.67	4.00	14.00	6.00	30.00	75.00	4.49	98.14
Amygdaloidal mafic flow - mod to strong carb 1% pyrite	FW	LO-117	NBC06189	500.0	505.0	5.0	13.64	0.68	0.01	8.12	0.50	4.68	0.29	3.46	62.99	0.13	0.72	4.00	4.00	30.00	32.00	81.00	3.93	99.14
Amygdaloidal mafic flow - mod to strong carb 3-5% pyrite	FW	LO-117	NBC06198	727.0	732.0	5.0	14.74	0.99	0.01	14.22	0.10	12.10	0.50	1.53	45.34	0.06	0.70	2.00	2.00	8.00	8.00	24.00	8.73	99.02
Amygdaloidal mafic flow - mod to strong carb	FW	LO-123	NBC06306	418.0	419.0	1.0	13.52	0.57	0.01	7.03	0.71	2.85	0.23	3.78	66.40	0.13	0.68	1.00	7.00	38.00	30.00	69.00	2.89	98.79
Footwall Amygdaloidal Flow Averag							**13.36**	**0.76**	**0.01**	**10.09**	**1.22**	**5.09**	**0.21**	**2.14**	**59.50**	**0.09**	**0.62**	**2.50**	**12.67**	**37.67**	**23.17**	**71.67**	**5.78**	**98.84**
Footwall Average							**14.05**	**3.03**	**0.01**	**9.94**	**0.18**	**4.39**	**0.30**	**4.21**	**58.26**	**0.09**	**0.59**	**2.00**	**3.38**	**110.31**	**21.85**	**54.00**	**3.88**	**98.94**
LOOKOUT UNIT																								
Lookout Breccia																								
Rhyolite stringer zone - massive, 25-40% sulphide	LO	LO-099	NBC04358	226.0	229.4	3.4																		
Massive polylithic breccia, subrounded clast supported - mod sil + e	LO	LO-104	NBC04720	301.0	303.0	2.0	12.53	1.76	0.01	3.40	1.88	1.94	0.13	2.78	70.52	0.07	0.33	2.00	28.00	86.00	34.00	102.00	2.75	98.09
Massive magnetic mafic flow/dyke comple›	LO	LO-113	NBC06177	915.0	920.0	5.0	13.39	1.38	0.01	3.15	1.88	1.62	0.08	3.68	72.11	0.05	0.27	2.00	26.00	78.00	26.00	81.00	1.67	99.28
Massive polylithic breccia, subrounded clast supported - 10-15% sulphide	LO	LO-117	NBC06227	991.0	996.0	5.0	10.57	0.69	0.01	21.11	1.23	2.61	0.06	3.38	44.46	0.05	0.46	2.00	6.00	6.00	6.00	12.00	10.83	95.45
Massive polylithic breccia, subrounded clast supported - 10-15% sulphide	LO	LO-117	NBC06236	1023.0	1028.0	5.0	11.86	0.48	0.01	15.92	1.26	2.03	0.08	3.91	50.26	0.06	0.57	2.00	6.00	4.00	6.00	18.00	8.35	94.78
Lookout Breccia Average							**12.09**	**1.08**	**0.01**	**10.90**	**1.56**	**2.05**	**0.09**	**3.44**	**59.34**	**0.06**	**0.41**	**2.00**	**16.50**	**43.50**	**18.00**	**53.25**	**5.90**	**96.90**
Lookout Tuff																								
Quartz crystal rhyolite lappili tuff - weak ser+chl+hem alteratic	LO	LO-096	NBC04248	260.0	265.0	5.0	13.33	2.31	0.01	3.38	2.18	1.92	0.12	2.00	70.23	0.06	0.33	2.00	30.00	106.00	34.00	111.00	2.93	98.79
Quartz crystal rhyolite agglomeritic lappili tuff - mod chl+sil alteratic	LO	LO-096	NBC04250	373.0	378.0	5.0	13.17	1.43	0.01	3.95	0.16	1.62	0.12	6.67	68.60	0.07	0.37	2.00	4.00	86.00	30.00	93.00	2.59	98.75
Fine quartz crystal rhyolite tuff - mod limonite, se	LO	LO-102	NBC04537	165.0	170.0	5.0	12.75	0.08	0.01	3.84	3.28	1.06	0.04	0.66	75.07	0.05	0.38	4.00	50.00	28.00	34.00	108.00	2.89	100.10
Quartz crystal rhyolite lappili tuff -strong ser weak chl+carb alteratic	LO	LO-104	NBC04713	32.0	34.0	2.0	12.12	2.22	0.01	2.17	1.79	2.29	0.10	1.38	71.83	0.05	0.27	2.00	24.00	110.00	36.00	123.00	5.00	99.22
Coarse quartz crystal rhyolite lappili tuff -strong sil weak ser + chl alteratic	LO	LO-104	NBC04719	253.0	255.0	2.0	10.97	2.00	0.01	2.17	1.64	0.79	0.08	2.80	75.05	0.04	0.25	2.00	28.00	106.00	28.00	87.00	2.58	98.37
Quartz crystal, lithic aggl. lappili tuff - 3-5% pyrit	LO	LO-107	NBC04940	683.0	688.0	5.0	15.13	4.11	0.01	5.23	1.82	3.62	0.16	3.14	60.41	0.07	0.44	2.00	30.00	128.00	34.00	99.00	4.13	98.26
Quartz crystal rhyolite lappili tuff - weak ser+chl alteratic	LO	LO-148	NBC05832	549.0	551.0	2.0	12.72	1.93	0.01	2.98	0.50	0.56	0.05	5.92	71.41	0.04	0.33	1.00	10.00	79.00	30.00	92.00	2.11	98.55
Quartz crystal, lithic aggl. lappili tuff -weak to mod ser + c	LO	LO-108	NBC06031	655.0	657.0	2.0	13.38	0.65	0.01	5.39	0.46	3.11	0.11	4.77	69.21	0.07	0.41	2.00	4.00	86.00	26.00	77.00	2.24	99.80
Quartz crystal, lithic aggl. lappili tuff - 10-20% sulphide	LO	LO-111	NBC06129	831.0	834.0	3.0	13.24	0.69	0.01	11.34	1.79	2.54	0.07	3.36	58.61	0.06	0.51	2.00	22.00	46.00	22.00	117.00	6.15	98.36
Quartz crystal rhyolite tuff - 10-20% sulphide	LO	LO-111	NBC06141	1021.0	1024.0	3.0	7.71	0.21	0.01	9.90	1.67	0.62	0.04	1.91	70.37	0.02	0.26	2.00	20.00	24.00	16.00	54.00	5.33	98.04
Quartz crystal rhyolite lappili tuff -mod ser alteratio	LO	LO-117	NBC06254	1250.0	1255.0	5.0	12.03	1.43	0.01	2.57	1.54	1.47	0.23	3.83	73.54	0.05	0.26	4.00	22.00	46.00	26.00	90.00	1.41	98.36
Quartz crystal rhyolite lappili tuff -5-15% pyrit	LO	LO-122	NBC06261	299.0	304.0	5.0	11.11	0.12	0.01	10.48	2.98	0.17	0.01	0.31	67.14	0.07	0.36	2.00	34.00	34.00	24.00	63.00	6.54	99.29
Quartz crystal rhyolite lappili tuff -mod chlorit	LO	LO-122	NBC06279	384.0	389.0	5.0	10.81	1.02	0.01	17.48	0.31	5.77	0.15	1.17	53.43	0.07	0.63	2.00	10.00	18.00	22.00	57.00	8.24	99.09
Quartz crystal rhyolite agglomeritic lappili tuff (stringer zone) - 1-3% sulphide	LO	LO-126	NBC06408	1309.0	1312.0	3.0	16.84	0.10	0.01	3.07	4.84	2.21	0.02	0.22	66.36	0.05	0.51	2.00	34.00	64.00	47.00	130.00	4.13	98.35
Lookout Tuff Average							**12.52**	**1.31**	**0.01**	**6.00**	**1.78**	**1.98**	**0.09**	**2.72**	**67.95**	**0.06**	**0.38**	**2.21**	**23.00**	**68.64**	**29.21**	**92.93**	**4.02**	**98.81**
Lookout Unit Average							**12.43**	**1.26**	**0.01**	**7.09**	**1.73**	**2.00**	**0.09**	**2.88**	**66.03**	**0.06**	**0.39**	**2.17**	**21.56**	**63.06**	**26.72**	**84.11**	**4.44**	**98.39**
HANGING WALL UNIT																								
Hanging Wall Flow																								
Amygdaloidal feldspar porphyritic mafic flow - weak to mod carl	HW	LO-108	NBC06002	129.0	130.0	1.0	14.42	6.93	0.01	11.34	0.18	7.89	0.23	4.19	43.99	0.05	0.60	2.00	2.00	90.00	8.00	18.00	9.39	99.22
Amygdaloidal feldspar porphyritic rhyo-dacite - strong carl	HW	LO-108	NBC06014	467.0	468.0	1.0	12.33	10.58	0.01	10.01	0.05	11.19	0.18	0.05	41.02	0.10	0.80	2.00	2.00	188.00	14.00	45.00	13.13	99.45
Feldspar amphibole porphyritic mafic flow / tuf	HW	LO-102	NBC04530	57.0	60.0	3.0	15.28	8.53	0.01	10.08	1.10	3.41	0.18	3.20	44.94	0.23	1.02	2.00	14.00	344.00	22.00	72.00	12.18	100.15
Brecciated massive mafic flow	HW	LO-107	NBC04901	126.0	129.0	3.0	15.56	6.79	0.01	12.58	0.35	7.33	0.21	4.78	41.87	0.04	0.66	2.00	10.00	96.00	8.00	30.00	8.31	98.49
Coarse feldspar porphyritic dyke	HW	LO-107	NBC04904	284.0	286.0	2.0																		
Magnetic mafic complex (flows / dykes	HW	LO-148	NBC05844	858.0	862.0	4.0	14.36	5.32	0.01	10.88	0.08	6.82	0.20	4.33	49.27	0.08	0.69	1.00	1.00	112.00	16.00	42.00	6.29	98.33
Magnetic mafic complex (flows / dykes	HW	LO-148	NBC05847	962.0	964.0	2.0	14.43	7.99	0.01	12.54	0.10	3.91	0.21	3.95	49.61	0.27	1.22	3.00	1.00	369.00	27.00	71.00	4.77	99.00
Feldspar porphyritic mafic flow - strong carl	HW	LO-108	NBC06008	348.0	349.0	1.0	15.28	10.39	0.01	10.68	0.43	3.70	0.19	1.98	45.40	0.19	1.11	2.00	4.00	464.00	18.00	51.00	10.15	99.51
Autobrecciated feldspar porph. mafic flow - strong chl in matri	HW	LO-108	NBC06011	400.0	401.0	1.0	11.69	1.38	0.01	14.24	0.05	8.14	0.77	0.95	53.80	0.02	0.50	2.00	2.00	22.00	6.00	12.00	6.72	98.27
Massive magnetic mafic flow/dyke comple›	HW	LO-122	NBC06255	89.0	94.0	5.0	15.66	3.76	0.01	11.89	0.09	5.21	0.19	5.72	52.30	0.04	0.53	2.00	8.00	126.00	12.00	36.00	3.78	99.17
Mafic breccia (hayloclastite) - trace pyrite	HW	LO-124	NBC06574	730.0	739.0	9.0																		
Massive magnetic mafic flows	HW	LO-145	NBC07322	1153.0	1154.0	1.0																		
Hanging Wall flow average							**14.33**	**6.85**	**0.01**	**11.58**	**0.27**	**6.40**	**0.26**	**3.24**	**46.91**	**0.11**	**0.79**	**2.00**	**4.89**	**201.22**	**14.56**	**41.89**	**8.30**	**99.07**
Hanging Wall Sediments																								
Andesitic laminated sediments- weak to mod carb+chl+e	HW	LO-111	NBC06145	1081.0	1084.0	3.0	9.25	1.79	0.01	4.30	0.07	1.61	0.16	3.60	76.11	0.05	0.30	2.00	2.00	82.00	18.00	54.00	1.59	98.83
Andesitic laminated sediments- weak to mod carb+chl+e	HW	LO-113	NBC06180	1221.0	1224.0	3.0	16.01	3.19	0.01	12.99	0.09	4.01	0.21	5.03	54.95	0.05	0.62	2.00	2.00	110.00	14.00	27.00	2.87	100.02
Andesitic laminated sediments- weak to mod carb+chl+e	HW	LO-123	NBC06331	1368.0	1369.0	1.0	15.17	4.77	0.01	11.51	0.16	2.90	0.20	4.77	55.48	0.08	0.75	1.00	2.00	149.00	22.00	62.00	2.93	98.72
Andesitic laminated sediments- weak to mod carb+chl+e	HW	LO-126	NBC06429	1460.0	1463.0	3.0	12.46	0.96	0.01	5.57	0.12	2.46	0.19	5.31	69.67	0.14	0.44	3.00	1.00	83.00	21.00	70.00	1.74	99.06
Hanging Wall sediment average							**13.22**	**2.68**	**0.01**	**8.59**	**0.11**	**2.75**	**0.19**	**4.68**	**64.05**	**0.08**	**0.53**	**2.00**	**1.75**	**106.00**	**18.75**	**53.25**	**2.28**	**99.16**
Hanging Wall Sediments																								
Hanging wall mafic flows and sediment	HW	LO-084	NBCA01	670.0	672.0	2.0																		
Hanging wall mafic flows and sediment	HW	LO-088	NBCA03	530.0	532.0	2.0																		
Hanging wall mafic flows and sediment	HW	LO-090	NBCA04	650.0	652.0	2.0																		
Hanging wall mafic flows and sediment	HW	LO-090	NBCA05	720.0	722.0	2.0																		
Hanging wall mafic flows and sediment	HW	LO-092	NBCA06	480.0	482.0	2.0																		
Hanging wall mafic flows and sediment	HW	LO-095	NBCA07	450.0	452.0	2.0																		
Hanging wall mafic flows and sediment	HW	LO-099	NBCA08	550.0	552.0	2.0																		
Hanging wall mafic flows and sediment	HW	LO-102	NBCA09	700.0	702.0	2.0																		
Hanging wall mafic flows and sediment	HW	L0-103	NBCA10	806.0	808.0	2.0																		
Hanging wall mafic flows and sediment	HW	LO-106	NBCA11	850.0	852.0	2.0																		
Hanging wall mafic flows and sediment	HW	LO-109	NBCA12	950.0	952.0	2.0																		
Hanging wall mafic flows and sediment	HW	LO-115	NBCA13	400.0	402.0	2.0																		
Hanging wall mafic flows and sediment	HW	LO-115	NBCA14	500.0	502.0	2.0																		
Hanging wall mafic flows and sediment	HW	LO-119	NBCA15	490.0	492.0	2.0																		
Hanging Wall average							**13.99**	**5.57**	**0.01**	**10.66**	**0.22**	**5.28**	**0.24**	**3.68**	**52.19**	**0.10**	**0.71**	**2.00**	**3.92**	**171.92**	**15.85**	**45.38**	**6.45**	**99.09**
Average of all samples			Average total				**13.33**	**2.66**	**0.01**	**9.19**	**0.94**	**3.83**	**0.19**	**3.23**	**59.69**	**0.08**	**0.55**	**2.15**	**11.74**	**97.74**	**22.25**	**65.89**	**5.06**	**98.76**

Note 1: The detection limit has been used for plotting samples below the detection limit (<0.01 to 0.01 for S % and <0.2 to 0.2 for CO2%)
Note 2: Samples beginning with NBCA were not tested for sulphide-sulphur, sulphate-sulphur, or inorganic carbon. For the NPR-S graph, sulphide-sulphur values were calculated using the relationship between sulphide-sulphur and total sulphur from the NBCO samples.
Note 3: Abreviations. carb = carbonate, sil = silicification, chl = chlorite, hem = hemitite, mod = moderate

TABLE 2.4

NIBLACK MINING CORP
NIBLACK PROJECT

ICP ANALYSES
OF HANGING WALL, FOOTWALL AND LOOKOUT STRATIGRAPHY

Rock Type and Description	Stratigraphic Location	Hole Number	Sample Number	Interval			Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	As (ppm)	Cd (ppm)	Ba (ppm)	V (ppm)	Sb (ppm)
				From (ft)	To (ft)	Length (ft)										
FOOTWALL UNIT																
Footwall Sediments																
Andesitic laminated sediments- weak to mod chl+ep	FW	LO-100	NBC04345	248	258	10		0.2	60	1	105	4	0.1	40	193	1
Andesitic laminated sediments- weak to mod chl+ep	FW	LO-107	NBC05051	1169	1171	2								10		
Andesitic laminated sediments- weak to mod chl+ep	FW	LO-107	NBC05054	1263	1265	2								20		
Footwall Sediment Average								0.20	60.00	1.00	105.00	4.00	0.10	23.33	193.00	1.00
Footwall Flow																
Autobrecciated massive rhyolite flow - devitrified (strong chl)	FW	LO-104	NBC04739	440	442	2								15		
Autobrecciated massive rhyolite flow - devitrified (strong chl)	FW	LO-112	NBC05135	412	413	1	10	0.2	18	4	85	8	0.1	15		0.2
Autobrecciated massive rhyolite flow	FW	LO-107	NBC04998	985	987	2	5	0.2	3	1	180	1	0.1	50		0.2
Magnetic mafic very fine tuff / flow	FW	LO-146	NBC05802	993	995	2	45	0.5	180	5	65	5		20	80	0.2
Massive magnetic mafic flow	FW	LO-102	NBC04567	676	681	5								35		
Autobrecciated feldspar porph. mafic flow - strong chl in matrix	FW	LO-108	NBC06011	400	401	1	85	0.8	230	1	9200	8	33	10	215	0.2
Massive magnetic mafic flow complex	FW	LO-108	NBC06066	1207	1208	1	5	0.2	114	5	355	1	1.2	15	365	0.2
Footwall Flow Average							30.00	0.38	109.00	3.20	1977.00	4.60	8.60	22.86	220.00	0.20
Footwall Amygdaloidal Flow																
Amygdaloidal rhyo-dacite -mod to strong ser+sil 1-2% pyrite	FW	LO-111	NBC06101	42	47	5	5	0.2	10	1	240	2	0.4	145		0.2
Amygdaloidal rhyo-dacite -mod ser	FW	LO-111	NBC06104	223	228	5	5	0.2	58	1	110	1		50		0.2
Amygdaloidal rhyo-dacite -mod ser (brecciated appearance)	FW	LO-111	NBC06111	417	422	5	10	0.2	70	1	340	10	0.1	390		0.2
Amygdaloidal rhyo-dacite -mod ser (brecciated appearance)	FW	LO-111	NBC06114	499	504	5	20	0.2	650	1	200	8	0.1	90		0.2
Amygdaloidal rhyo-dacite -mod ser	FW	LO-113	NBC06148	52	57	5	5	0.2	24	1	340	1	1.5	160		0.2
Amygdaloidal rhyo-dacite -mod ser	FW	LO-113	NBC06157	435	439	4	5	0.2	13	1	180	2	0.1	370		0.2
Amygdaloidal rhyo-dacite -mod ser 7% pyrite	FW	LO-113	NBC06162	578	583	5								215		
Amygdaloidal rhyo-dacite -mod ser 1-6% pyrite	FW	LO-123	NBC06309	633	634	1	70	0.5	145	2.5	4470	30		20	160	0.2
Amygdaloidal mafic flow - mod to strong carb	FW	LO-117	NBC06183	166	171	5	75	0.2	1150	5	600	2	0.1	100		0.2
Amygdaloidal mafic flow - mod to strong carb 1-2% pyrite stringers	FW	LO-117	NBC06185	255	260	5								165		
Amygdaloidal mafic flow - mod to strong carb 1% pyrite	FW	LO-117	NBC06189	500	505	5	15	0.2	110	10	700	10	0.1	60		0.2
Amygdaloidal mafic flow - mod to strong carb 3-5% pyrite	FW	LO-117	NBC06198	727	732	5								20		
Amygdaloidal mafic flow - mod to strong carb	FW	LO-123	NBC06306	418	419	1	5	0.5	320	5	165	10	1	20	40	0.2
Footwall Amygdaloidal Flow Average							21.50	0.26	255.00	2.85	734.50	7.60	0.43	138.85	100.00	0.20
Footwall Average							24.33	0.29	197.19	2.84	1083.44	6.44	2.92	88.48	175.50	0.25
LOOKOUT UNIT																
Lookout Breccia																
Rhyolite stringer zone - massive, 25-40% sulphides	LO	LO-099	NBC04358	226	229.4	3.4										
Massive polylithic breccia, subrounded clast supported - mod sil + ep	LO	LO-104	NBC04720	301	303	2								160		
Massive magnetic mafic flow/dyke complex	LO	LO-113	NBC06177	915	920	5	5	0.2	6	2	102	2	0.1	165		
Massive polylithic breccia, subrounded clast supported - 10-15% sulphides	LO	LO-117	NBC06227	991	996	5								415		
Massive polylithic breccia, subrounded clast supported - 10-15% sulphides	LO	LO-117	NBC06236	1023	1028	5								105		
Lookout Breccia Average							5.00	0.20	6.00	2.00	102.00	2.00	0.10	211.25		
Lookout Tuff																
Quartz crystal rhyolite lappili tuff - weak ser+chl+hem alteration	LO	LO-096	NBC04248	260	265	5								180		
Quartz crystal rhyolite agglomeritic lappili tuff - mod chl+sil alteration	LO	LO-096	NBC04250	373	378	5								35		
Fine quartz crystal rhyolite tuff - mod limonite, ser	LO	LO-102	NBC04537	165	170	5								735		
Quartz crystal rhyolite lappili tuff -strong ser weak chl+carb alteration	LO	LO-104	NBC04713	32	34	2								165		
Coarse quartz crystal rhyolite lappili tuff -strong sil weak ser + chl alteration	LO	LO-104	NBC04719	253	255	2								360		
Quartz crystal, lithic aggl. lappili tuff - 3-5% pyrite	LO	LO-107	NBC04940	683	688	5								490		
Quartz crystal rhyolite lappili tuff - weak ser+chl alteration	LO	LO-148	NBC05832	549	551	2	5	0.5	30	2.5	30	5	1	20	20	
Quartz crystal, lithic aggl. lappili tuff -weak to mod ser + chl	LO	LO-108	NBC06031	655	657	2	5	0.2	6	1	167	4	0.1	90	85	
Quartz crystal, lithic aggl. lappili tuff - 10-20% sulphides	LO	LO-111	NBC06129	831	834	3								380		
Quartz crystal rhyolite tuff - 10-20% sulphides	LO	LO-111	NBC06141	1021	1024	3								460		
Quartz crystal rhyolite lappili tuff -mod ser alteration	LO	LO-117	NBC06254	1250	1255	5	5	0.2	1	1	118	1	0.1	165		
Quartz crystal rhyolite lappili tuff -5-15% pyrite	LO	LO-122	NBC06261	299	304	5								415		
Quartz crystal rhyolite lappili tuff -mod chlorite	LO	LO-122	NBC06279	384	389	5								65		
Quartz crystal rhyolite agglomeritic lappili tuff (stringer zone) - 1-3% sulphides	LO	LO-126	NBC06408	1309	1312	3	115	1	665	2.5	1125	20	1	60	20	
Lookout Tuff Average							32.50	0.48	175.50	1.75	360.00	7.50	0.55	258.57	41.67	
Lookout Unit Average							27.00	0.42	141.60	1.80	308.40	6.40	0.46	248.06	41.67	
HANGING WALL UNIT																
Hanging Wall Flow																
Amygdaloidal feldspar porphyritic mafic flow - weak to mod carb	HW	LO-108	NBC06002	129	130	1	10	0.2	6	1	84	2	0.1	25	260	0.2
Amygdaloidal feldspar porphyritic rhyo-dacite - strong carb	HW	LO-108	NBC06014	467	468	1	5	0.2	14	2	81	1	0.1	10	280	0.2
Feldspar amphibole porphyritic mafic flow / tuff	HW	LO-102	NBC04530	57	60	3								320		
Brecciated massive mafic flow	HW	LO-107	NBC04901	126	129	3	5	0.2	4	2	78	1	0.1	85		0.2
Coarse feldspar porphyritic dyke	HW	LO-107	NBC04904	284	286	2		0.2	42	1	102	1	0.1	80		0.2
Magnetic mafic complex (flows / dykes)	HW	LO-148	NBC05844	858	862	4	5	0.5	120	2.5	320	5	1	20	280	0.2
Magnetic mafic complex (flows / dykes)	HW	LO-148	NBC05847	962	964	2	5	0.5	50	2.5	125	5	1	20	240	0.2
Feldspar porphyritic mafic flow - strong carb	HW	LO-108	NBC06008	348	349	1	5	0.2	81	1	84	1	0.1	80	320	0.2
Massive magnetic mafic flow/dyke complex	HW	LO-122	NBC06255	89	94	5	5	0.2	182	1	100	1	0.1	30		0.2
Mafic breccia (hayloclastite) - trace pyrite	HW	LO-124	NBC06574	730	739	9										
Massive magnetic mafic flows	HW	LO-145	NBC07322	1153	1154	1	10	0.5	95	2.5	85	30	1	20	340	0.2
Hanging Wall flow average							6.25	0.30	66.00	1.72	117.67	5.22	0.40	69.00	286.67	0.20
Hanging Wall Sediments																
Andesitic laminated sediments- weak to mod carb+chl+ep	HW	LO-111	NBC06145	1081	1084	3	5	0.2	28	14	60	1	0.1	15		0.2
Andesitic laminated sediments- weak to mod carb+chl+ep	HW	LO-113	NBC06180	1221	1224	3	5	0.2	170	1	108	2	0.1	20		0.2
Andesitic laminated sediments- weak to mod carb+chl+ep	HW	LO-123	NBC06331	1368	1369	1	5	0.5	85	2.5	115	5	1	20	140	0.2
Andesitic laminated sediments- weak to mod carb+chl+ep	HW	LO-126	NBC06429	1460	1463	3	5	0.5	95	2.5	100	5	1	20	80	0.2
Hanging Wall sediment average							5.00	0.35	94.50	5.00	95.75	3.25	0.55	18.75	110.00	0.20
Hanging Wall Sediments																
Hanging wall mafic flows and sediments	HW	LO-084	NBCA01	670	672	2										
Hanging wall mafic flows and sediments	HW	LO-088	NBCA03	530	532	2										
Hanging wall mafic flows and sediments	HW	LO-090	NBCA04	650	652	2										
Hanging wall mafic flows and sediments	HW	LO-090	NBCA05	720	722	2										
Hanging wall mafic flows and sediments	HW	LO-092	NBCA06	480	482	2										
Hanging wall mafic flows and sediments	HW	LO-095	NBCA07	450	452	2										
Hanging wall mafic flows and sediments	HW	LO-099	NBCA08	550	552	2										
Hanging wall mafic flows and sediments	HW	LO-102	NBCA09	700	702	2										
Hanging wall mafic flows and sediments	HW	L0-103	NBCA10	806	808	2										
Hanging wall mafic flows and sediments	HW	LO-106	NBCA11	850	852	2										
Hanging wall mafic flows and sediments	HW	LO-109	NBCA12	950	952	2										
Hanging wall mafic flows and sediments	HW	LO-115	NBCA13	400	402	2										
Hanging wall mafic flows and sediments	HW	LO-115	NBCA14	500	502	2										
Hanging wall mafic flows and sediments	HW	LO-119	NBCA15	490	492	2										
Hanging Wall average							5.83	0.32	74.77	2.73	110.92	4.62	0.45	54.64	242.50	0.20
Average of all samples							17.81	0.32	142.21	2.65	597.62	5.74	1.48	132.09	183.41	0.23

Note 1: The detection limit has been used for plotting samples below the detection limit (<0.01 to 0.01 for S % and <0.2 to 0.2 for CO2%)
Note 2: Samples beginning with NBCA were not tested for sulphide-sulphur, sulphate-sulphur, or inorganic carbon. For the NPR-S graph, sulphide-sulphur values were calculated using the relationship between sulphide-sulphur and total sulphur from the NBCO samples.
Note 3: Abreviations. carb = carbonate, sil = silicification, chl = chlorite, hem = hemitite, mod = moderate

TABLE 2.5

NIBLACK MINING CORP
NIBLACK PROJECT

ACID BASE ACCOUNTING (ABA)
OF HANGING WALL, FOOTWALL AND LOOKOUT STRATIGRAPHY

Rock Type and Description	Stratigraphic Location	Hole Number	Sample Number	Interval From (ft)	Interval To (ft)	Interval Length (ft)	Paste pH	Sulphate Sulphur (%)	Sulphide Sulphur (%)	Total Sulphur (%)	Inorganic CO2 %	Maximum Potential Acidity (t/1000t)	Neutralization Carbonate Potential (t/1000t)	Neutralization Potential (t/1000t)	Net Neutralization Potential (t/1000t)	NP/MPA Ratio	Fizz Test
FOOTWALL UNIT																	
Andesitic laminated sediments- weak to mod chl+ep	**FW**	LO-100	NBC04345	248.0	258.0	10.0	not/ss	not/ss	not/ss	not/ss	not/ss	not/ss	not/ss	not/ss	not/ss	not/ss	not/ss
Massive magnetic mafic flow	**FW**	LO-102	NBC04567	676.0	681.0	5.0	9.3	0.01	0.01	0.01	1.2	1	27.24	47	46	47.00	3
Autobrecciated massive rhyolite flow - devitrified (strong chl)	**FW**	LO-104	NBC04739	440.0	442.0	2.0	9.4	0.01	0.01	0.03	1.1	1	24.97	37	36	37.00	3
Autobrecciated massive rhyolite flow	**FW**	LO-107	NBC04998	985.0	987.0	2.0	9.2	0.01	0.01	0.01	3.7	1	83.99	19	18	19.00	2
Andesitic laminated sediments- weak to mod chl+ep	**FW**	LO-107	NBC05051	1169.0	1171.0	2.0	8.7	0.01	0.44	0.49	0.6	15	13.62	25	10	1.67	2
Andesitic laminated sediments- weak to mod chl+ep	**FW**	LO-107	NBC05054	1263.0	1265.0	2.0	8.9	0.01	0.14	0.19	2.9	6	65.83	75	69	12.50	3
Autobrecciated massive rhyolite flow - devitrified (strong chl)	**FW**	LO-112	NBC05135	412.0	413.0	1.0	9	0.01	0.01	0.01	2.2	1	49.94	53	52	53.00	3
Magnetic mafic very fine tuff / flow	**FW**	LO-146	NBC05802	993.0	995.0	2.0	9.9	0.02	0.01	0.02	1.2	1	27.24	28	27	28.00	2
Autobrecciated feldspar porph. mafic flow - strong chl in matrix	**FW**	LO-108	NBC06011	400.0	401.0	1.0	8.3	0.02	2.79	2.9	1.5	91	34.05	37	-54	0.41	2
Massive magnetic mafic flow complex	**FW**	LO-108	NBC06066	1207.0	1208.0	1.0	8.7	0.01	0.13	0.16	0.3	5	6.81	17	12	3.40	2
Amygdaloidal rhyo-dacite -mod to strong ser+sil 1-2% pyrite	**FW**	LO-111	NBC06101	42.0	47.0	5.0	8.5	0.02	1.86	1.9	0.2	59	4.54	5	-54	0.08	1
Amygdaloidal rhyo-dacite -mod ser	**FW**	LO-111	NBC06104	223.0	228.0	5.0											
Amygdaloidal rhyo-dacite -mod ser (brecciated appearance)	**FW**	LO-111	NBC06111	417.0	422.0	5.0	8.5	0.02	2.57	2.61	0.2	82	4.54	10	-72	0.12	1
Amygdaloidal rhyo-dacite -mod ser (brecciated appearance)	**FW**	LO-111	NBC06114	499.0	504.0	5.0	8.1	0.03	6.32	6.53	0.5	204	11.35	18	-186	0.09	2
Amygdaloidal rhyo-dacite -mod ser	**FW**	LO-113	NBC06148	52.0	57.0	5.0	7	0.03	2.65	2.75	0.2	86	4.54	4	-82	0.05	1
Amygdaloidal rhyo-dacite -mod ser	**FW**	LO-113	NBC06157	435.0	439.0	4.0	8.3	0.01	2.97	2.99	1.1	93	24.97	30	-63	0.32	1
Amygdaloidal rhyo-dacite -mod ser 7% pyrite	**FW**	LO-113	NBC06162	578.0	583.0	5.0	7.1	0.09	13.4	13.5	0.2	422	4.54	8	-414	0.02	1
Amygdaloidal mafic flow - mod to strong carb	**FW**	LO-117	NBC06183	166.0	171.0	5.0	8.3	0.01	2.16	2.18	1.2	68	27.24	33	-35	0.49	2
Amygdaloidal mafic flow - mod to strong carb 1-2% pyrite stringers	**FW**	LO-117	NBC06185	255.0	260.0	5.0	8.3	0.02	2.31	2.29	0.9	72	20.43	27	-45	0.38	2
Amygdaloidal mafic flow - mod to strong carb 1% pyrite	**FW**	LO-117	NBC06189	500.0	505.0	5.0	8.8	0.01	0.88	0.94	0.4	29	9.08	18	-11	0.62	2
Amygdaloidal mafic flow - mod to strong carb 3-5% pyrite	**FW**	LO-117	NBC06198	727.0	732.0	5.0	8.1	0.02	3.76	3.81	0.5	119	11.35	26	-93	0.22	2
Amygdaloidal mafic flow - mod to strong carb	**FW**	LO-123	NBC06306	418.0	419.0	1.0	9.4	0.01	0.59	0.66	0.4	21	9.08	12	-9	0.57	2
Amygdaloidal rhyo-dacite -mod ser 1-6% pyrite	**FW**	LO-123	NBC06309	633.0	634.0	1.0	8.6	0.02	5.21	5.5	0.9	172	20.43	27	-145	0.16	2
HANGING WALL UNIT																	
Feldspar amphibole porphyritic mafic flow / tuff	**HW**	LO-102	NBC04530	57.0	60.0	3.0	9.3	0.01	0.01	0.04	9.2	1	208.84	200	199	200.00	3
Brecciated massive mafic flow	**HW**	LO-107	NBC04901	126.0	129.0	3.0	8.9	0.01	0.01	0.01	5.1	1	115.77	143	142	143.00	4
Coarse feldspar porphyritic dyke	**HW**	LO-107	NBC04904	284.0	286.0	2.0											
Magnetic mafic complex (flows / dykes)	**HW**	LO-148	NBC05844	858.0	862.0	4.0	9	0.01	0.01	0.04	3.3	1	74.91	88	87	88.00	3
Magnetic mafic complex (flows / dykes)	**HW**	LO-148	NBC05847	962.0	964.0	2.0	9.2	0.01	0.27	0.34	2.8	11	63.56	77	66	7.00	3
Amygdaloidal feldspar porphyritic mafic flow - weak to mod carb	**HW**	LO-108	NBC06002	129.0	130.0	1.0	8.9	0.01	0.01	0.01	5.9	1	133.93	145	144	145.00	4
Feldspar porphyritic mafic flow - strong carb	**HW**	LO-108	NBC06008	348.0	349.0	1.0	9.1	0.01	0.01	0.01	7.3	1	165.71	184	183	184.00	4
Amygdaloidal feldspar porphyritic rhyo-dacite - strong carb	**HW**	LO-108	NBC06014	467.0	468.0	1.0	8.3	0.01	0.01	0.01	7.7	1	174.79	194	193	194.00	4
Andesitic laminated sediments- weak to mod carb+chl+ep	**HW**	LO-111	NBC06145	1081.0	1084.0	3.0	9.5	0.02	0.17	0.2	0.5	6	11.35	17	11	2.83	2
Andesitic laminated sediments- weak to mod carb+chl+ep	**HW**	LO-113	NBC06180	1221.0	1224.0	3.0	9	0.02	0.02	0.07	0.5	2	11.35	16	14	8.00	2
Massive magnetic mafic flow/dyke complex	**HW**	LO-122	NBC06255	89.0	94.0	5.0	8.8	0.01	0.01	0.03	2.8	1	63.56	66	65	66.00	3
Andesitic laminated sediments- weak to mod carb+chl+ep	**HW**	LO-123	NBC06331	1368.0	1369.0	1.0	9.3	0.01	0.33	0.39	0.5	12	11.35	20	8	1.67	2
Andesitic laminated sediments- weak to mod carb+chl+ep	**HW**	LO-126	NBC06429	1460.0	1463.0	3.0	9.6	0.01	0.07	0.1	0.2	3	4.54	10	7	3.33	1
Mafic breccia (hayloclastite) - trace pyrite	**HW**	LO-124	NBC06574	730.0	739.0	9.0											
Massive magnetic mafic flows	**HW**	LO-145	NBC07322	1153.0	1154.0	1.0	9.3	0.01	0.01	0.01	2.5	1	56.75	72	71	72.00	3
Hangingwall mafic flows and sediments	**HW**	LO-084	NBCA01	670.0	672.0	2.0	9.4		0.01	0.01		1		13	12	13.00	2
Hangingwall mafic flows and sediments	**HW**	LO-088	NBCA03	530.0	532.0	2.0	9.5		0.14	0.16		5		11	6	2.20	1
Hangingwall mafic flows and sediments	**HW**	LO-090	NBCA04	650.0	652.0	2.0	9.5		0.01	0.01		1		49	48	49.00	3
Hangingwall mafic flows and sediments	**HW**	LO-090	NBCA05	720.0	722.0	2.0	9.4		0.01	0.01		1		46	45	46.00	3
Hangingwall mafic flows and sediments	**HW**	LO-092	NBCA06	480.0	482.0	2.0	9.6		0.01	0.01		1		15	14	15.00	2
Hangingwall mafic flows and sediments	**HW**	LO-095	NBCA07	450.0	452.0	2.0	8.9		4.87	5.08		159		10	-149	0.06	1
Hangingwall mafic flows and sediments	**HW**	LO-099	NBCA08	550.0	552.0	2.0	9.3		0.01	0.01		1		66	65	66.00	3
Hangingwall mafic flows and sediments	**HW**	LO-102	NBCA09	700.0	702.0	2.0	9.8		0.17	0.19		6		70	64	11.67	4
Hangingwall mafic flows and sediments	**HW**	L0-103	NBCA10	806.0	808.0	2.0	9.5		0.01	0.02		1		27	26	27.00	3
Hangingwall mafic flows and sediments	**HW**	LO-106	NBCA11	850.0	852.0	2.0	9.2		0.16	0.18		6		123	117	20.50	4
Hangingwall mafic flows and sediments	**HW**	LO-109	NBCA12	950.0	952.0	2.0	9.4		0.01	0.01		1		15	14	15.00	2
Hangingwall mafic flows and sediments	**HW**	LO-115	NBCA13	400.0	402.0	2.0	9.3		0.01	0.01		1		61	60	61.00	3
Hangingwall mafic flows and sediments	**HW**	LO-115	NBCA14	500.0	502.0	2.0	9.4		0.01	0.01		1		108	107	108.00	4
Hangingwall mafic flows and sediments	**HW**	LO-119	NBCA15	490.0	492.0	2.0	9.4		0.01	0.01		1		27	26	27.00	2
LOOKOUT UNIT																	
Quartz crystal rhyolite lappili tuff - weak ser+chl+hem alteration	**LO**	LO-096	NBC04248	260.0	265.0	5.0	9.2	0.01	0.01	0.01	0.9	1	20.43	27	26	27.00	2
Quartz crystal rhyolite agglomeritic lappili tuff - mod chl+sil alteration	**LO**	LO-096	NBC04250	373.0	378.0	5.0	9.6	0.01	0.01	0.01	1.7	1	38.59	37	36	37.00	2
Rhyolite stringer zone - massive, 25-40% sulphides	**LO**	LO-099	NBC04358	226.0	229.4	3.4	4.5	0.43	4.54	5.41	0.2	169	4.54	-2	-171	0.01	1
Fine quartz crystal rhyolite tuff - mod limonite, ser	**LO**	LO-102	NBC04537	165.0	170.0	5.0	6.4	0.03	0.81	0.85	0.2	27	4.54	1	-26	0.04	1
Quartz crystal rhyolite lappili tuff -strong ser weak chl+carb alteration	**LO**	LO-104	NBC04713	32.0	34.0	2.0	9.6	0.01	0.01	0.01	3.1	1	70.37	64	63	64.00	2
Coarse quartz crystal rhyolite lappili tuff -strong sil weak ser + chl alteration	**LO**	LO-104	NBC04719	253.0	255.0	2.0	9.5	0.01	0.01	0.01	1.1	1	24.97	34	33	34.00	2
Massive polylithic breccia, subrounded clast supported - mod sil + ep	**LO**	LO-104	NBC04720	301.0	303.0	2.0	9.4	0.01	0.01	0.01	0.8	1	18.16	28	27	28.00	2
Quartz crystal, lithic aggl. lappili tuff - 3-5% pyrite	**LO**	LO-107	NBC04940	683.0	688.0	5.0	9.3	0.01	0.01	0.02	2	1	45.40	55	54	55.00	3
Quartz crystal rhyolite lappili tuff - weak ser+chl alteration	**LO**	LO-148	NBC05832	549.0	551.0	2.0	9.8	0.01	0.01	0.01	1.2	1	27.24	35	34	35.00	3
Quartz crystal, lithic aggl. lappili tuff -weak to mod ser + chl	**LO**	LO-108	NBC06031	655.0	657.0	2.0	9.3	0.02	0.01	0.03	0.3	1	6.81	13	12	13.00	2
Quartz crystal, lithic aggl. lappili tuff - 10-20% sulphides	**LO**	LO-111	NBC06129	831.0	834.0	3.0	6.8	0.06	7.06	7.39	0.2	231	4.54	5	-226	0.02	1
Quartz crystal rhyolite tuff - 10-20% sulphides	**LO**	LO-111	NBC06141	1021.0	1024.0	3.0	4.3	0.18	7.59	8	0.2	250	4.54	-2	-252	0.01	1
Massive magnetic mafic flow/dyke complex	**LO**	LO-113	NBC06177	915.0	920.0	5.0	9.7	0.01	0.01	0.01	0.4	1	9.08	9	8	9.00	2
Massive polylithic breccia, subrounded clast supported - 10-15% sulphides	**LO**	LO-117	NBC06227	991.0	996.0	5.0	4.1	0.42	14.76	15.5	0.2	484	4.54	-4	-488	0.01	1
Massive polylithic breccia, subrounded clast supported - 10-15% sulphides	**LO**	LO-117	NBC06236	1023.0	1028.0	5.0	3.8	0.58	11.25	12	0.2	375	4.54	-8	-383	0.01	1
Quartz crystal rhyolite lappili tuff -mod ser alteration	**LO**	LO-117	NBC06254	1250.0	1255.0	5.0	9.7	0.01	0.01	0.01	0.6	1	13.62	15	14	15.00	2
Quartz crystal rhyolite lappili tuff -5-15% pyrite	**LO**	LO-122	NBC06261	299.0	304.0	5.0	3.4	0.18	7.92	8.28	0.2	259	4.54	-3	-262	0.01	1
Quartz crystal rhyolite lappili tuff -mod chlorite	**LO**	LO-122	NBC06279	384.0	389.0	5.0	7.8	0.03	6.59	6.63	1	207	22.70	23	-184	0.11	2
Quartz crystal rhyolite agglomeritic lappili tuff (stringer zone) - 1-3% sulphides	**LO**	LO-126	NBC06408	1309.0	1312.0	3.0	9	0.01	1.35	1.4	0.2	44	4.54	7	-37	0.16	1
Total Average												**57.21**		**41.24**	**-15.97**	**0.72**	
Footwall Average												**73.76**		**26.48**	**-47.29**	**0.36**	
Hanging Wall Average												**8.44**		**69.37**	**60.93**	**8.21**	
Lookout Zone Average												**108.21**		**47.78**	**-60.43**	**0.44**	
Maximum Weighted Average												**12.08**		**19.86**	**7.78**	**1.64**	
Minimum Weighted Average												**10.83**		**20.84**	**10.01**	**1.92**	

Note 1: The detection limit has been used for plotting samples below the detection limit (<0.01 to 0.01 for S % and <0.2 to 0.2 for CO2%)
Note 2: Samples beginning with NBCA were not tested for sulphide-sulphur, sulphate-sulphur, or inorganiccarbon. For the NPR-S graph, sulphide-sulphur values were calculated using the relationship between sulphide-sulphur and total sulphur from the NBCO samples.
Note 3: Abreviations. carb = carbonate, sil = silicification, chl = chlorite, hem = hemitite, mod = moderate

TABLE 3.1

NIBLACK MINING CORP
NIBLACK PROJECT

HYDROLOGY - STANEY CREEK, CRAIG, ALASKA
(October 1964 to September 1981)

Month	(Station No. 15081500, Elevation 2.0', $55^0$48', $133^0$07', Drainage Area 51.60 miles^2) 133.6 km^2								
	Discharge (ft^3/s)			Discharge (m^3/s)			Unit Area Discharge (L/s/km^2)		
	Monthly Averge	Monthly Maximum	Monthly Minimum	Monthly Averge	Monthly Maximum	Monthly Minimum	Monthly Averge	Monthly Maximum	Monthly Minimum
January	380	896	24	10.8	25.4	0.7	80.6	189.9	5.1
February	348	636	16	9.9	18.0	0.4	73.8	134.8	3.4
March	263	436	102	7.5	12.4	2.9	55.8	92.5	21.7
April	384	1151	146	10.9	32.6	4.1	81.5	244.0	31.0
May	348	659	116	9.9	18.7	3.3	73.7	139.6	24.6
June	187	304	60	5.3	8.6	1.7	39.5	64.3	12.8
July	124	288	38	3.5	8.2	1.1	26.2	61.0	8.0
August	163	359	24	4.6	10.2	0.7	34.5	76.2	5.0
September	416	917	24	11.8	26.0	0.7	88.1	194.3	5.0
October	774	1546	276	21.9	43.8	7.8	164.0	327.6	58.6
November	552	1374	147	15.6	38.9	4.2	117.0	291.2	31.1
December	472	1133	113	13.4	32.1	3.2	100.1	240.2	23.9

TABLE 3.2

NIBLACK MINING CORP
NIBLACK PROJECT

HYDROLOGY - INDIAN CREEK, HOLLIS, ALASKA
(July 1949 to September 1964)

Month	(Station No. 1324141, Elevation 52', 55^{0}26', 132^{0}41', Drainage Area 8.82 miles^2) 22.84 km^2								
	Discharge (ft^3/s)			Discharge (m^3/s)			Unit Area Discharge (L/s/km^2)		
	Monthly Averge	Monthly Maximum	Monthly Minimum	Monthly Averge	Monthly Maximum	Monthly Minimum	Monthly Averge	Monthly Maximum	Monthly Minimum
January	81	235	4	2.3	6.7	0.1	100.0	291.4	4.9
February	75	151	5	2.1	4.3	0.1	93.0	186.7	6.5
March	62	110	14	1.8	3.1	0.4	77.0	135.8	17.0
April	99	160	34	2.8	4.5	0.9	122.9	198.7	41.5
May	112	204	32	3.2	5.8	0.9	139.0	253.5	40.0
June	63	159	3	1.8	4.5	0.1	78.0	196.7	4.2
July	28	68	9	0.8	1.9	0.3	34.9	84.9	11.4
August	40	77	4	1.1	2.2	0.1	50.1	95.1	4.5
Septembe	75	112	28	2.1	3.2	0.8	92.7	138.3	34.2
October	159	286	59	4.5	8.1	1.7	196.6	354.4	73.3
November	117	198	50	3.3	5.6	1.4	144.6	246.0	61.6
December	119	192	27	3.4	5.4	0.8	148.1	238.6	33.3

TABLE 3.3

NIBLACK MINING CORP
NIBLACK PROJECT

HYDROLOGY - CABIN CREEK, KASAAN, Alaska
(June 1962 to September 1964)

Month	(Station No. 15085300, Elevation 5', 55⁰25', 132⁰28', Drainage Area 8.83 miles^2)								22.87 km^2
	Discharge (ft^3/s)			Discharge (m^3/s)			Unit Area Discharge (L/s/km^2)		
	Monthly Averge	Monthly Maximum	Monthly Minimum	Monthly Averge	Monthly Maximum	Monthly Minimum	Monthly Averge	Monthly Maximum	Monthly Minimum
January	88	100	77	2.5	2.8	2.2	109.4	123.4	95.5
February	108	112	104	3.1	3.2	2.9	133.4	138.4	128.4
March	33	35	31	0.9	1.0	0.9	40.5	42.9	38.1
April	62	63	61	1.7	1.8	1.7	76.2	77.4	75.1
May	63	86	40	1.8	2.4	1.1	78.3	106.7	49.8
June	70	105	39	2.0	3.0	1.1	86.6	129.5	47.7
July	31	47	15	0.9	1.3	0.4	38.7	57.6	18.1
August	25	39	9	0.7	1.1	0.2	30.5	48.2	10.8
Septembe	64	82	48	1.8	2.3	1.3	78.8	101.0	58.9
October	156	208	104	4.4	5.9	3.0	193.4	257.6	129.3
November	121	149	92	3.4	4.2	2.6	149.6	185.1	114.2
December	149	166	132	4.2	4.7	3.7	184.7	205.4	164.0

TABLE 3.4

NIBLACK MINING CORP
NIBLACK PROJECT

HYDROLOGY - MYRTLE CREEK, PRINCE OF WALES ISLAND, ALASKA
(May 1997 to September 1997)

Month	(Station No. -----------, Elevation 5', $55^0 04'$, $132^0 07'$, Drainage Area 5.055 miles^2) 13.09 km^2								
	Discharge (ft^3/s)			Discharge (m^3/s)			Unit Area Discharge (L/s/km^2)		
	Monthly Averge	Monthly Maximum	Monthly Minimum	Monthly Averge	Monthly Maximum	Monthly Minimum	Monthly Averge	Monthly Maximum	Monthly Minimum
January									
February									
March									
April									
May				1.9	2.0	1.8	145.1	152.8	137.5
June				2.2	4.2	1.9	168.1	320.9	145.1
July				1.8	2.3	1.6	137.5	175.7	122.2
August				1.8	2.8	1.3	137.5	213.9	99.3
September				1.7	1.7	1.7	129.9	129.9	129.9
October									
November									
December									

TABLE 3.5

NIBLACK MINING CORP
NIBLACK PROJECT

MEAN MONTHLY AND ANNUAL METEOROLOGY DATA
KETCHIKAN, ALASKA

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Precipitation	11.94	11.33	11.15	9.85	8.7	6.95	6.43	9.14	12.18	20.29	15.73	13.71	137.4
Snowfall	13.3	9.5	4.1	0	0	0	0	0	0	0	2.1	7.9	36.9
Temperature	33.6	36.3	38.3	43	48.5	53.8	57.7	58.3	53.1	45.8	38.8	35.5	45.2

Notes: 1 - Data is from the Alaska Climate Research Center web page at http://climate.gi.alaska.edu/Climate/Temperature/index.html
2 - Mean values are for data from 1971 to 2000.

Table 5.1

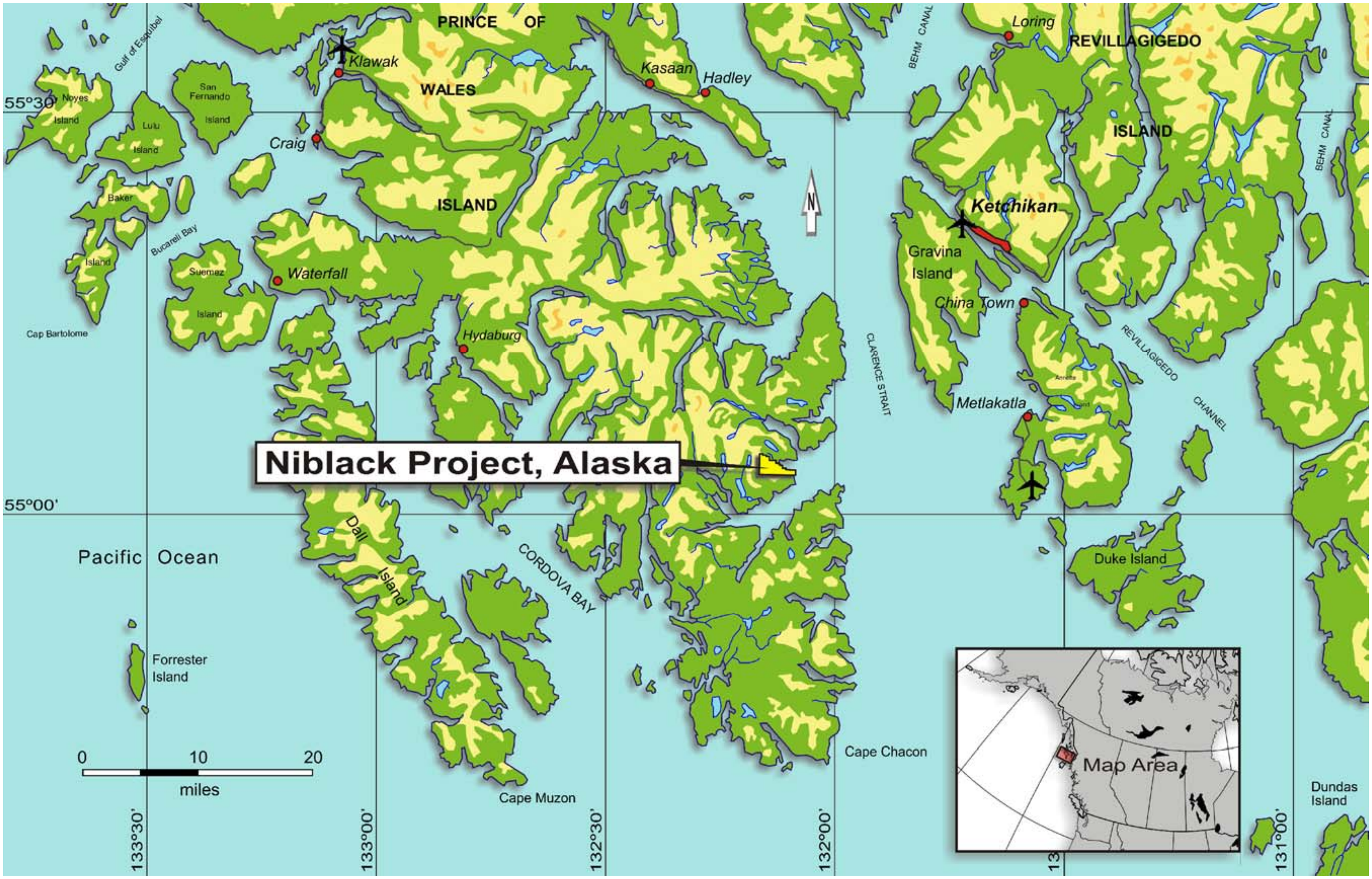
NIBLACK MINING CORP.
NIBLACK PROJECT

PATENTED MINING CLAIMS

Patented claims controlled by Niblack Mining Corporation		
Mineral Survey #	**Recording District**	**Claim(s)**
553	Ketchikan[1]	Parcel No. 1: Lookout Lode (Mining Claim), Conundrum Lode (Mining Claim), Conundrum Extension Lode (Mining Claim), Blue Bell[2] Lode (Mining Claim), West Mammoth Lode (Mining Claim), East Mammoth Lode (Mining Claim).
644	Ketchikan	Parcel No. 2: Judge Lode (Mining Claim), Bradford Lode (Mining Claim), Jefferson Lode (Mining Claim), Forest Lode (Mining Claim), Iron and Copper Lode (Mining Claim), Luella Lode (Mining Claim).
1437	Ketchikan	Parcel No 3: Mary Lode (Mining Claim).
1438	Ketchikan	Parcel No. 4: Pride Lode (Mining Claim).
1436	Ketchikan	Parcel No. 5: Snow Flake (Mining Claim).
1585	Ketchikan	Parcel No 6: Beach Lode (Mining Claim).
1009	Ketchikan	Trio Lode (Mining Claim), Broadgauge Lode (Mining Claim)

[1] Ketchikan Recording District, First Judicial District, State of Alaska.
[2] In some documentation, listed as **Blue Belle** claim.

XREF FILE : IMAGE: Niblack location map



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NIBLACK MINING CORP.

PROPOSED EXPLORATION PROGRAM

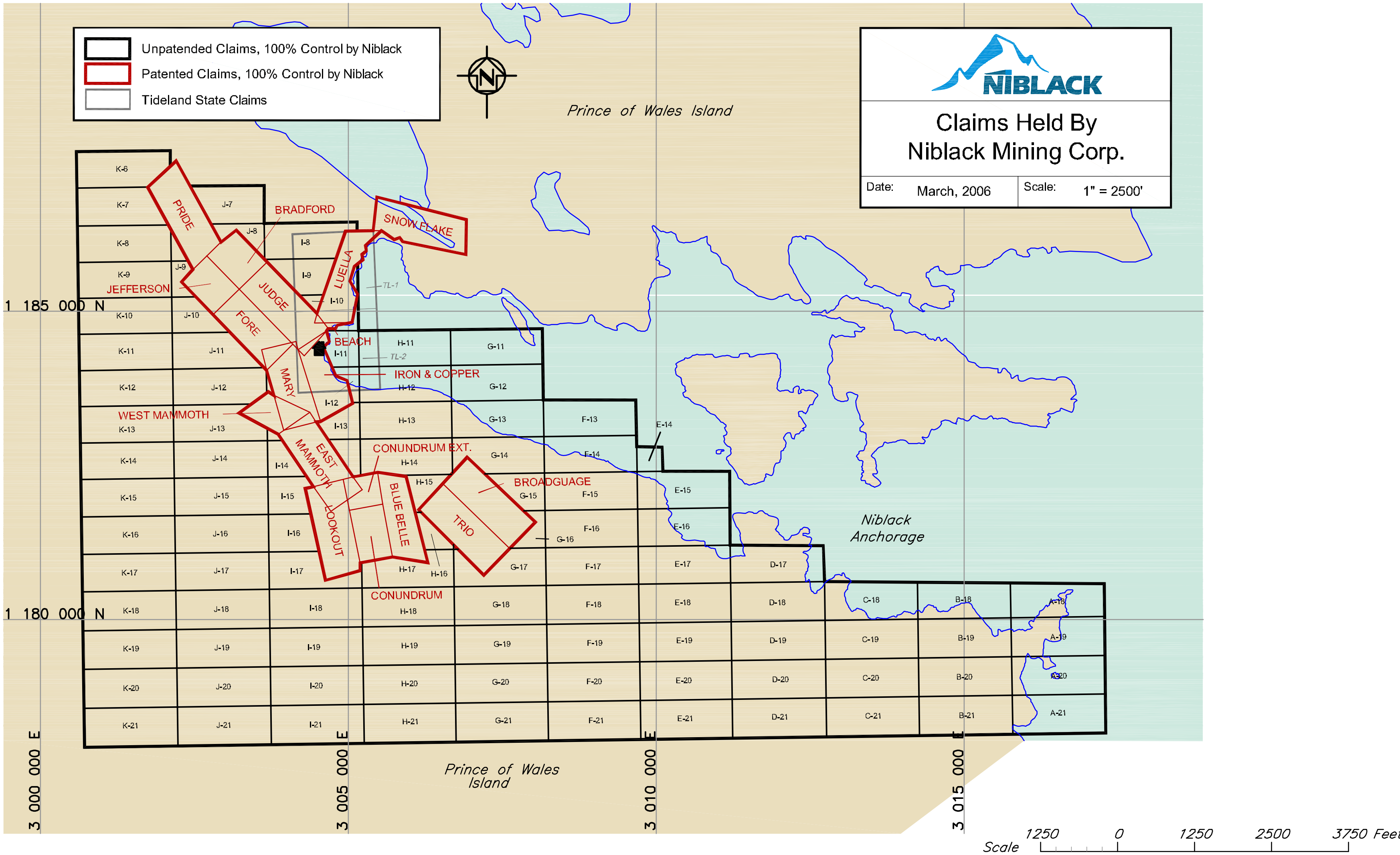
NIBLACK LOCATION MAP

Knight Piésold
CONSULTING

PROJECT/ASSIGNMENT NO.	REF. NO.	
VA102-205/2	VA07-00491	
FIGURE 2.1		REV. 0

REV. 0	13APR'07	ISSUED IN FINAL

XREF FILE : –



PROJECTION: NAD 27 US, ALASKA STATE PLANE ZONE 1 (FEET)

REV. 0	13APR'07	ISSUED IN FINAL

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NIBLACK MINING CORP.

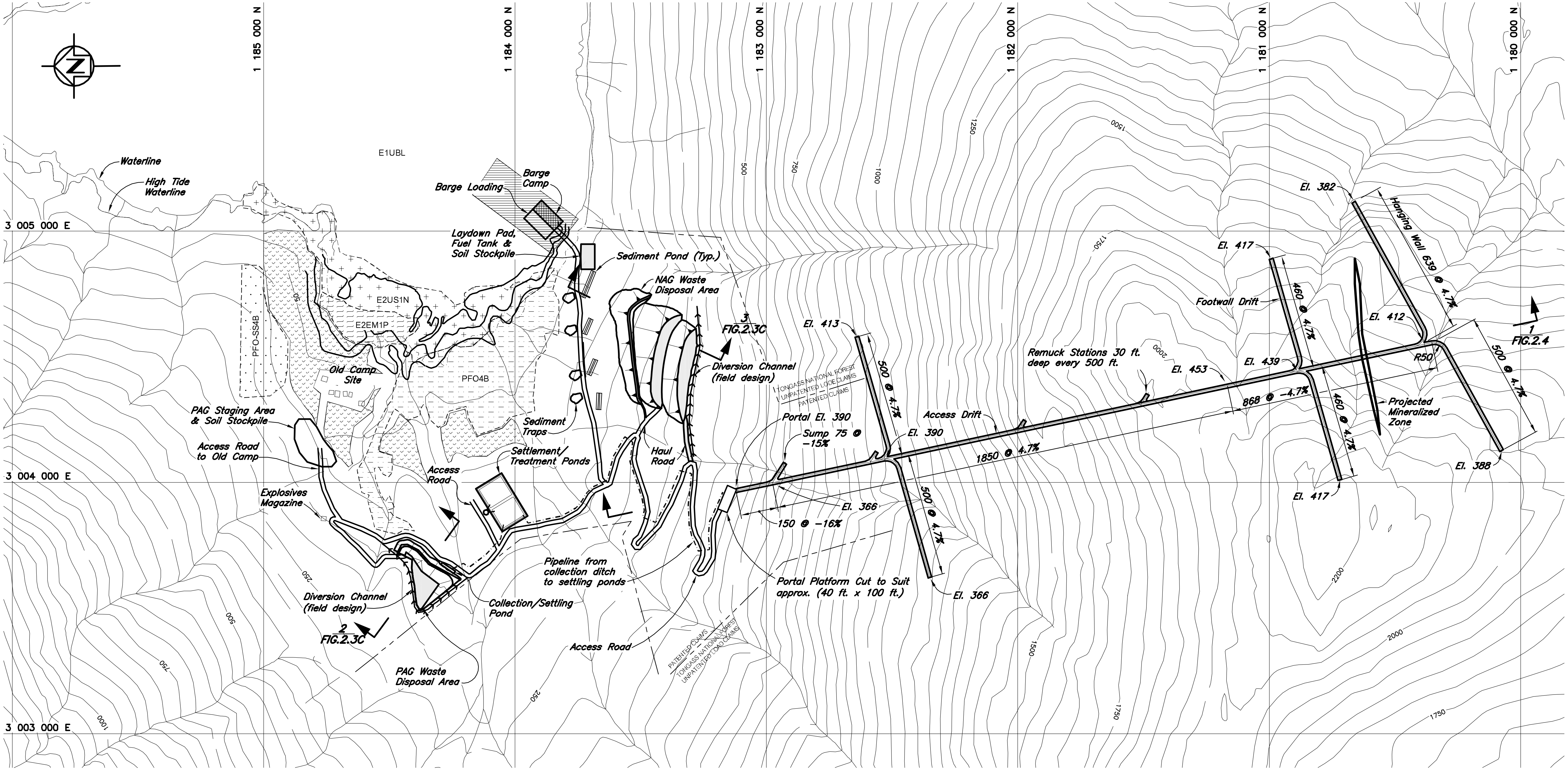
PROPOSED EXPLORATION PROGRAM

CLAIMS MAP

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO.	REF. NO.
VA102-205/2	VA07-00491

FIGURE 2.2 REV. 0



LEGEND

- E1UBL Estuarine – Subtidal
- E2US1N Estuarine – Unvegitated Intertidal
- E2EM1P Estuarine – Emergent Intertidal
- PFO–SS4B – Needleleaf Forest/Scrub–Shrub Wetland
- PFO4B – Needleleaf Forest Wetland
- Land Application Areas
- Property Boundary
- Tideland Lease Area

NOTE

All dimensions and elevations are in feet unless otherwise noted.

Scale 200 100 0 200 400 600 Feet

NIBLACK MINING CORP.		
PROPOSED EXPLORATION PROGRAM		
GENERAL SITE PLAN		
Knight Piésold CONSULTING	PROJECT/ASSIGNMENT NO. VA102–205/2	REF. NO. VA07–00491
	FIGURE 2.3A	REV. 0

VANCOUVER B.C. CAD FILE: M:\1\02\00205\02\A\Acad\Figs\B51.dwg 1"=400' PLOT 1=1(PS) Apr 12 2007 by:schizar

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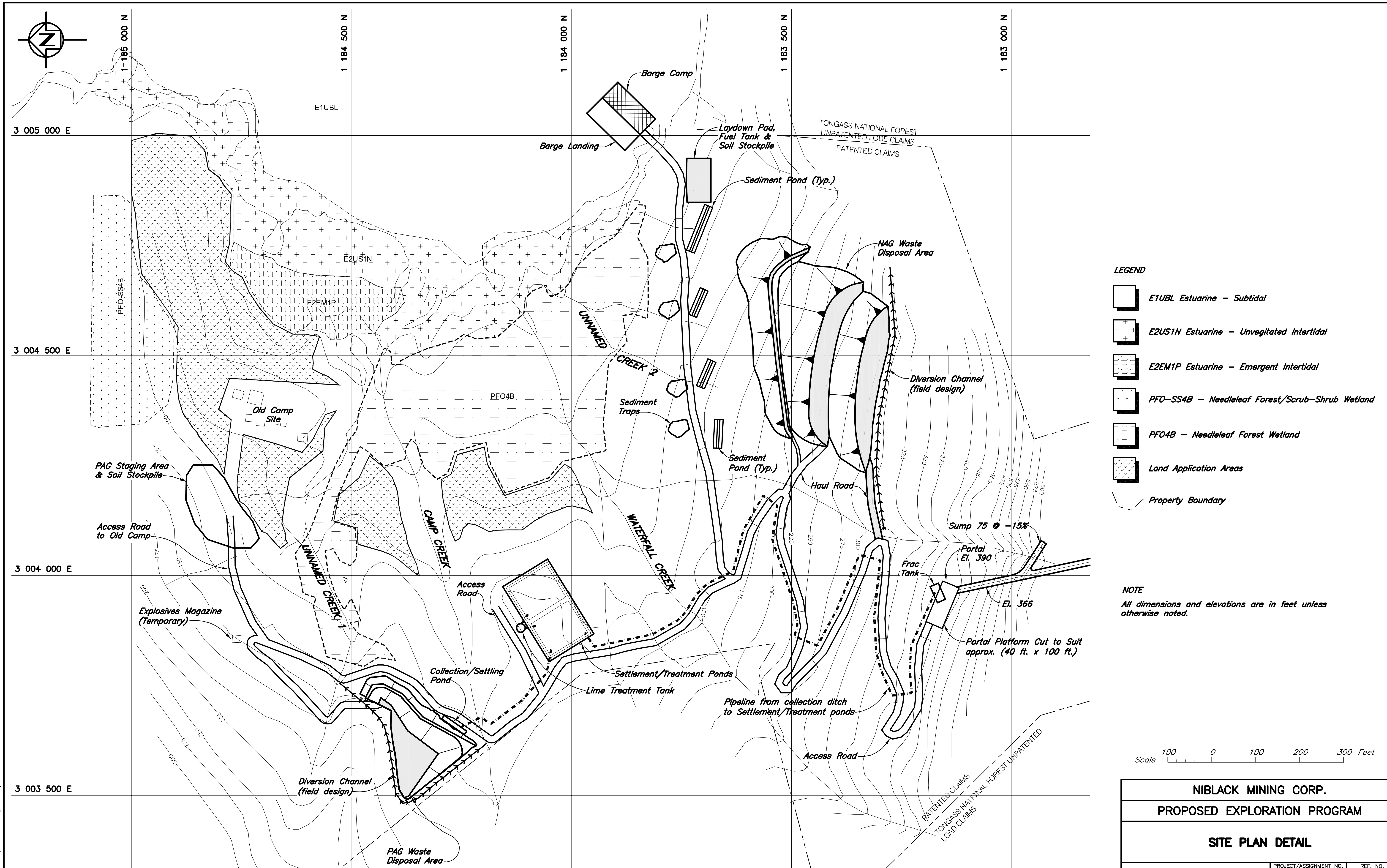


NIBLACK MINING CORP.

PROPOSED EXPLORATION PROGRAM

SITE PLAN DETAIL

Knight Piésold CONSULTING

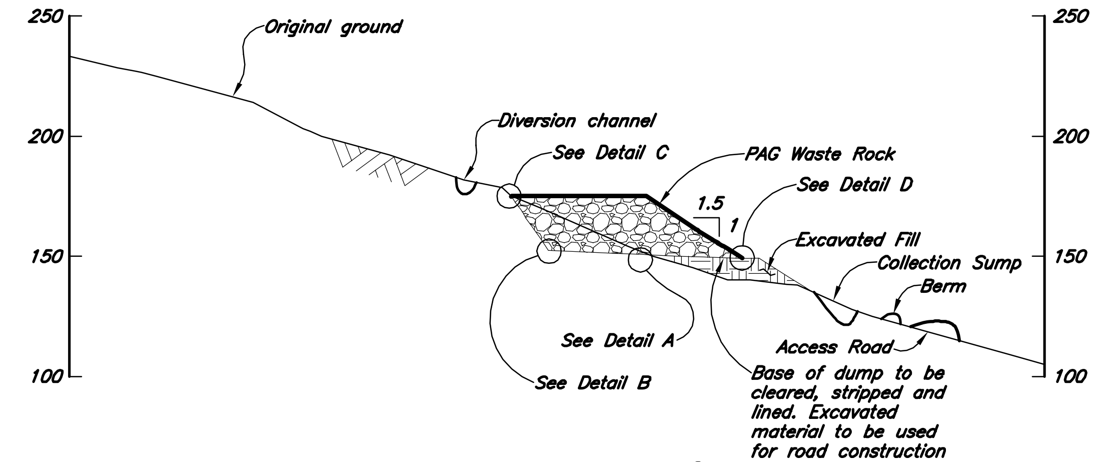
PROJECT/ASSIGNMENT NO.	REF. NO.
VA102-205/2	VA07-00491

FIGURE 2.3B — REV. 0

REV. 0 | 13APR'07 | ISSUED IN FINAL

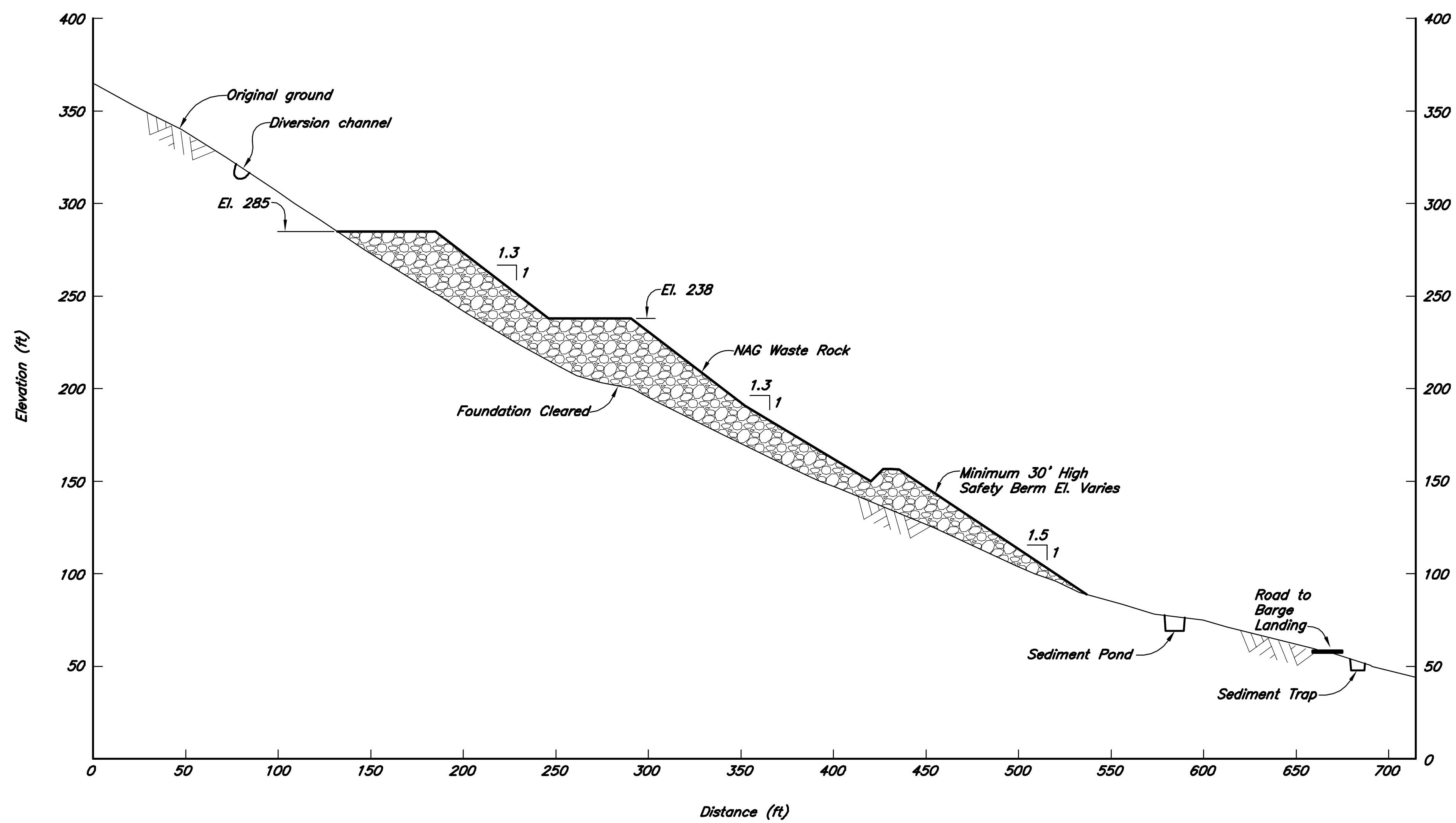
XREF FILE: Topo 2006 Property Boundary

VANCOUVER B.C.



SECTION $\frac{2}{\text{FIG.2.3A}}$

SECTION THRU PAG WASTE ROCK DUMP



SECTION $\frac{3}{\text{FIG. 2.3A}}$

SECTION THRU NAG WASTE ROCK DUMP

NOTE

1. All dimensions and elevations are in feet unless otherwise noted.

Scale 40 0 40 80 120 Feet

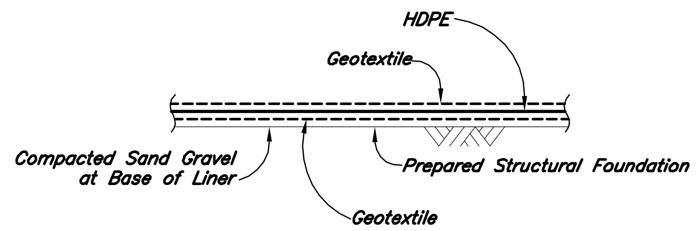
XREF FILE :	
REV. 0	13APR'07	ISSUED IN FINAL

NIBLACK MINING CORP.

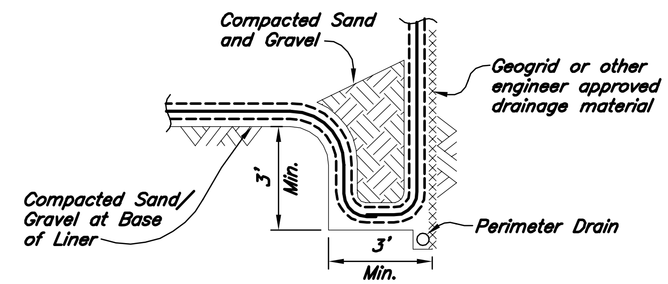
PROPOSED EXPLORATION PROGRAM

WASTE ROCK DUMP SECTIONS

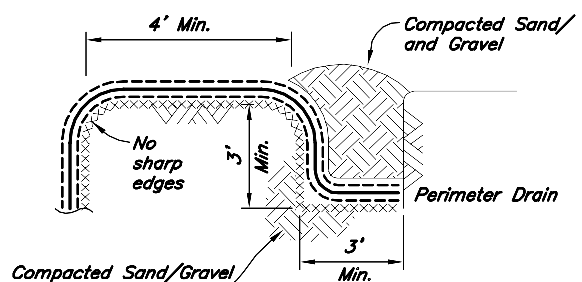
Knight Piésold CONSULTING	PROJECT/ASSIGNMENT NO. VA102-205/2	REF. NO. VA07-00491
	FIGURE 2.3C	REV. 0



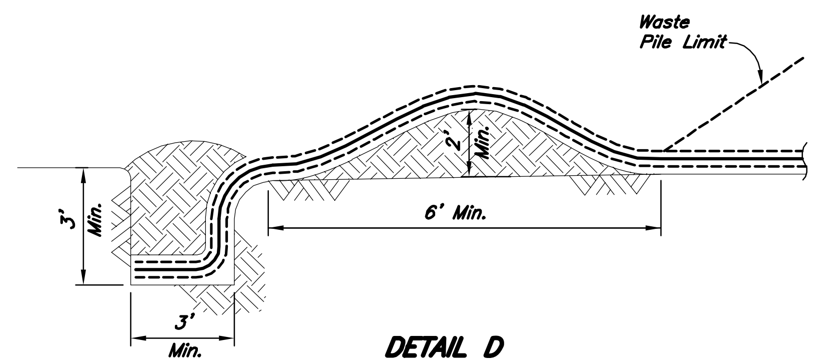
DETAIL A
TYPICAL LINER BASE
NTS



DETAIL B
LINER ANCHOR
(BACK FACE OF PAG WASTE ROCK DUMP)
NTS



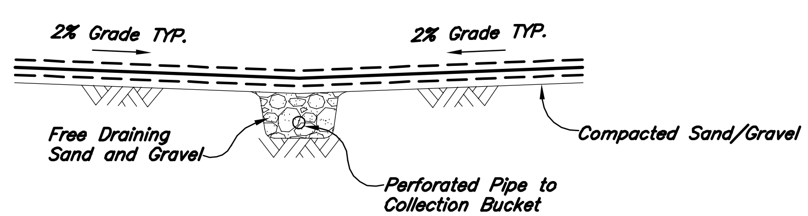
DETAIL C
LINER ANCHOR
(CREST OF BACK FACE OF PAG WASTE ROCK DUMP)
NTS



DETAIL D
LINER ANCHOR
(TOE OF PAG WASTE ROCK DUMP)
NTS

LEGEND

- Geotextile
- HDPE Liner
- Geogrid Drainage Layer



DETAIL E
LEAK DETECTION
(CENTER OF PAG WASTE ROCK DUMP)
NTS

NIBLACK MINING CORP.		
PROPOSED EXPLORATION PROGRAM		
PAG SITE LINER DETAILS		
Knight Piésold CONSULTING	PROJECT/ASSIGNMENT NO. VA102-205/2	REF. NO. VA07-00491
	FIGURE 2.3D	REV. 0

REV. 0	13APR'07	ISSUED IN FINAL

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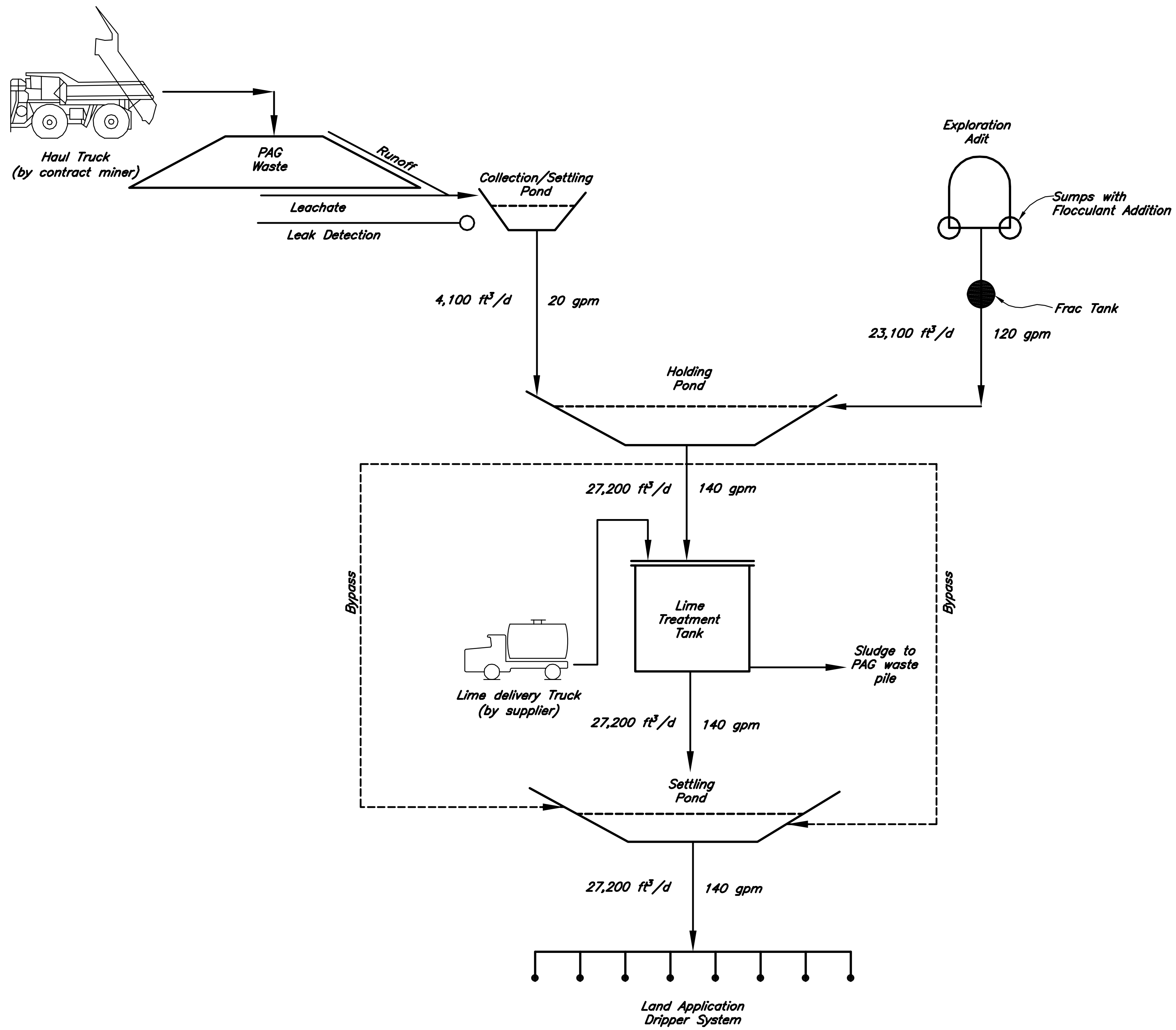
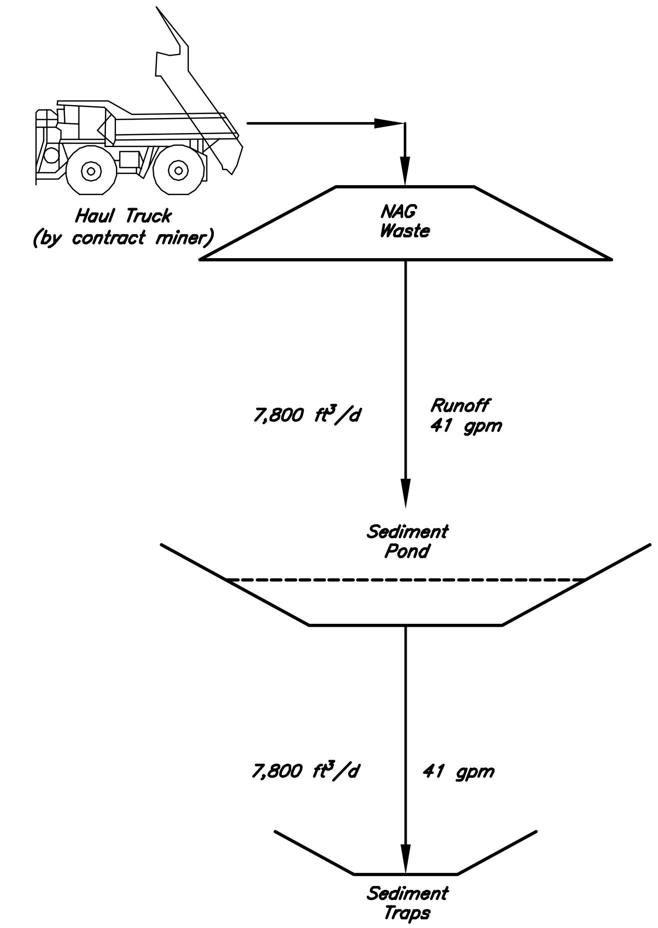


PAG/ADIT WATER TREATMENT



NAG WASTE WATER MANAGEMENT

NOTE

1. All values are average values for one day.

Scale 0.5 0 0.5 1 1.5 Feet

NIBLACK MINING CORP.		
PROPOSED EXPLORATION PROGRAM		
WASTE WATER COLLECTION AND TREATMENT CONCEPTS		
Knight Piésold CONSULTING	PROJECT/ASSIGNMENT NO. VA102-205/2	REF. NO. VA07-00491
	FIGURE 2.3E	REV. 0

REV. 0	13APR'07	ISSUED IN FINAL

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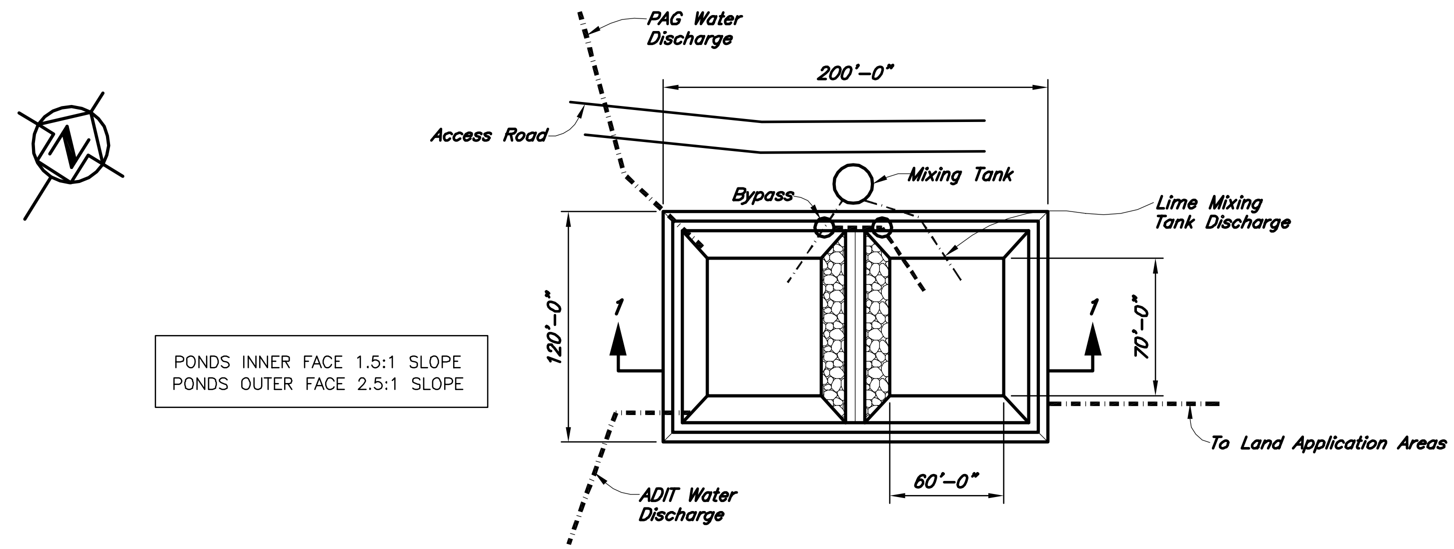
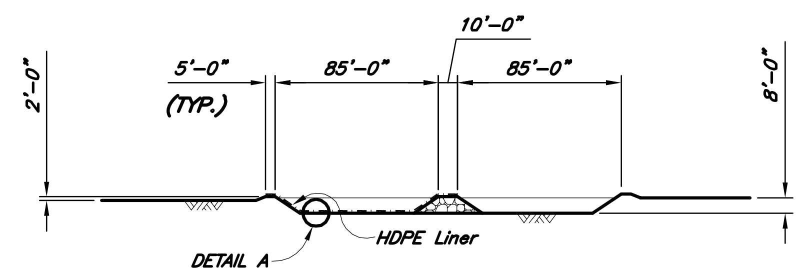
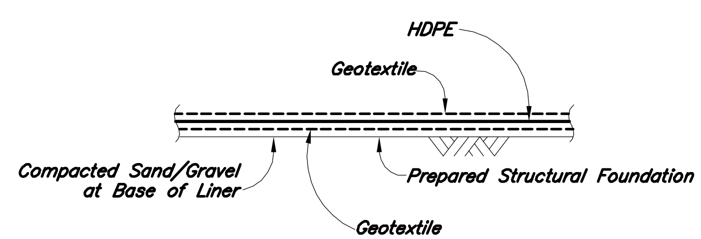


PONDS INNER FACE 1.5:1 SLOPE
PONDS OUTER FACE 2.5:1 SLOPE

SETTLEMENT/TREATMENT PONDS PLAN



SECTION 1



DETAIL A
TYPICAL LINER BASE
NTS

Scale 50 0 50 100 150 Feet

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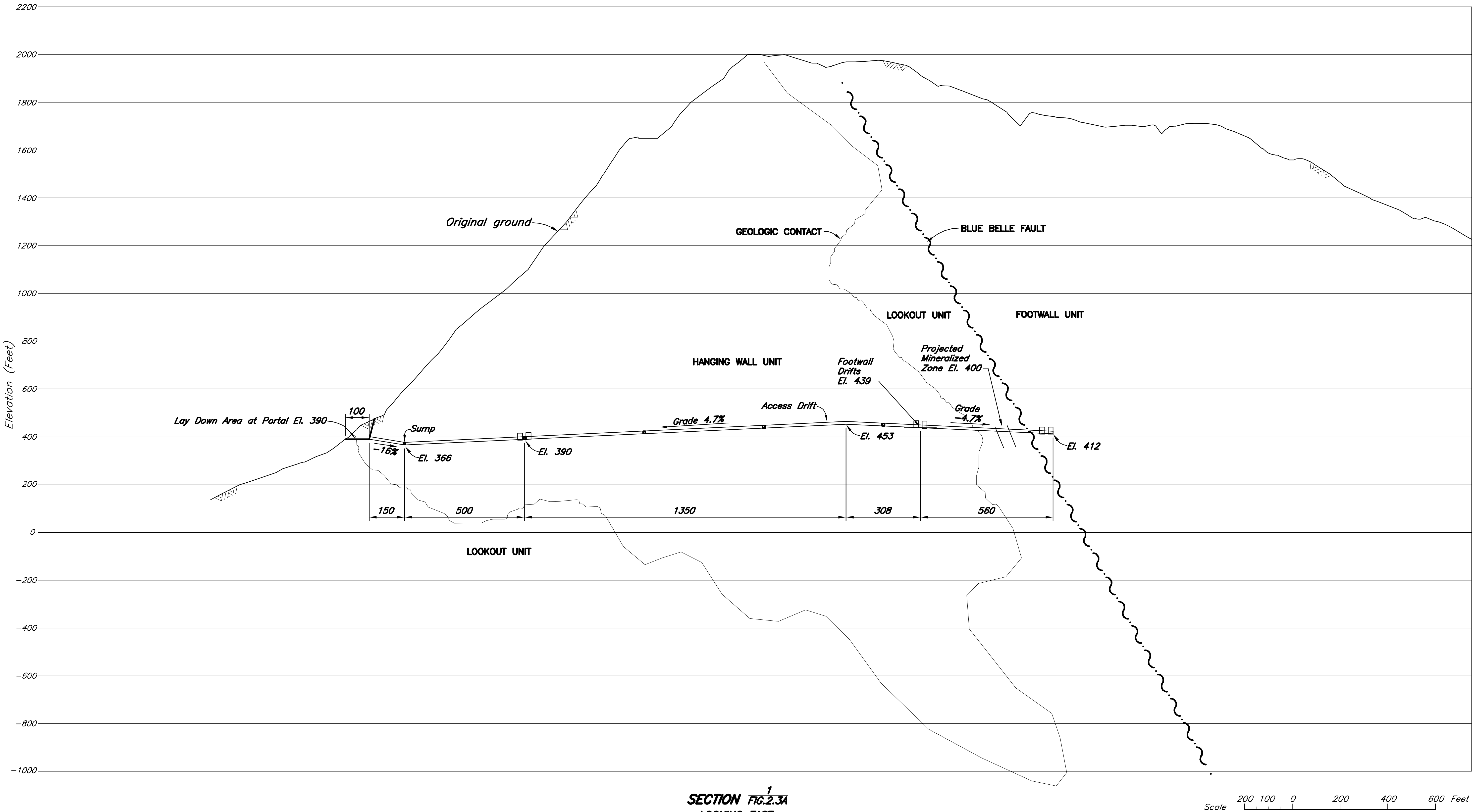
NIBLACK MINING CORP.	
PROPOSED EXPLORATION PROGRAM	
SETTLEMENT/TREATMENT POND SECTION	
Knight Piésold CONSULTING	PROJECT/ASSIGNMENT NO. VA102-205/2 · REF. NO. VA07-00491 · FIGURE 2.3F · REV. 0

XREF FILE : -

REV. 0	13APR'07	ISSUED IN FINAL



SECTION 1 / FIG.2.3A
LOOKING EAST

NOTES

1. This figure produced from information provided by Beacon Hill Consultants (1988) Ltd.
2. All dimensions and elevations are in feet unless otherwise noted.

NIBLACK MINING CORP.		
PROPOSED EXPLORATION PROGRAM		
PROPERTY SECTION		
Knight Piésold CONSULTING	PROJECT/ASSIGNMENT NO. VA102-205/2	REF. NO. VA07-00491
	FIGURE 2.4	REV. 0

REV. 0	13APR'07	ISSUED IN FINAL

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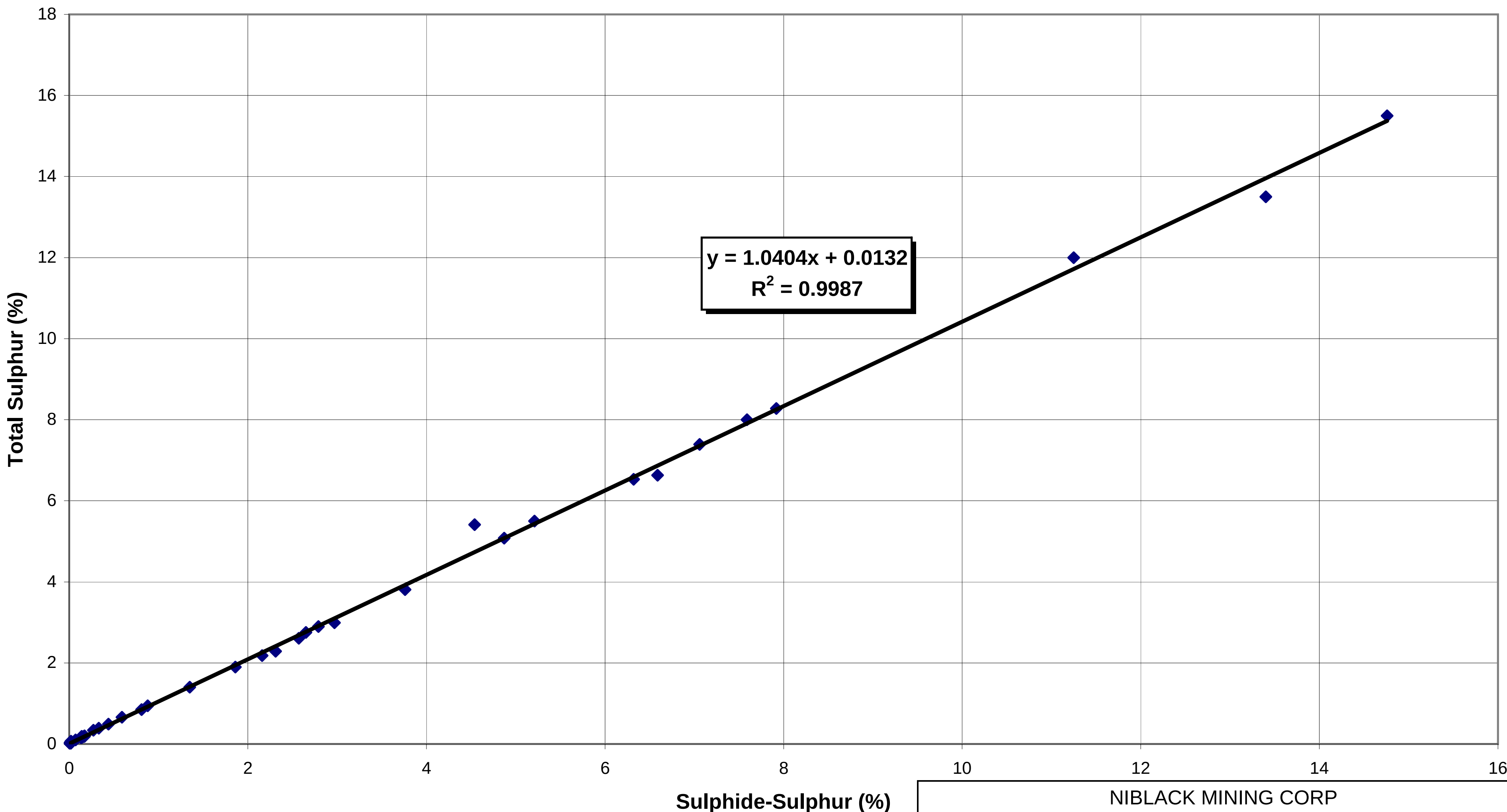


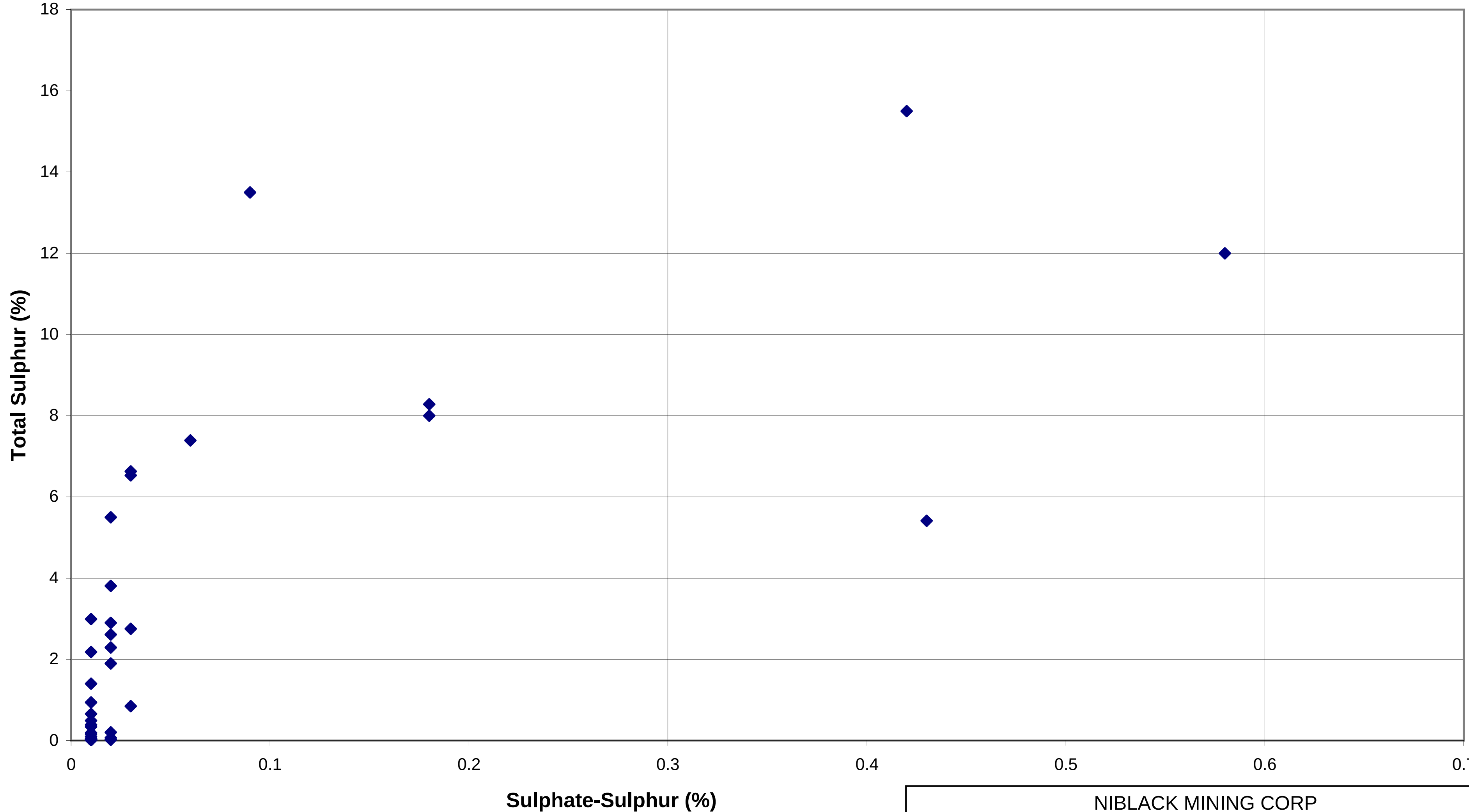
NIBLACK MINING CORP

NIBLACK PROJECT

UNDERGROUND EXPLORATION PLAN OF OPERATIONS
SULPHIDE-SULPHUR VS TOTAL SULPHUR
(NBCO SAMPLES)

NIBLACK	PROJECT / ASSIGNMENT NO. -	REF NO. -
	FIGURE 2.5	REV. 0

Rev 0 - Issued for Report



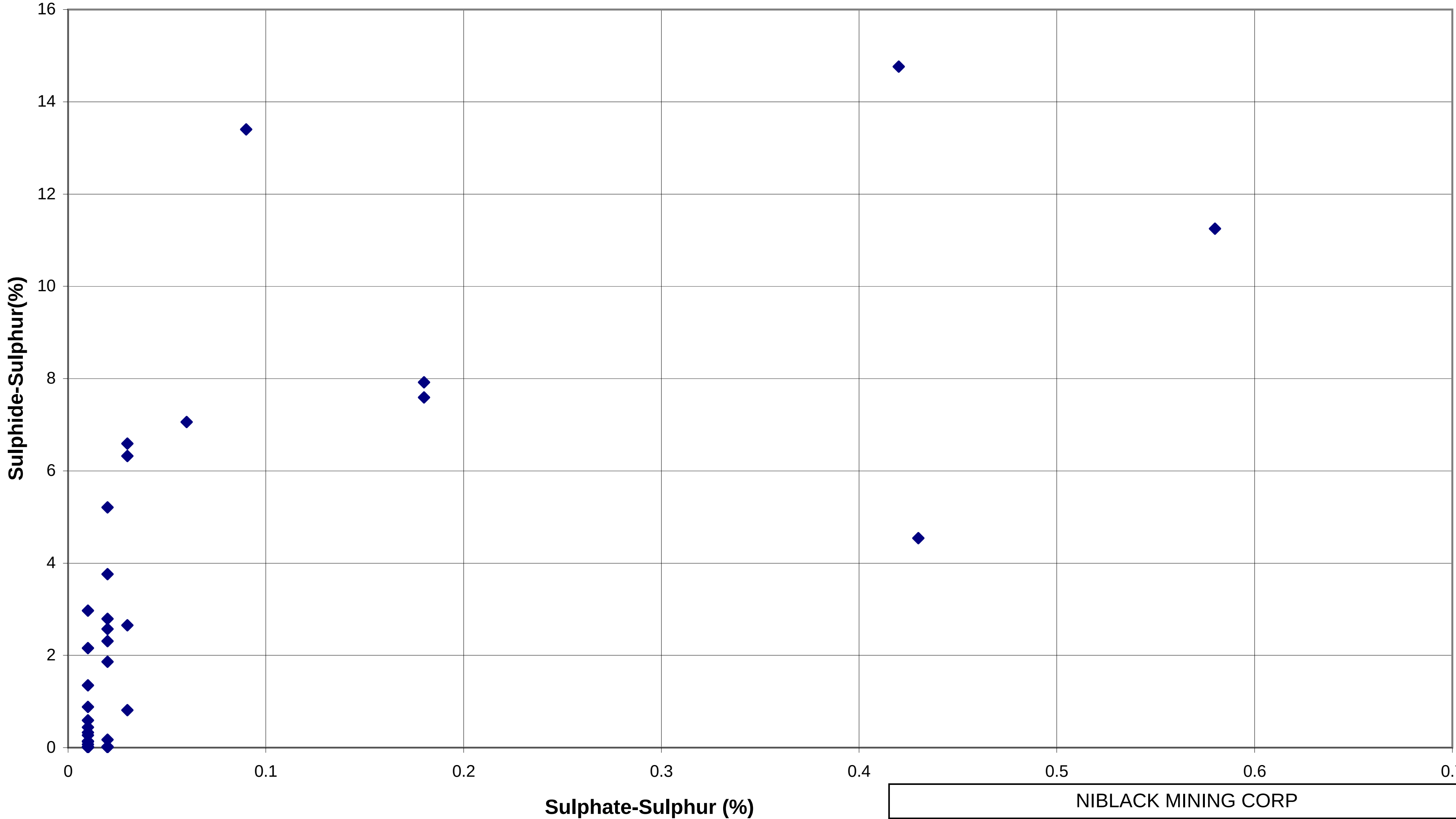
NIBLACK MINING CORP

NIBLACK PROJECT

UNDERGROUND EXPLORATION PLAN OF OPERATIONS
SULPHATE-SULPHUR VS TOTAL SULPHUR
(NBCO SAMPLES)

NIBLACK	PROJECT / ASSIGNMENT NO. -	REF NO. -
	FIGURE 2.6	REV. 0

Rev 0 - Issued for Report



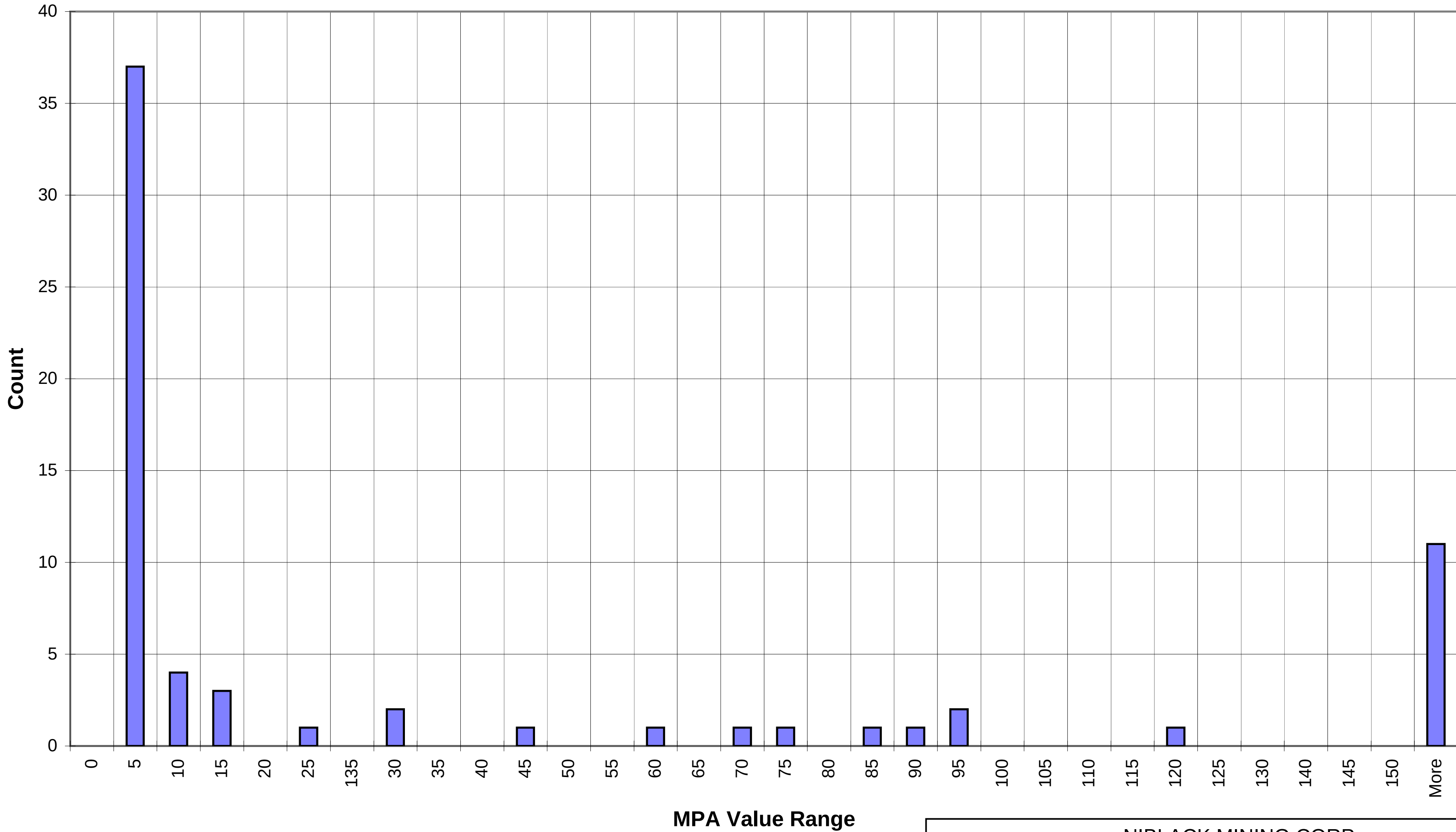
NIBLACK MINING CORP

NIBLACK PROJECT

UNDERGROUND EXPLORATION PLAN OF OPERATIONS
SULPHATE-SULPHUR VS SULPHIDE-SULPHUR
(NBCO SAMPLES)

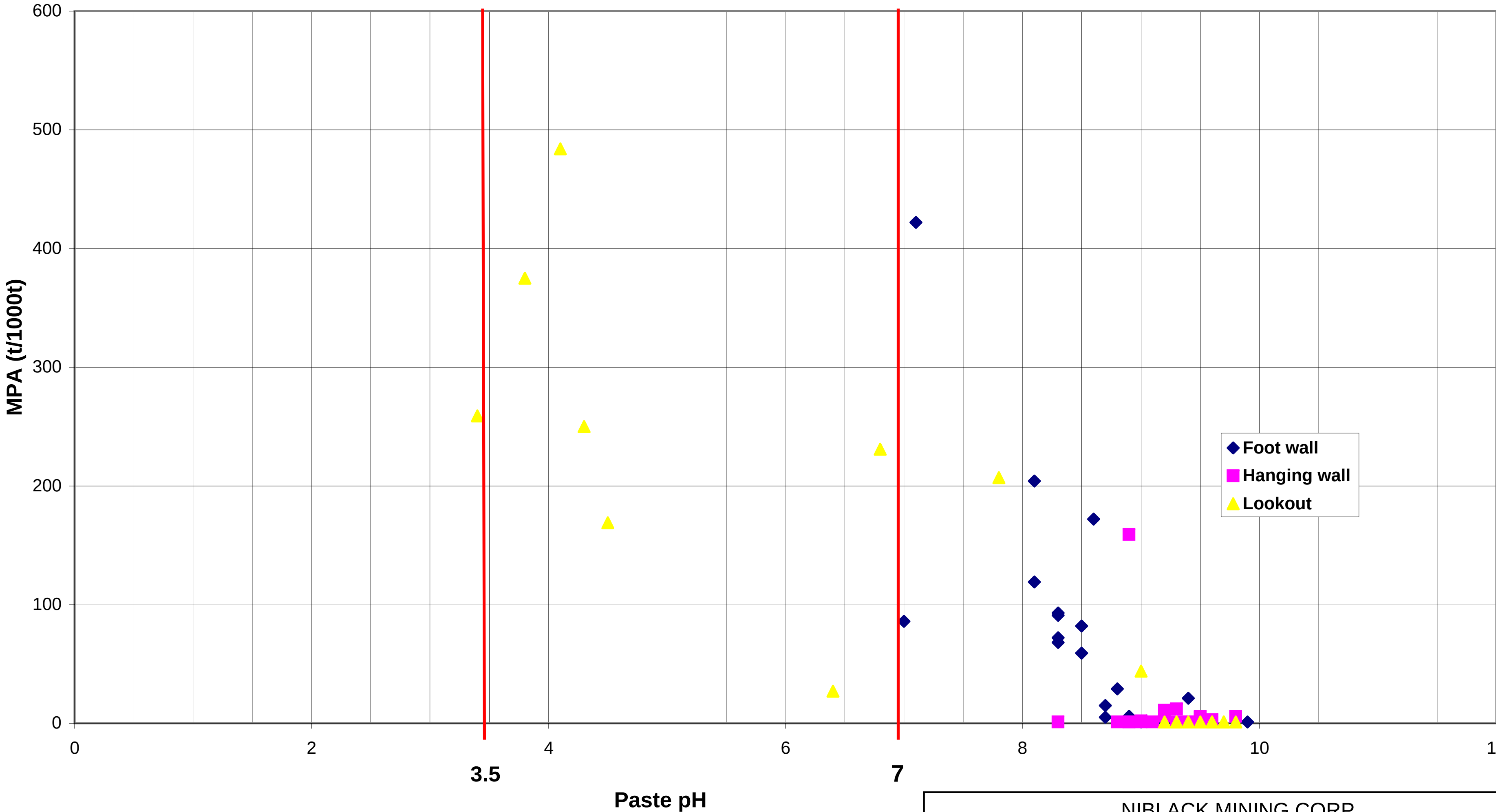
NIBLACK	PROJECT / ASSIGNMENT NO. -	REF NO. -
	FIGURE 2.7	REV. 0

Rev 0 - Issued for Report



NIBLACK MINING CORP		
NIBLACK PROJECT		
UNDERGROUND EXPLORATION PLAN OF OPERATIONS HISTOGRAM OF MAXIMUM POTENTIAL ACIDITY VALUES (BASED ON TOTAL SULPHUR)		
NIBLACK	PROJECT / ASSIGNMENT NO. -	REF NO. -
	FIGURE 2.8	REV. 0

Rev 0 - Issued for Report



NIBLACK MINING CORP		
NIBLACK PROJECT		
UNDERGROUND EXPLORATION PLAN OF OPERATIONS **PASTE PH VS MAXIMUM POTENTIAL ACIDITY**		
NIBLACK	PROJECT / ASSIGNMENT NO. -	REF NO. -
	FIGURE 2.9	REV. 0

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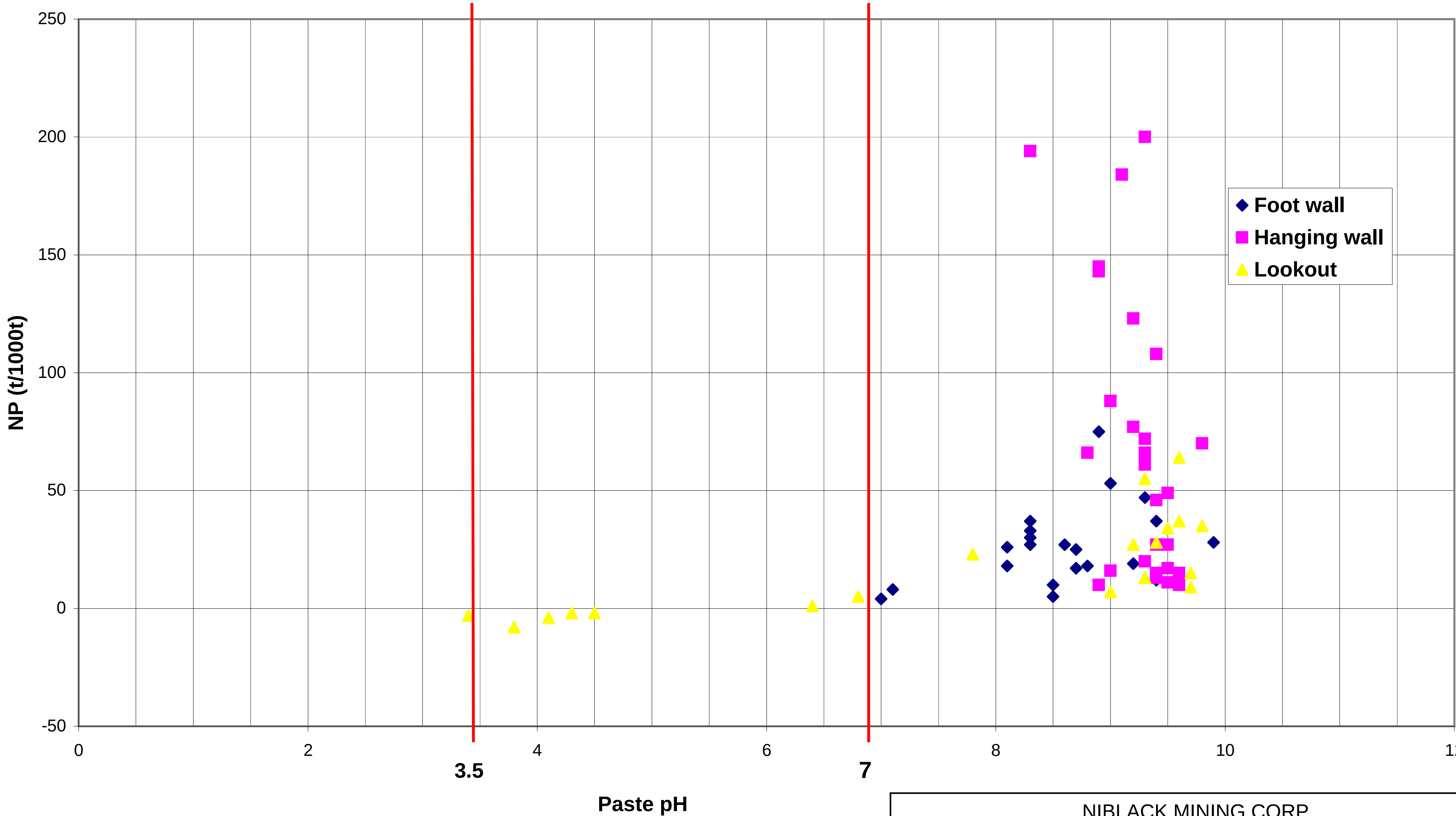

NIBLACK MINING CORP
NIBLACK PROJECT
UNDERGROUND EXPLORATION PLAN OF OPERATIONS **PASTE PH VS NEUTRALIZATION POTENTIAL**

PROJECT / ASSIGNMENT NO. -	REF NO. -	
FIGURE 2.10	REV. 0	

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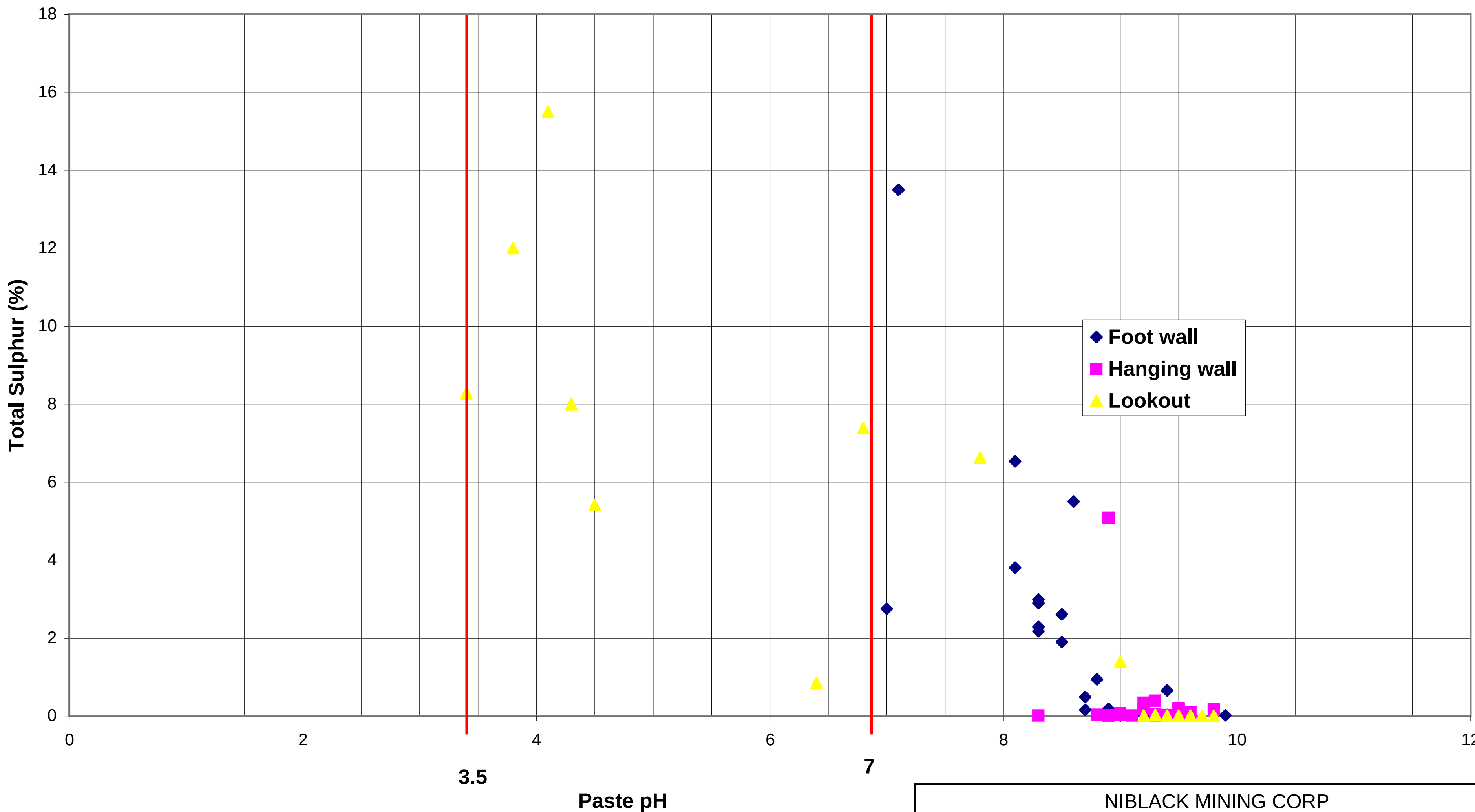

NIBLACK MINING CORP

NIBLACK PROJECT

UNDERGROUND EXPLORATION PLAN OF OPERATIONS
PASTE PH VS TOTAL SULPHUR

	PROJECT / ASSIGNMENT NO.	REF NO.
NIBLACK	-	-
	FIGURE 2.11	REV. 0

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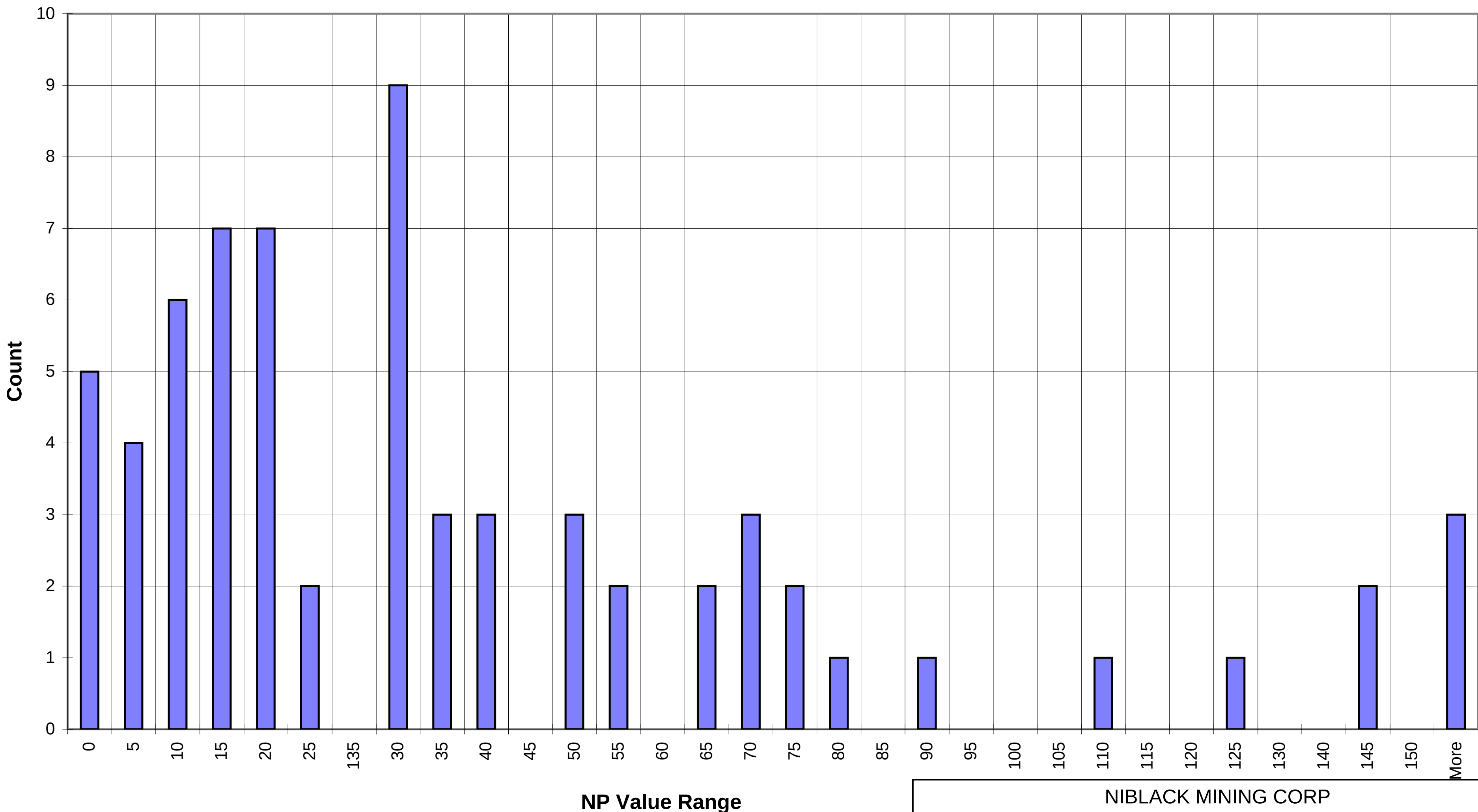

NIBLACK MINING CORP

NIBLACK PROJECT

UNDERGROUND EXPLORATION PLAN OF OPERATIONS
HISTOGRAM OF NEUTRALIZATION POTENTIAL VALUES

PROJECT / ASSIGNMENT NO.	REF NO.
-	-

FIGURE 2.12

REV.
0

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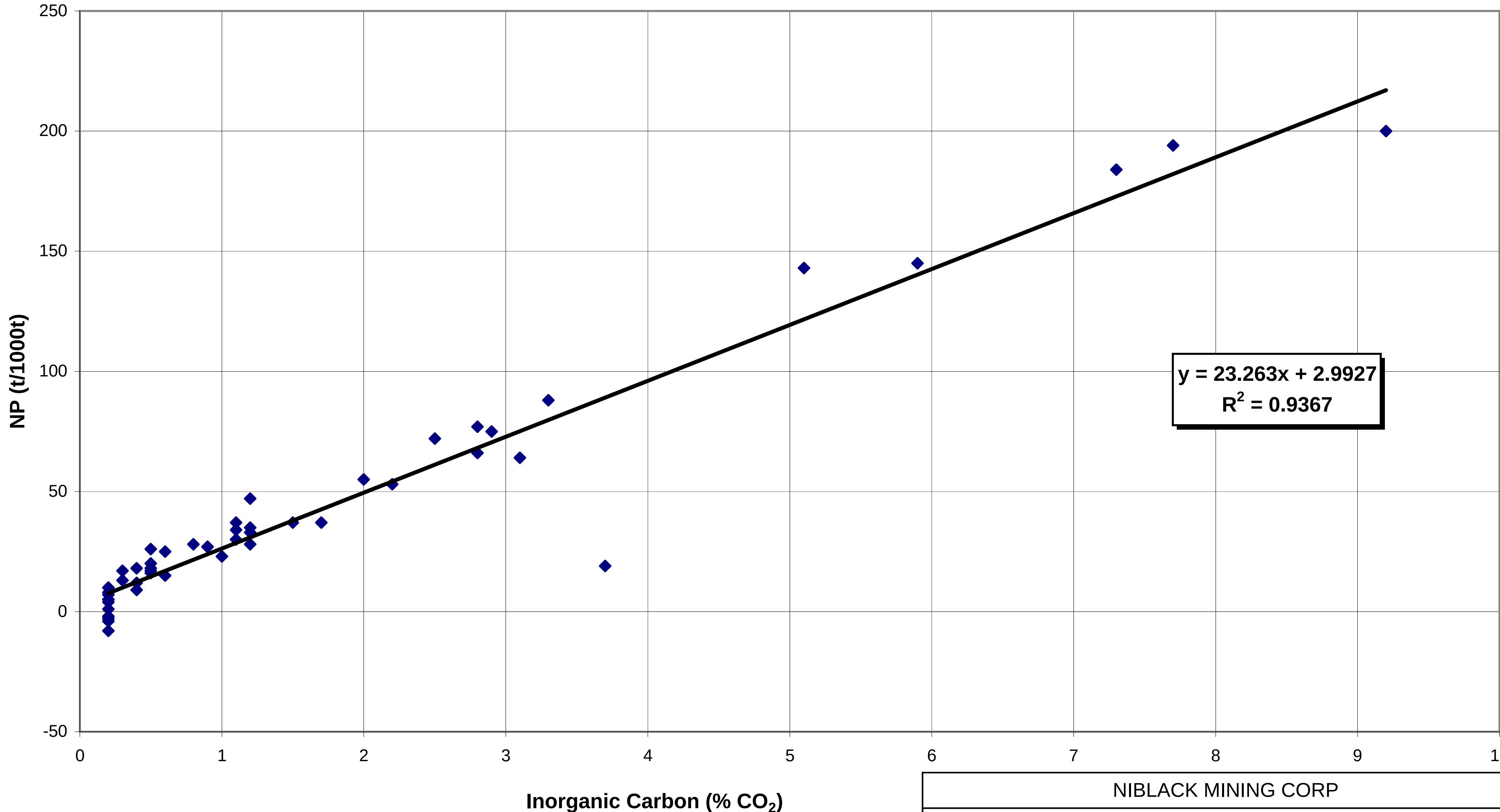

NIBLACK MINING CORP

NIBLACK PROJECT

UNDERGROUND EXPLORATION PLAN OF OPERATIONS
INORGANIC CARBON VS NEUTRALIZATION POTENTIAL
(NBCO SAMPLES)

NIBLACK	PROJECT / ASSIGNMENT NO. -	REF NO. -
	FIGURE 2.13	REV. 0

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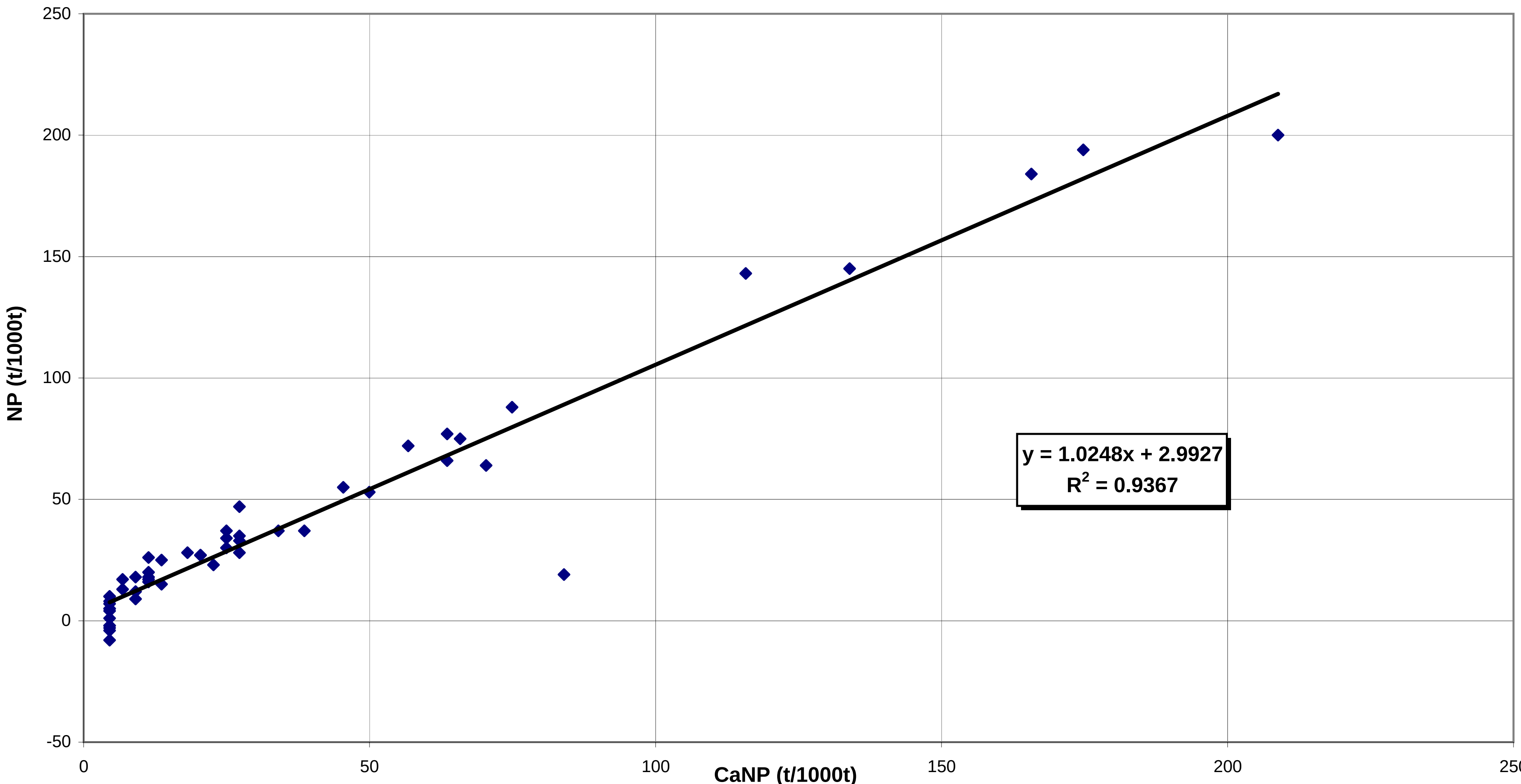

NIBLACK MINING CORP		
NIBLACK PROJECT		
UNDERGROUND EXPLORATION PLAN OF OPERATIONS CARBONATE NEUTRALIZATION POTENTIAL VS NEUTRALIZATION POTENTIAL (NBCO SAMPLES)		
NIBLACK	PROJECT / ASSIGNMENT NO. -	REF NO. -
	FIGURE 2.14	REV. 0

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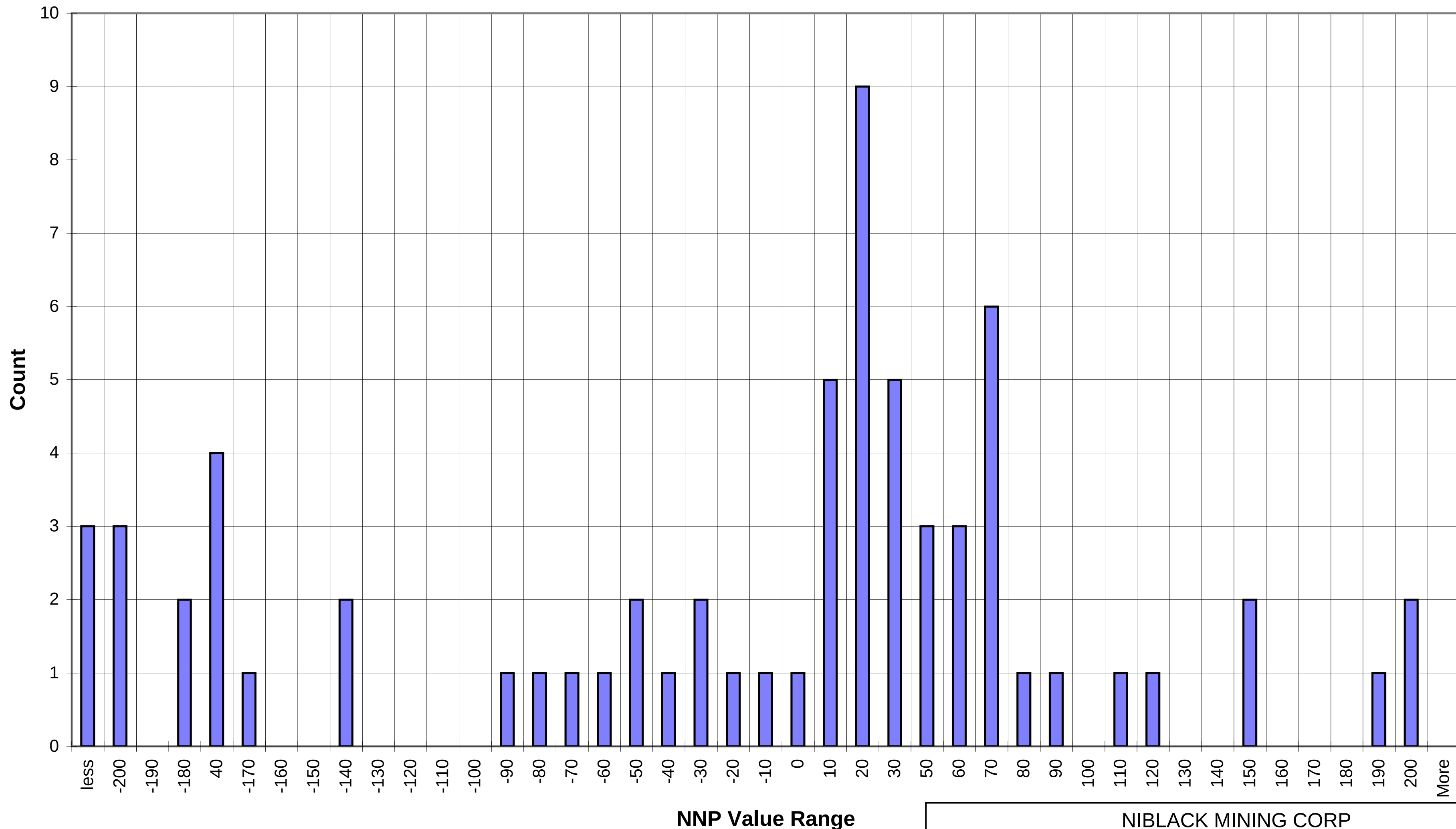

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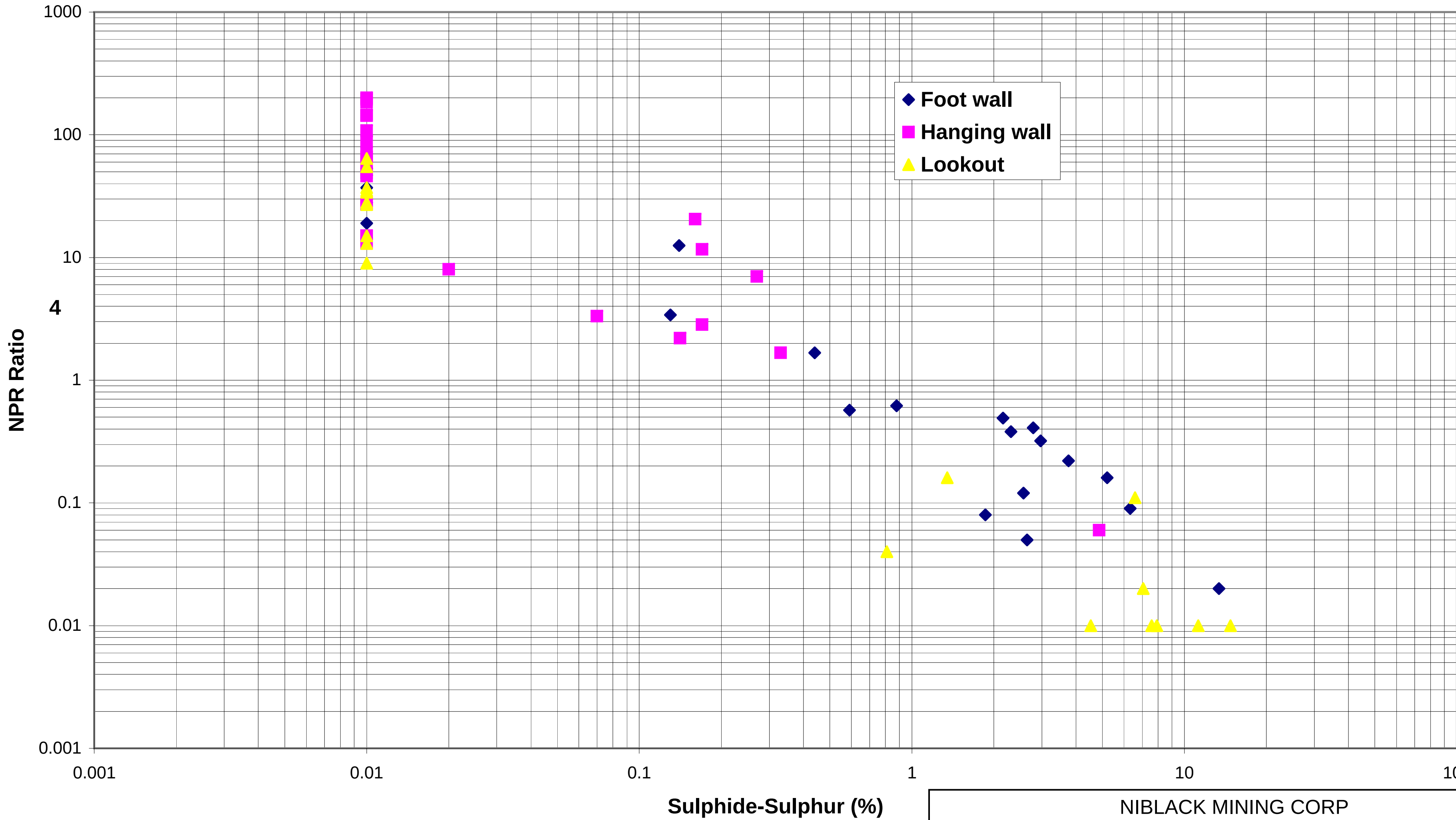
NIBLACK MINING CORP		
NIBLACK PROJECT		
UNDERGROUND EXPLORATION PLAN OF OPERATIONS **HISTOGRAM OF NET NEUTRALIZATION** **POTENTIAL VALUES**		
NIBLACK	PROJECT / ASSIGNMENT NO. -	REF NO. -
	FIGURE 2.15	REV. 0



NIBLACK MINING CORP		
NIBLACK PROJECT		
UNDERGROUND EXPLORATION PLAN OF OPERATIONS **LOG-LOG PLOT OF NPR-S**		
NIBLACK	PROJECT / ASSIGNMENT NO. -	REF NO. -
	FIGURE 2.16	REV. 0

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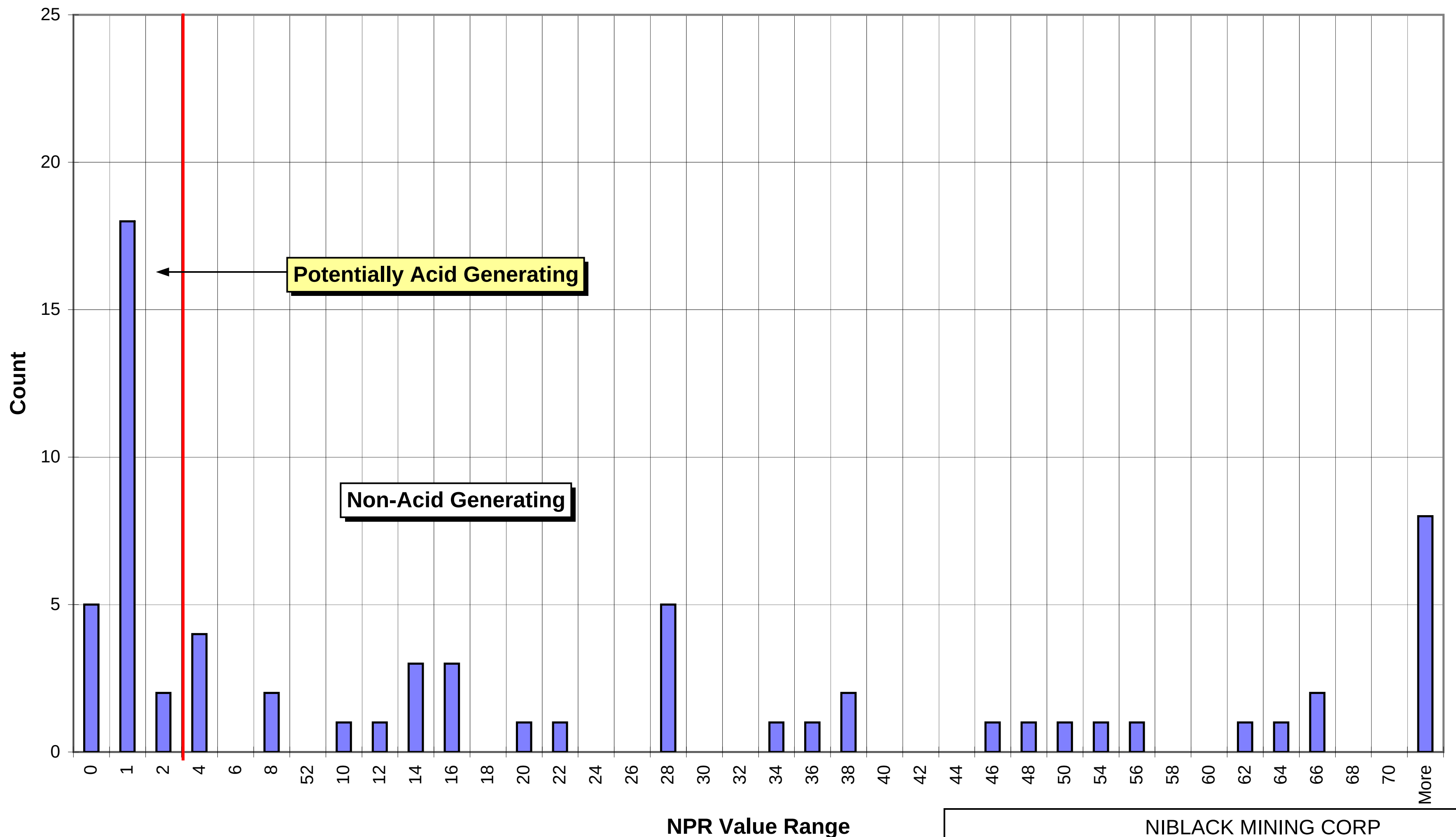

NIBLACK MINING CORP

NIBLACK PROJECT

UNDERGROUND EXPLORATION PLAN OF OPERATIONS
HISTOGRAM OF NEUTRALIZATION POTENTIAL
RATIO VALUES - ALL UNITS

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PROJECT / ASSIGNMENT NO.	REF NO.	
-	-	
FIGURE 2.17		REV. 0

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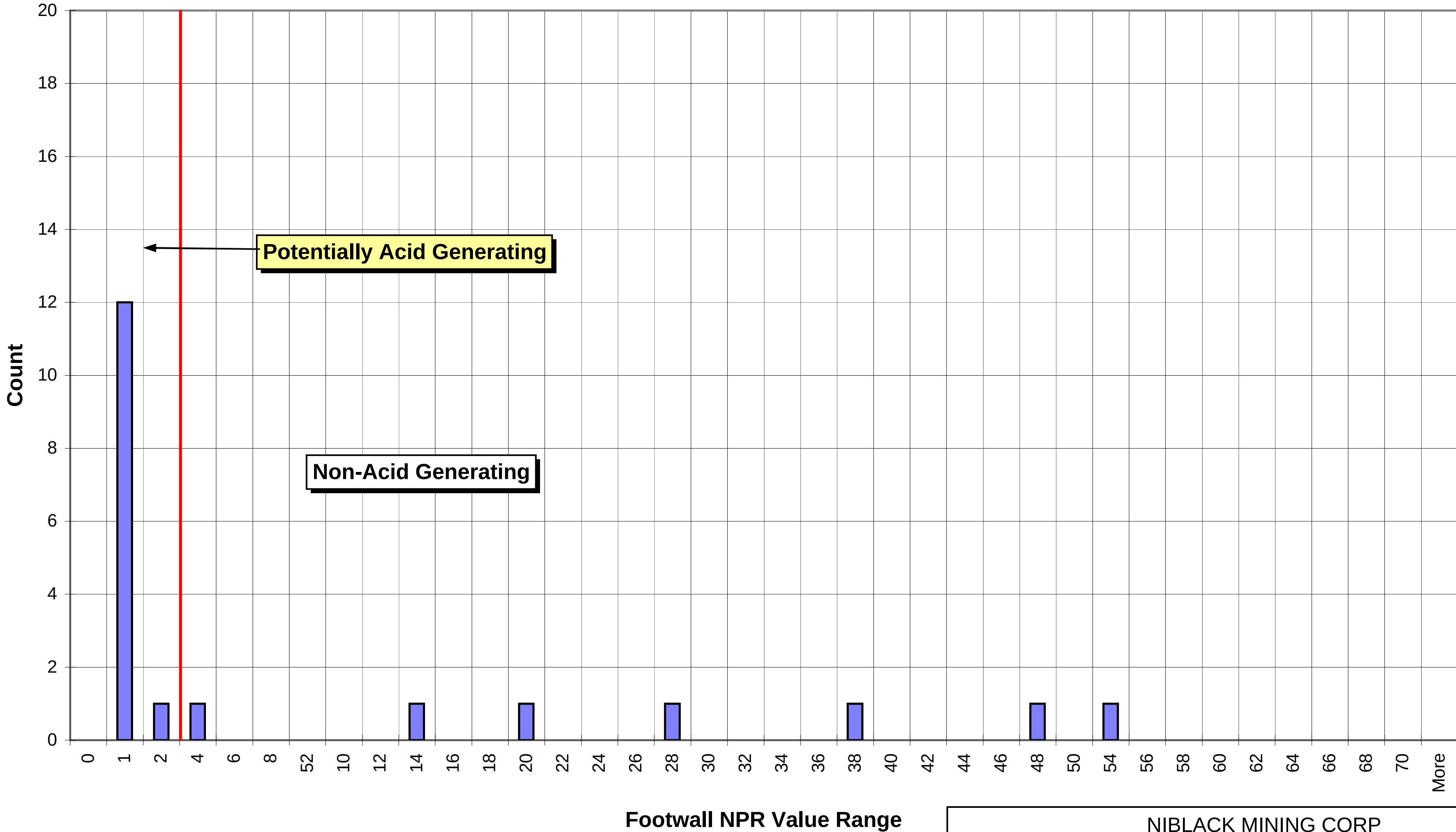

NIBLACK MINING CORP	
NIBLACK PROJECT	
UNDERGROUND EXPLORATION PLAN OF OPERATIONS HISTOGRAM OF FOOTWALL UNIT NEUTRALIZATION POTENTIAL RATIOS	
PROJECT / ASSIGNMENT NO. -	REF NO. -
FIGURE 2.18	REV. 0

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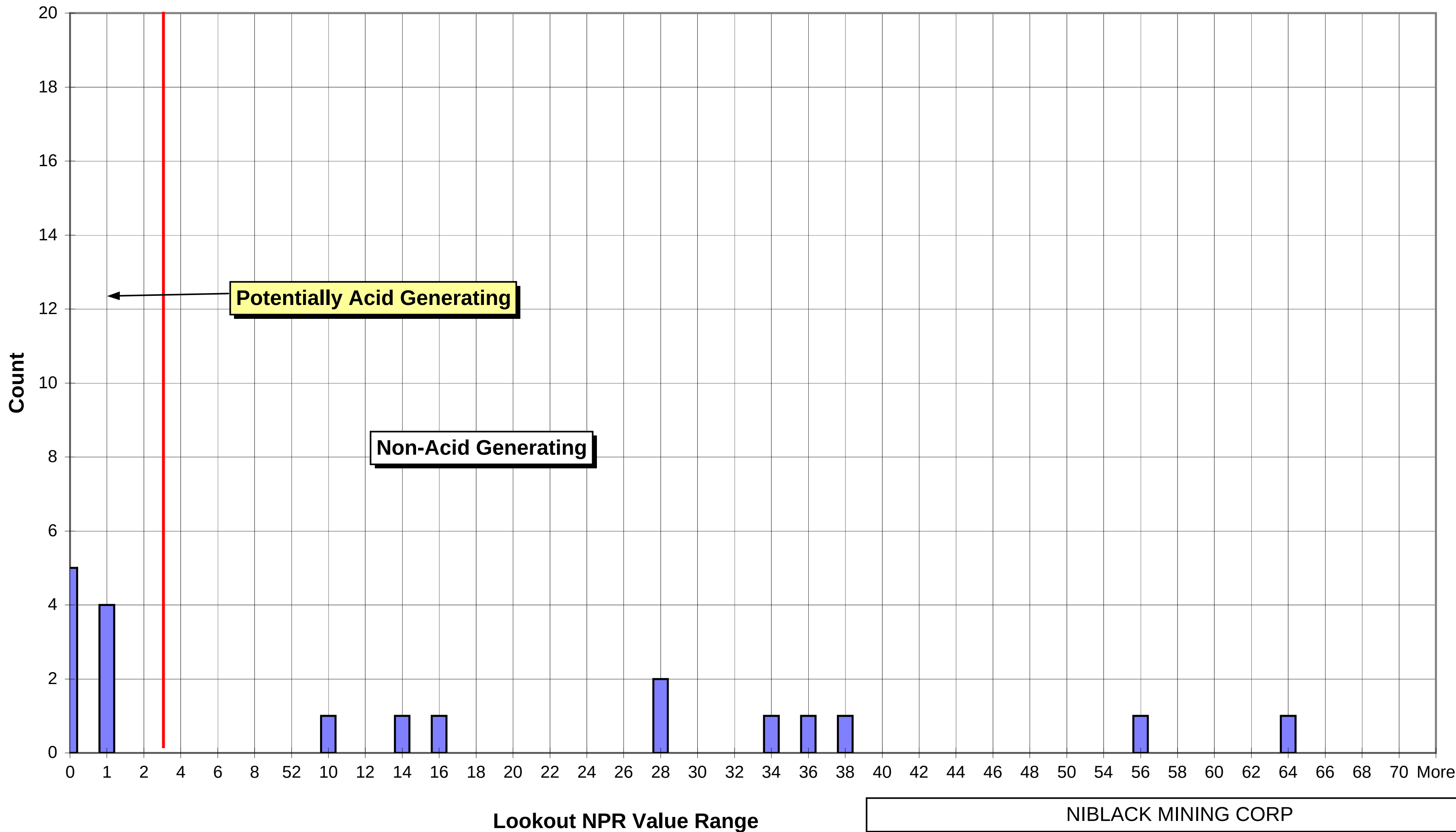

NIBLACK MINING CORP

NIBLACK PROJECT

UNDERGROUND EXPLORATION PLAN OF OPERATIONS
HISTOGRAM OF LOOKOUT UNIT NEUTRALIZATION POTENTIAL RATIOS

PROJECT / ASSIGNMENT NO.	REF NO.	
-	-	
FIGURE 2.19		REV. 0

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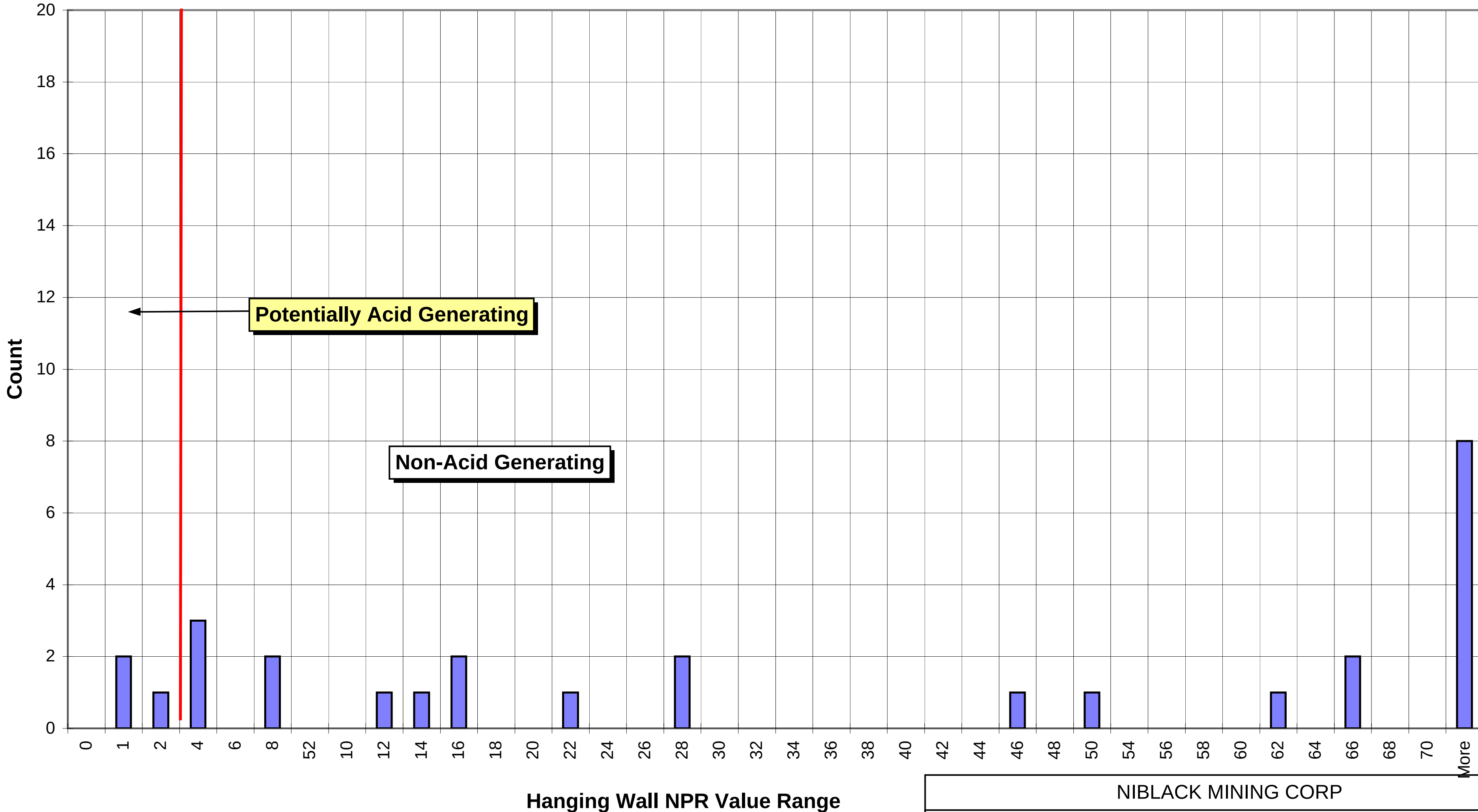

NIBLACK MINING CORP		
NIBLACK PROJECT		
UNDERGROUND EXPLORATION PLAN OF OPERATIONS HISTOGRAM OF HANGING WALL UNIT NEUTRALIZATION POTENTIAL RATIO VALUES		
NIBLACK	PROJECT / ASSIGNMENT NO. -	REF NO. -
	FIGURE 2.20	REV. 0

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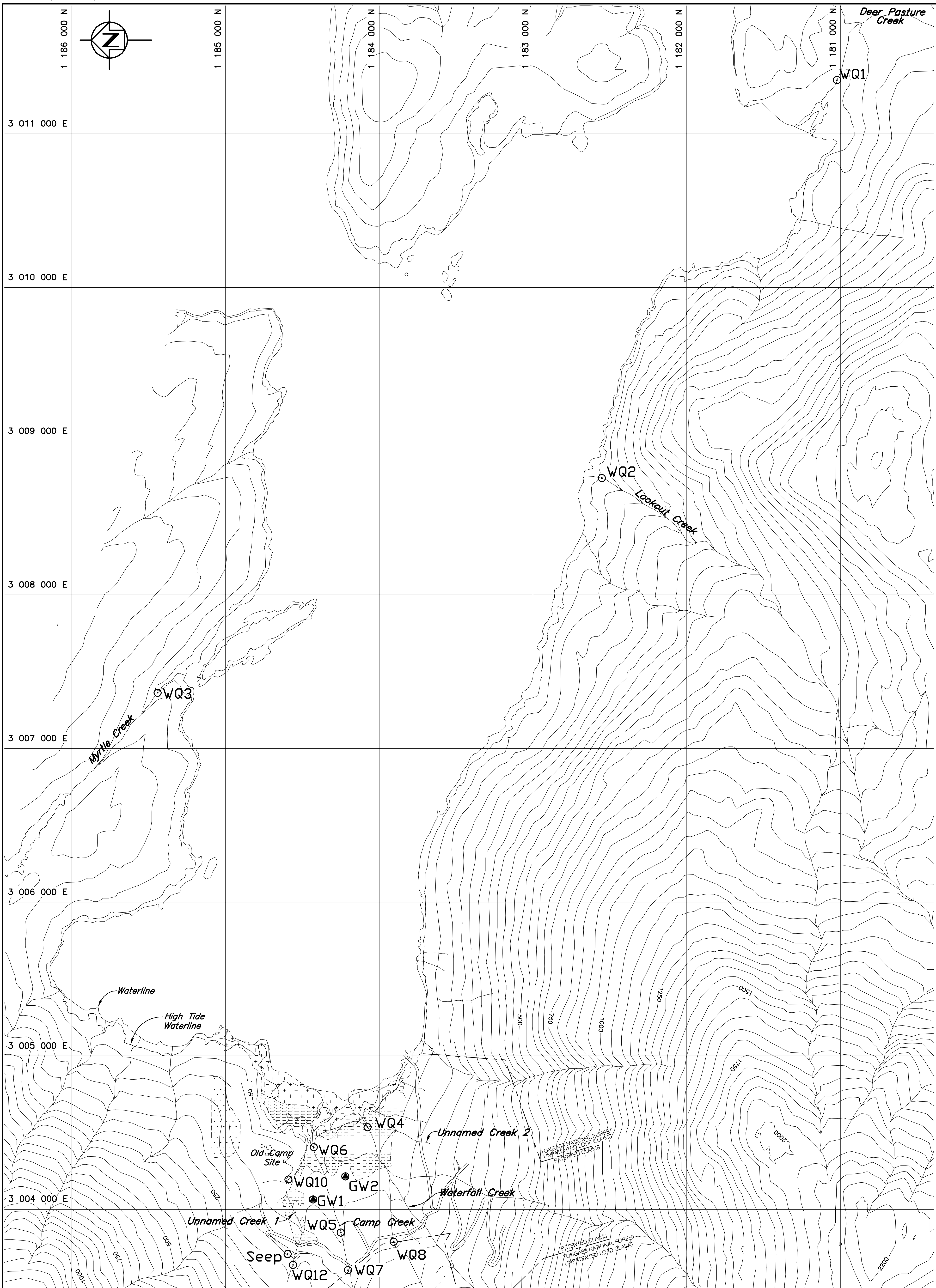
XREF FILE : Hydro_Feature, Topo



LEGEND

- Baseline GW Site
- Baseline Water Quality Station
- E1UBL Estuarine – Subtidal
- E2US1N Estuarine – Unvegitated Intertidal
- PFO–SS4B – Needleleaf Forest/Scrub–Shrub Wetland
- PFO4B – Needleleaf Forest Wetland
- E2EM1P Estuarine – Emergent Intertidal

NOTES

1. This figure produced from information provided by Beacon Hill Consultants (1988) Ltd.
2. All dimensions and elevations are in feet unless otherwise noted.

NIBLACK MINING CORP.

PROPOSED EXPLORATION PROGRAM

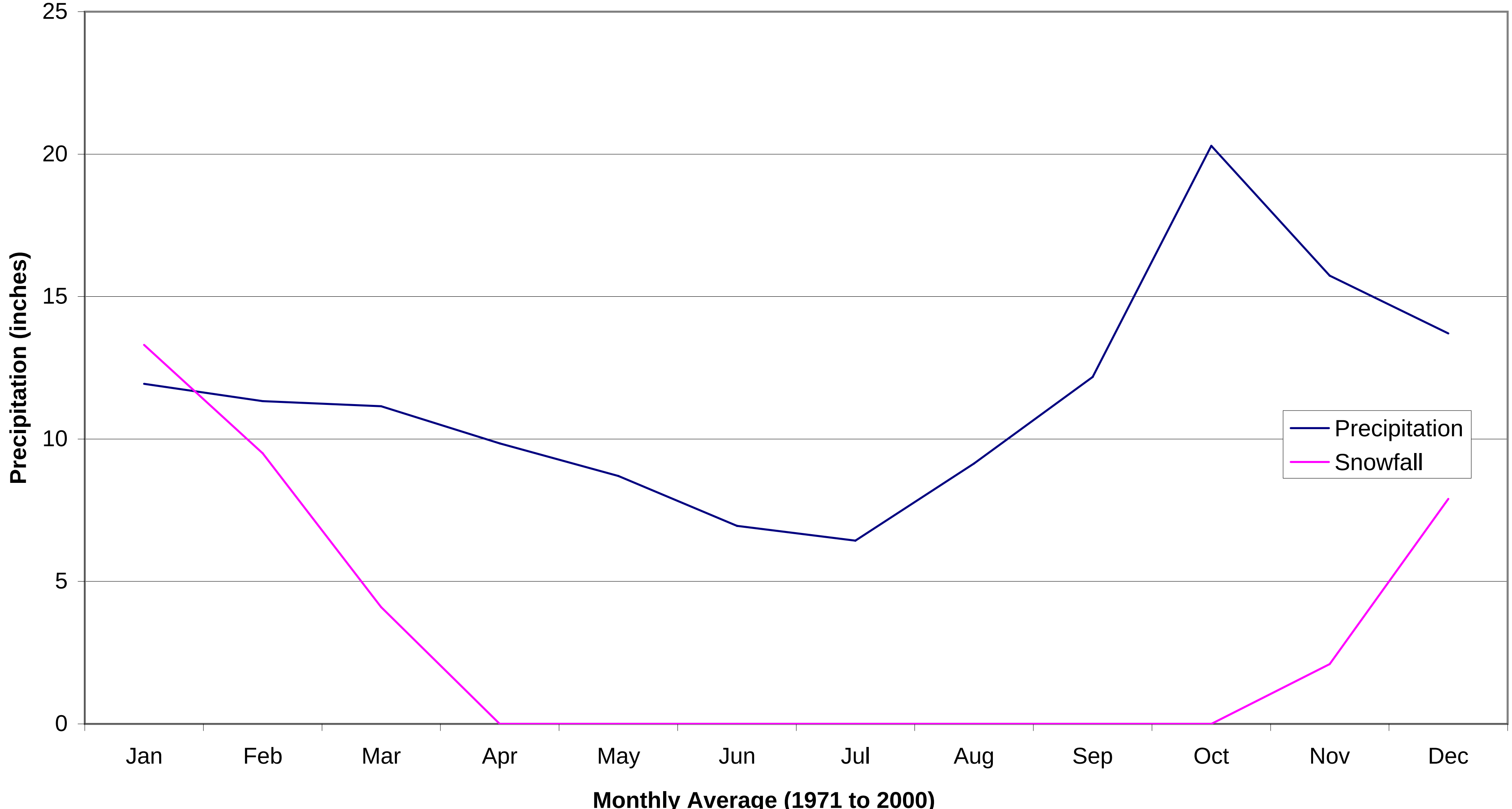
BASELINE WATER QUALITY STATIONS

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO.	REF. NO.
VA102-205/2	VA07-00491
FIGURE 3.1	REV. 0

REV. 0	13APR'07	ISSUED IN FINAL

VANCOUVER B.C. CAD FILE: M:\1\02\00205\02\A\Acad\Figs\855.dwg 1"=600' PLOT 1=1(PS) Apr 12 2007 by:schizer



NIBLACK MINING CORP

NIBLACK PROJECT

UNDERGROUND EXPLORATION PLAN OF OPERATIONS
MEAN MONTHLY PRECIPITATION AND SNOWFALL FOR KETCHIKAN, ALASKA (1971 - 2000)

Knight Piésold CONSULTING	PROJECT / ASSIGNMENT NO. VA-102-205/1-A	REF NO. 1	
	FIGURE 3.2		REV. 1

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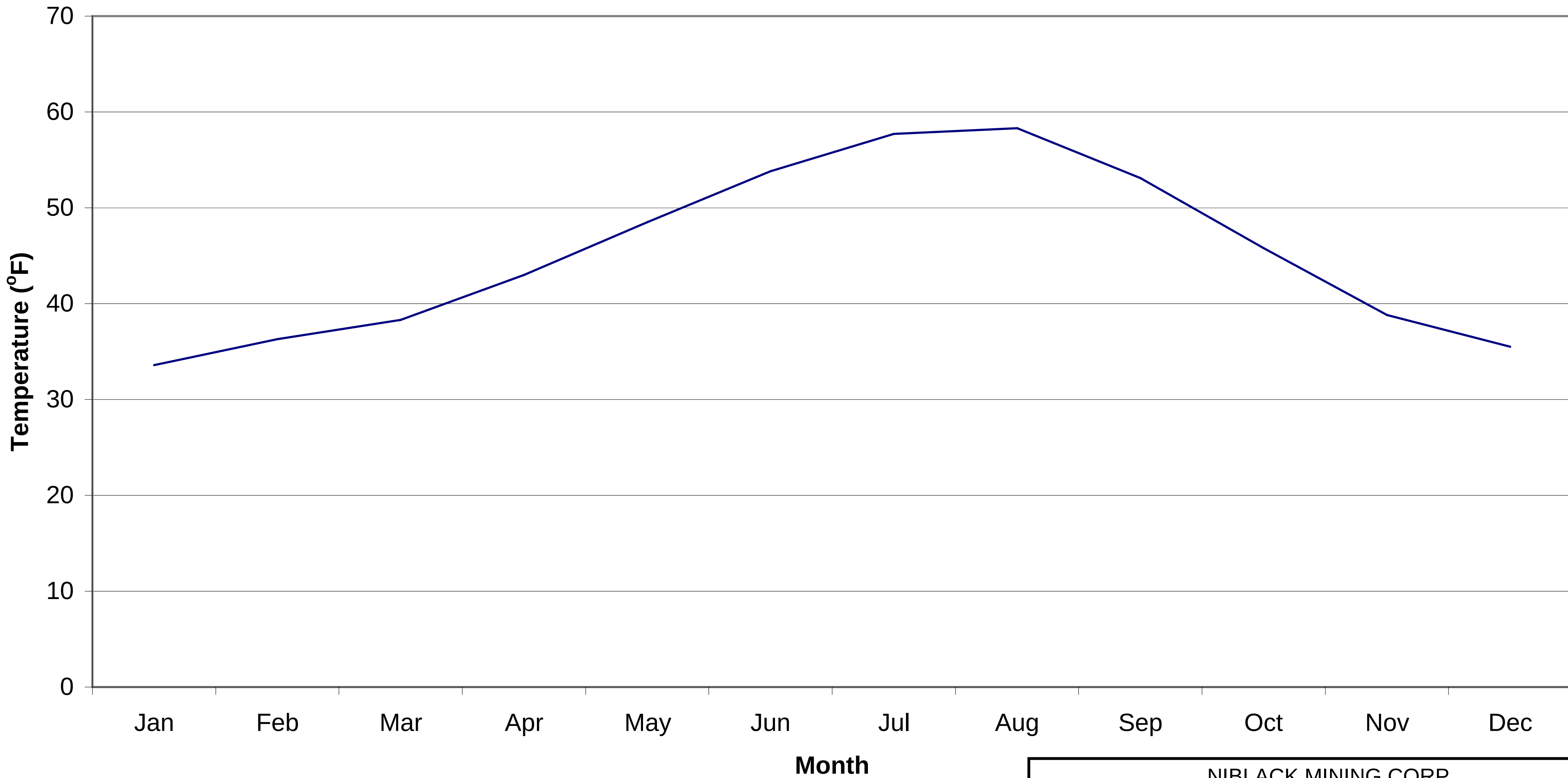

NIBLACK MINING CORP	
NIBLACK PROJECT	
UNDERGROUND EXPLORATION PLAN OF OPERATIONS MEAN MONTHLY TEMPERATURES FOR KETCHIKAN, ALASKA (1971 - 2000)	
Knight Piésold CONSULTING	PROJECT / ASSIGNMENT NO. VA-102-205/1-A; REF NO. 1
	FIGURE 3.3; REV. 1

Rev 1 - Issued for Report