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NEW CANAMIN RESOURCES LTD.
HUCKLEBERRY PROJECT

PRE-APPLICATION FOR
A MINE DEVELOPMENT CERTIFICATE

REVISED SEPTEMBER 1994

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Table 1.1 History of mineral exploration at the Huckleberry Project.

Year	Company	Type of Work		Depth of Holes Drilled, metres
1960	Kennco Exploration	Stream sediment sampling		
1962-64	Kennco Exploration	Geology, geochemistry, induced polarization and magnetometer geophysics		
		Diamond drilling, 1963: 6 holes		290
		Diamond drilling, 1964: 9 holes		1,416
1969	Kennco Exploration	Geochemistry		
1970	Kennco Exploration	Geochemistry, induced polarization, magnetometer, trenching.		
		Diamond drilling:	7 holes around main stock	1,239
			2 holes on east end	150
1971	Kennco Exploration	Diamond drilling:	5 holes on Main Zone	870
1972	Granby Mining	Diamond drilling:	18 holes on Main Zone	2,830
1973	Granby Mining	Diamond drilling:	47 holes on Main Zone	13,361
1992	New Canamin	Diamond drilling:	37 holes on Main Zone	4,670
1993	New Canamin	Diamond drilling:	29 holes on Main Zone	3,094
			58 holes on East Zone	10,563
			12 condemnation holes	1,856
		Airborne magnetics, electromagnetics		
1994	New Canamin	Diamond drilling:	38 holes on Main Zone	4,585
			50 holes on East Zone	13,181
			Condemnation	2,041

1.3 Executive Summary

The Huckleberry Project is located in west-central British Columbia, at 127° 10" W, 53° 41" N. It is on the southern flank of Huckleberry Mountain, north of Tahtsa Reach on the Nechako Reservoir. The deposit has an average surface elevation of 1,036 m. The highest elevation on the property is on Huckleberry Mountain at 1,543 m, and the lowest is Tahtsa Reach at about 860 m.

The property is reached by travelling south from Houston, B.C., via 127 km of gravelled public forest access road, and 8 km of gravelled private road. Houston is 307 km west of Prince George and is served by Highway 16 and the Canadian National Railway.

Section 2 of this prospectus reviews the geology and mineralization of the Huckleberry Project specifically, and of the surrounding region in general terms. The geology of the region is very complex, but generally consists of a basement of Middle Jurassic volcanics of the Hazelton Group, unconformably overlain by successor basin deposits of the Late Jurassic Bowser Lake sediments and the Early Cretaceous Skeena Group turbidites. These are locally overlain by flat-lying Late Cretaceous volcanics of the Kasalka Group. Mineral occurrences in the region, including the Huckleberry Property, are strongly associated with the Late Cretaceous Bulkley Intrusives.

The Main Zone of the Huckleberry Property is associated with a small intrusive stock at the western end of the system, while the East Zone is within and peripheral to a second stock. A recently-discovered porphyry occurs in the central area. All of the rock units in the property have undergone moderate to intense alteration, probably in several phases. Copper mineralization in both zones is directly related to biotite-feldspar-granodiorite porphyries, and to the intensity of potassic alteration. Almost all of the copper mineralization occurs as chalcopyrite, while bornite is relatively scarce. Secondary mineralization in the form of malachite and chalcocite is relatively rare. Molybdenite is of minor significance, and silver and gold contents are low.

An intensive drilling program in 1993 and 1994 has made it possible to estimate the mineable reserves of the Huckleberry property. Assuming a cut-off grade of 0.27% copper, the Main Zone contains mineable reserves of 30.8 million tonnes of ore, grading 0.47% copper. The East Zone contains 52 million tonnes, grading 0.55% copper.

Section 3 of this prospectus presents a mine plan for the Huckleberry Project. Two open pits accessing the Main Zone and East Zone deposits will be developed sequentially. The Main Zone pit would be mined down to the 860 m elevation, with pit slopes of 55° on the west side, and 52° around the rest of the pit. The East Zone would be mined to an elevation of 788 m on the west end, and 844 m on its east end. Stripping ratios are 0.80:1 for the Main Zone and 1.23:1 for the East Zone. Mining methods would consist of conventional open-pit methods, using diesel-powered front-end loaders or hydraulic shovels. Mining efforts would be concentrated in the East Zone during the first 11 years of the project, followed by the Main Zone in the next five years. High-grade ore would be processed as soon as it is mined, while low-grade ore would be stockpiled and processed in the later stages of the project, providing for an estimated 18 year mine life.

Section 4 of this prospectus presents a conceptual milling circuit for the Huckleberry Project. The ore would be processed by primary crushing, followed by grinding in a semi-autogenous mill and two ball mills. Conventional flotation would be used to recover the copper, gold and silver values. An additional flotation circuit would be used to separate the molybdenum from the copper. Only conventional, government-approved flotation reagents will be used.

The daily production rate is estimated to be 13,500 tonnes per day of copper-bearing ore for approximately 18 years. The project will require the impoundment of approximately 84 million tonnes of mine tailings generated by the milling process, and the storage of the waste rock produced in mining the ore. Besides copper, the Huckleberry Project will also produce gold, silver and molybdenum. The approximate annual production of metals by the Huckleberry Project is estimated to be:

copper:	26,760 tonnes	(59,000,000 pounds)
molybdenum:	726 tonnes	(816,000 pounds)
silver:	13,159,000 grams	(464,200 ounces)
gold	150,000 grams	(5,300 ounces)

Section 5 of this report discusses the waste characterization program that New Canamin has undertaken for the Huckleberry Project. The aim of this program is to develop design criteria needed for management plans that will deal with tailings solids and tailings supernatant, waste rock, stockpiles of low-grade ore, and exposed wall rock and floor rock in the open pits. The

program consists of static testing of samples of each of these materials, from both the East Zone and the Main Zone. Static testing has included mineralogical and multi-elemental analyses of solid materials, and acid-base accounting of all the materials listed above. A program of kinetic testing is now underway, which will simulate underwater and surface disposal of cleaner tailings, combined tailings, waste rock and low-grade ore. The major issue under study is the potential for acid mine drainage, due to the oxidation of pyrites. Because static and kinetic testing is still underway, it is premature to predict the findings of this program. The mine design is being directed as if all materials from the East Zone were acid-generating.

Section 6 of this prospectus discusses the labour and infrastructure that will be needed to support the Huckleberry Project. New Canamin Resources Ltd. estimates that during the construction phase, the Huckleberry Project will employ approximately 65 workers full-time for about 21 months, and that the peak construction labour force will be about 220 workers. The operations phase would employ about 160 workers during the 18-year lifetime of the project. During operations, most workers would have a work rotation of four-days-on, four-days-off, with 12-hour work shifts. There would be no permanent community near the Huckleberry site. Instead, employees would live in a camp on the project site during their four days on shift, and would be bussed to Houston for their four days off. Camp accommodation would conform to standards of the BC Construction Workers' Union. The camp would be built close to the mill site, and would not affect recreational areas such as Sweeney Lake or Tahtsa Reach.

Development of the Huckleberry Project would entail few changes to the existing regional infrastructure. The existing road access to the Huckleberry Project follows the existing Morice River, Morice-Owen, and Morice-Tahtsa Forest Service Roads for about 125 km, then follows a private dirt-gravel road for the remaining 8 km. The first section of this road network, from Houston to Km 75, is adequate for the shipment of copper concentrate. From Km 75 to Km 113.6, additional maintenance and improvement of the existing road network would be necessary to accommodate 42-t tractor-trailers carrying concentrate. New Canamin proposes to share these costs with other industrial users of the system. New Canamin proposes to build a new section of road, the Huckleberry Connector, from Km 113.6 to the mine site, skirting the east side of Huckleberry Mountain. The 8-km Huckleberry Connector would require only one bridge crossing

at Whiting Creek, and would divert heavy trucks from the mine away from Sweeney Lake and its two Forest Recreation Sites.

Copper concentrate from the Huckleberry Mine would be trucked to Houston, where it would be transferred to a load-out facility located near the Canadian National Railways main line. There, the concentrate would be transferred to covered gondola rail cars, which would either carry it westward to Prince Rupert for overseas export, or eastward to a Canadian smelter. The load-out facility would consist of a weigh scale, a covered transfer and storage building, a rail siding and a parking lot. Molybdenum concentrate would be bagged and trucked to the Endako Mines refining facility at Fort Fraser.

New Canamin proposes to draw hydro power for the Huckleberry Project from the existing BC Hydro grid at Houston. The original 1993 prospectus considered the potential for hydroelectric power at Kasalka Creek, but New Canamin has since declined this option. New Canamin now proposes to build a 138-Kv powerline connecting Houston to the Huckleberry site. The preferred route is 115 km long, which would parallel the existing Morice River, Morice-Owen and Morice-Tahtsa Forest Service Roads for most of its length.

New Canamin estimates that sufficient water can accumulate in the tailings management facility to supply all the requirements for process water during mine start-up. Preliminary models of the water balance of the tailings management facility indicate that all process water requirements can also be met by the facility during on-going operations. Tailings supernatant would be repeatedly recycled as process water for the mill, so that there would be no release of effluent into the outside environment. There should be no requirement to draw process water from outside sources. Treated sewage and gray water from the camp and the mill would also be disposed in the tailings management facility. Combustible solid wastes would be burned in an incinerator. non-combustible refuse would be compacted and disposed in a landfill on-site.

Section 7 of this prospectus outlines a preliminary development schedule for the Huckleberry Project. Exploration and delineation of the deposits is now virtually complete. Environmental and socio-economic studies are still continuing, and a two-year program of baseline studies has now been completed. Feasibility studies for the construction and engineering phase should be completed

SECTION 2.0 GEOLOGY AND MINERALIZATION

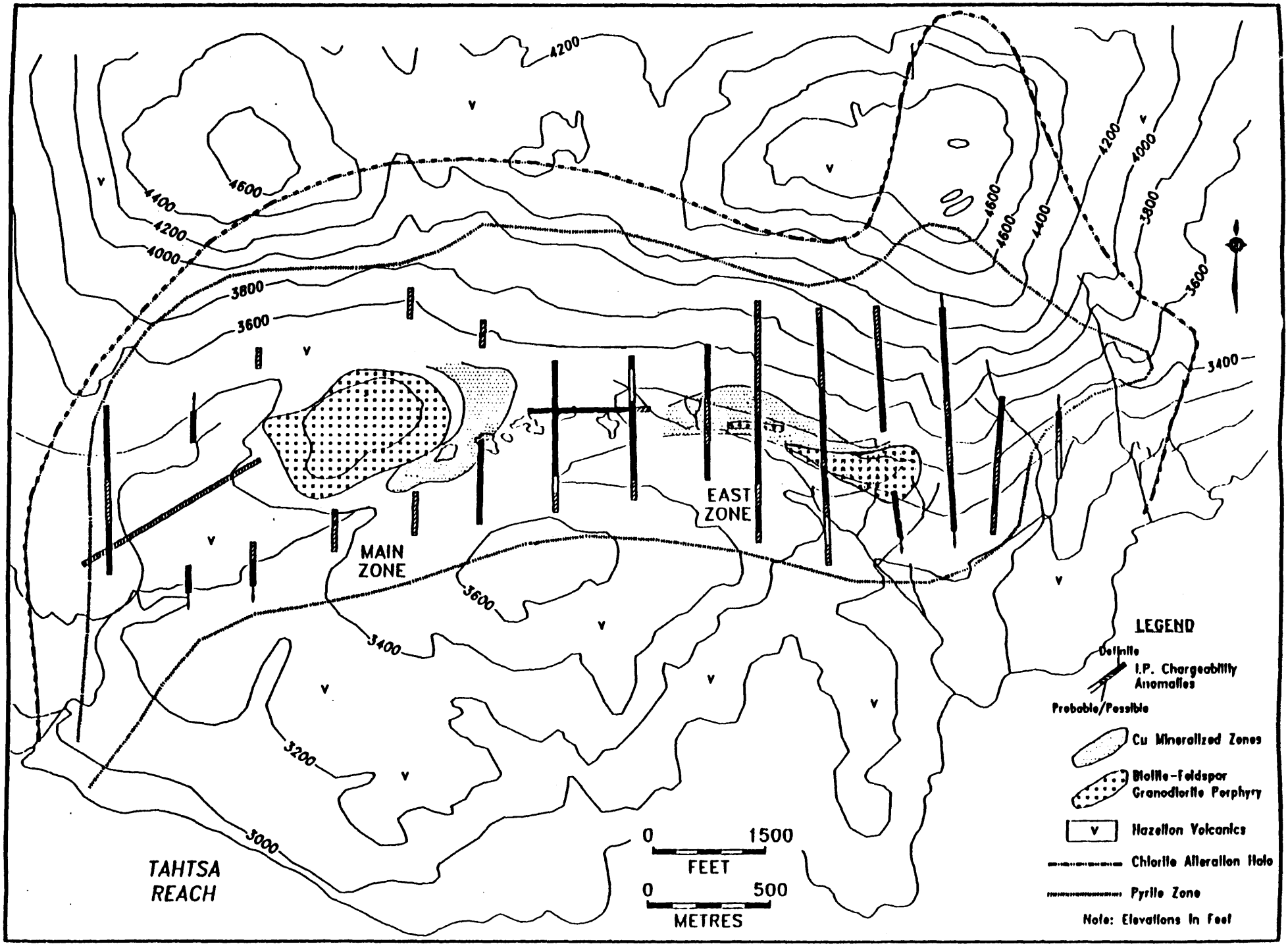
2.1 Regional Geology

The region is underlain predominantly by Middle Jurassic volcanic and sedimentary rocks of the Hazelton Group, within the Intermontane Tectonic Belt flanking the eastern edge of the Coast Crystalline Belt. The Hazelton Group is unconformably overlain in several areas by successor basin deposits of Late Jurassic Bowser Lake sediments and Early Cretaceous Skeena Group turbidites. These are all overlain locally by flat-lying Late Cretaceous volcanics of the Kasalka Group, consisting of felsic pyroclastics and flows and later basalt flows. These have all been intruded by numerous small to medium-sized stocks and zoned intrusives ranging from Late Cretaceous to Early Tertiary in age. The Late Cretaceous Bulkley intrusives are generally hornblende-biotite granodiorites to quartz monzonites. They are of economic interest because of the copper mineralization that is frequently associated with them. Mineralized systems related to these intrusives include the Huckleberry, Whiting Creek, Ox Lake, Coles Creek and Bergette deposits. Copper-molybdenum mineralization is also associated with the Eocene Nanika intrusives. The Berg deposit is the only significant example known in the immediate area.

2.2 Geology and Mineralization of the Huckleberry Deposit

2.2.1 Geology

The claim group is underlain mainly by fragmental andesitic and dacitic volcanics of the Hazelton Group (Figure 2.1), generally striking east-west and dipping to the south. These have been intruded by at least two small stocks of porphyritic biotite-feldspar granodiorite. The stocks appear to represent apophyses of a larger batholith of similar composition that underlies the entire Huckleberry property and possibly extends to the northwest and southeast. Copper-molybdenum mineralization is associated with these small intrusive bodies. The original discovery, termed the Main Zone, is located near the west end of the system. The East Zone is peripheral to and within a small stock in the eastern half of the system. Several post-mineral dikes cut through the area, consisting of megacrystic biotite- feldspar lamprophyre and an aphanitic monzonite.



HUCKLEBERRY PROJECT – GEOLOGICAL–GEOPHYSICAL COMPILATION

The main porphyry stock is approximately 760 m long by 370 m wide, and is elongated northeast-southwest. This stock is a zoned quartz diorite, being more porphyritic with greater biotite towards the periphery and becoming more granitic towards the centre.

As currently defined, the east porphyry stock is teardrop-shaped in plan and elongated along a fault on the southern contact. It has a strike of 140° and a dip of 70° N, and it shows strike-slip movement. The stock is similar in composition to the Main Zone stock and is 305 m long and up to 90 m wide at the east end.

Geologic mapping, drilling and air-photo interpretation has indicated several prominent fault zones, which mainly trend in northwest or northeast directions. An east-west trending structural feature is indicated on air-photos and regional morphology, as well as, by the alteration envelope in the volcanic host rocks. It appears that both the Main and East Zones occur at the intersections of the east-west structure with the fault Zones.

2.2.2 Mineralization and Alteration

Drilling results indicate that all of the rock units in the area have undergone moderate to intense alteration, and that several phases of alteration are indicated. The alteration envelope is elongated from east to west across the property for a distance of 4 km, and is approximately 1 km wide. The initial alteration event appears to have been clay-sericite alteration of the feldspars, overprinted by widespread hornfelsing of the volcanics. This has resulted in the development of very fine biotite and magnetite with amphibole and chlorite-epidote-pyrite alteration. This was followed by intense hydrothermal biotization and albitization, with amphibole and chlorite in vein selvages and within the groundmass. This stage of alteration is associated with quartz veining and fracturing, with deposition of chalcopyrite, pyrite and minor molybdenite in veinlets and as fracture coatings. Magnetite occurs with chalcopyrite in veins within this stage also. Quartz-sericite-clay alteration is locally strongly developed as an overprint on the biotitic zone, resulting in magnetite destruction and bleached haloes around quartz-pyrite veinlets. The last stages of veining resulted in the deposition of zeolites, anhydrite, carbonates, and finally gypsum within fractures and veins developed by the collapse of the hydrothermal system.

The Huckleberry system is a relatively high sulphide system. Pyrite is the most abundant sulphide, occurring in fractures, veins and disseminations. It commonly comprises up to 3-5% of the deposits, particularly on the periphery, but dropping to less than 1% within the areas of strongest copper mineralization. The strongest pyrite mineralization appears to be related to the later phyllic quartz-sericite-clay alteration.

Copper mineralization in both the Main and the East Zones is directly related to the intrusion of the biotite-feldspar granodiorite porphyries. The Main Zone deposit is located on the east flank of the western porphyry stock, partially overlapping the porphyry but mainly within the hornfelsed volcanics. The porphyry generally contains 0.30 to 0.40% copper adjacent to the Main Zone mineralization, but typically less than 0.20% copper overall. The East Zone is also partially within but mainly flanking the north-west contact of an elongate body of biotite-feldspar porphyry, with mineralization concentrated within the hornfelsed volcanics. The East Zone porphyry has sections on the western portion that are of significantly higher grade than the Main Zone porphyry. For example, hole 94-165 grades 0.882% copper over 148 m, and hole 93-87 grades 0.60% copper over 73 m.

The strongest copper mineralization is directly related to the intensity of biotization and albitization of the host rock. In the most intensely altered areas, biotite content is up to 40 to 50% of the rock. Most of the chalcopyrite was introduced with the earlier phases of veining and hornfels development. This was associated with quartz-albite - amphibole veins and associated biotization decreasing in later quartz-chlorite-sericite veins. A later stage (consisting of generally wide quartz and quartz-anhydrite veins with fine-grained molybdenite, chalcopyrite, and pyrite) cross-cuts the earlier chalcopyrite mineralization.

Virtually all of the copper mineralization occurs as chalcopyrite, and bornite is only rarely noted. Secondary copper mineralization is relatively minor, although malachite-azurite and chalcocite have been noted in the upper portions of holes that have less than 20 feet of overburden cover. Molybdenite is of lesser significance, with grades averaging approximately 0.015% Mo. Precious metal contents are very low. The silver content is generally 1 to 4 ppm and that of gold is 50 to 100 ppb, although higher gold grades are associated with higher copper values in some sections,

where gold grades can run from 150 to 200 ppb over widths of 15 to 30 m. These higher gold grades are particularly associated with sections grading higher than 0.70 to 0.80% copper.

The East Zone is approximately 200 m wide and 800 m long and elongated at approximately 115° azimuth with a steep dip to the north. Most of the copper mineralization occurs within hornfelsed Hazelton Group volcanics, where the strongest mineralization is in intensely biotite altered rocks. The western nose of the East Zone stock contains significant Cu mineralization. The East Zone porphyry is still open to defined limits on the east. A number of attenuated "fingers" of porphyry extend into the volcanics towards the west and increase in size to depth.

Ground geophysical coverage consists of dipole-dipole induced polarization surveys, at a line spacing of 244 to 305 m completed by Kennco in 1963 and 1970, with an "a" spacing of 61 m and n = 1-4. These surveys outlined the overall sulphide system very well, with the strong pyrite mineralization defining a halo of higher chargeability around the Main Zone stock, and extending eastwards over the East Zone for a total distance of 4000 m. The anomaly is widest (1000 m) across the East Zone. The high chargeability reflects the overall high pyrite content as well as the strong chalcopyrite mineralization which lies central to the system. Induced polarization surveys over the Main Zone define the pyrite halo around the stock, with the main copper mineralization lying between the stock and the pyritic halo, within an area of lower chargeability. This may reflect a slightly deeper level of erosion or exposure over the Main Zone than over the East Zone.

Airborne geophysics has outlined a strong magnetic low that flanks and partially overlaps the East Zone mineralization. The low apparently represents a Zone of magnetite destruction associated with the intrusion and the associated clay-sericite alteration. On a larger regional scale the Huckleberry deposits occur within a low that is within a north-north-west trending high that is approximately 5 km wide and greater than 10 km long.

2.3 Mineral Inventory and Mining Reserves

2.3.1. Main Zone

A mineable reserve estimate was prepared by Granby in 1973 for the Main Zone as part of a feasibility study. Granby estimated the Main Zone to host an extractable reserve of 77 million t grading 0.4% Cu and 0.025% Mo with minor recoverable Ag and Au. This reserve was based on a 0.30% Cu cutoff and generated a 1.17 to 1 stripping ratio. The reserve was calculated through inverse squared distance weighting of assays using a floating cone as a search criterion.

The Main Zone has been drilled with a combination of vertical and inclined core holes on 25 to 30 meter centres. By the end of June 1994, some 26,000 meters of such drilling had been completed by all operators including New Canamin Resources.

New Canamin has focused attention on the higher grade core area of the Main Zone and has calculated an in situ reserve using kriging based on geologic interpretation. A model consisting of blocks sized 12.5 x 12.5 x 8 m was developed. Conditional probability was conducted as a check on the kriging estimate and both methods compare favourably. The reserves are given in Table 2.1.

Table 2.1 Main Zone *in situ* reserves.

Cutoff (% Cu)	Millions of Tonnes	Grade (% Cu)
0.30	53.7	0.445
0.40	29.5	0.527

A pit has been optimized using the Lerchs Grosman algorithm and the kriged block model. Geotechnical work has confirmed pit slopes of 55° on the west pit wall and 52° around the remainder of the pit. A copper cut-off grade of 0.27% Cu was established as the break-even grade. Below this grade, mined material is considered to be waste rock. Using these parameters, the Main Zone contains a mineable reserve of 30.8 million t grading 0.47% Cu at a strip ratio of 0.49:1. This reserve assumes mining to the 860-m elevation and generates 15,171,000 t of waste rock. In addition, a total of 3,000,000 m^3 of overburden consisting of glacial till and a smaller amount of peat would have to be removed.

2.3.2 East Zone

The East Zone has been drilled on approximately 33 and 66 m centres with cross-sectional drilling alternating from vertical to - 60° for the most part. In total, since discovery in February 1993, 23,744 m of NQ and HQ diamond drill coring has been completed and assayed.

An *in situ* reserve estimate wherein 89% is proven and 11% probable has been calculated using Kriging constrained by geologic interpretation and has been compared to an estimate prepared by conditional probability. A block model consisting of 11.1 x 11.1 x 8 m blocks was developed. The *in situ* reserves of the East Zone are given in Table 2.2.

Table 2.2 East Zone *In situ* reserves.

Cutoff (% Cu)	Millions of Tonnes	Grade (% Cu)
0.30	108.4	0.484
0.40	75.2	0.542

The East Zone block model has been optimized and an ultimate open pit was developed using the same methodology as the Main Zone. Using a cut-off grade of 0.27% Cu and pit slopes varying from 45° to 53°, a mineable reserve of 52,000,000 t grading 0.55% Cu has been developed at a 1.23:1 strip ratio, including 7 million cubic meters of overburden in the form of glacial till.

If one assumes a cutoff grade of 0.27% copper, then total mineable reserves are 82,800,000 t of ore, grading 0.52% copper, 0.015% molybdenum, 0.07 g/t silver and 3.34 g/t gold.

Kilborn Engineering Pacific Ltd. is now conducting a feasibility study for the Huckleberry project. It is expected that, when complete, this study will increase the estimate of mineable reserves above the 82.8 million t that are presented here. However, this increase is not expected to result in significant changes to the mine plan, waste and tailings disposal plan, or infrastructure plan.

SECTION 3.0 CONCEPTUAL MINE PLAN

3.1 Production Rate and Mine Life

The Huckleberry porphyry copper property contains proven and probable in-situ reserves of 162 million tons grading 0.475% copper. Gold, silver and molybdenum are present as secondary products. Approximately 85 million mineable tonnes of ore would be extracted over the lifetime of the mine. The proposed production rate would be 13,500 t of ore produced per day, 365 days per year. At this rate, the expected life of the mine would be 18 years.

To maximize revenues, the mining efforts would concentrate on 53 million t of higher grade ore located in the East Zone, during the first 11 years of the project. The ratio of waste rock and overburden to ore is estimated to be 1.23:1 in the East Zone and 0.79:1 in the Main Zone. The overburden and some of the waste rock are suitable for the construction of portions of the tailings management facility. Low-grade ore would be stockpiled within the tailings management facility, for future milling. Figure 3.1 is a conceptual site layout for the Huckleberry Project, showing the locations of the proposed East and Main Zones, the mill and access road.

3.2 Mining Method and Pit Designs

The Huckleberry Mine would be an open pit copper mine with two ore deposits, the Main Zone and the East Zone. The proposed pit design for the East Zone is given in Figure 3.2. The proposed pit design for the Main Zone is given in Figure 3.3.

The mining method is open pit mining. Diesel-powered front-end loaders or hydraulic shovels would be used to load 85 t haul trucks which would deliver high-grade ore to the mill and low-grade ore to a stockpile. Approximately 70 million t of high-grade ore would be mined and milled as it is produced, while about 15 million t of low-grade ore would be mined and stockpiled. It is an integral part of the mining plan that the low-grade stockpile will be milled later and the resultant tailings replaced into the mined-out open pit of the Main Zone. An important objective of the mining and milling plan is to greatly reduce the size of waste dumps at mine closure.

KLOHN–CRIPPEN		DATE
DESIGNED	TM	SEPT.94
DRAWN	CYW	SEPT.94
CHECKED		
RECOMMENDED		
APPROVED		

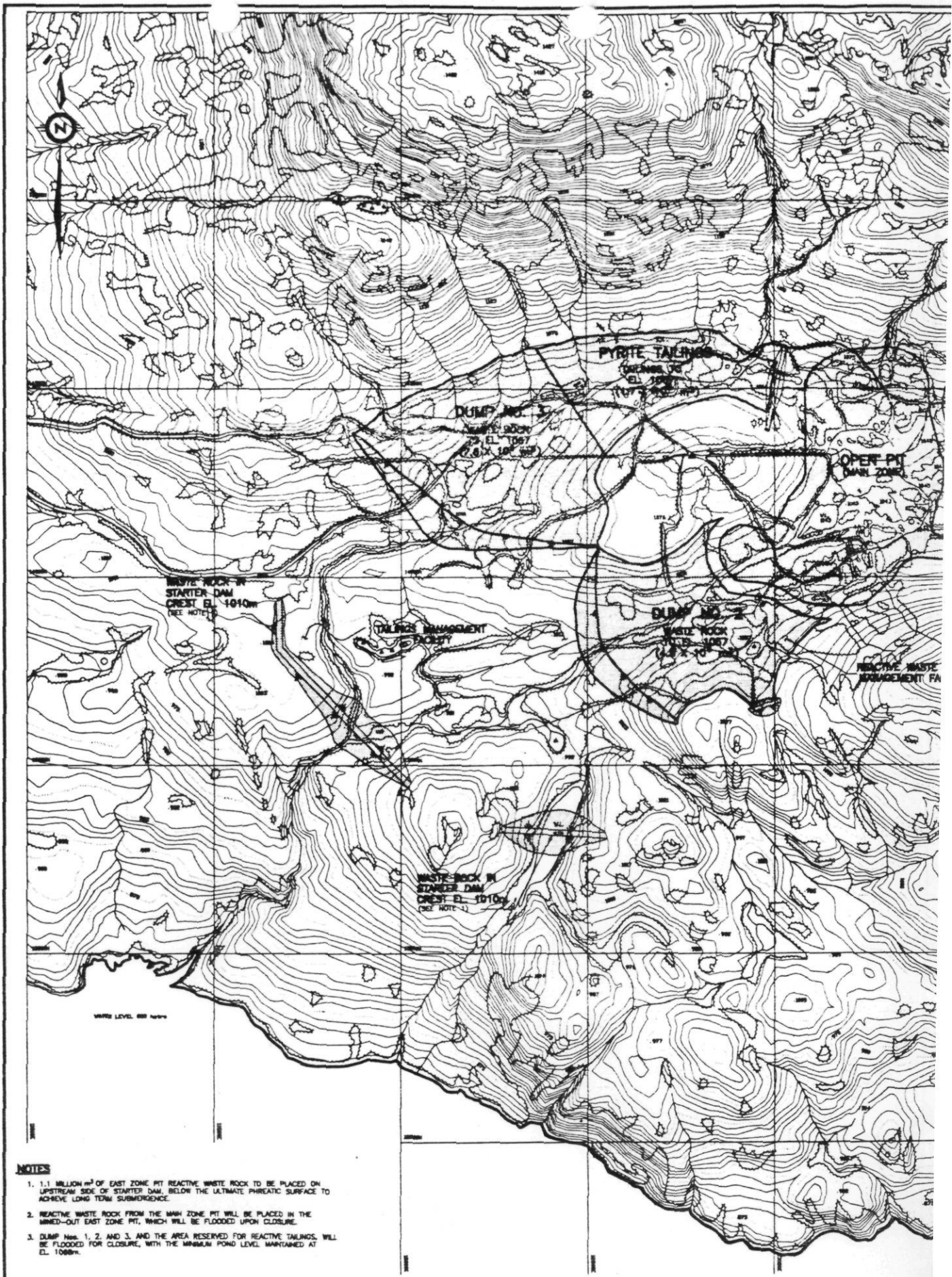
KLOHN-CRIPPEN

CLIENT: NEW CANAMIN RESOURCES LTD.

PROJECT: HUCKLEBERRY PROJECT—FEASIBILITY STUDY

TITLE: CONCEPTUAL SITE LAYOUT

DATE OF ISSUE	PROJECT No.	DWG. No.	REV.
	P5674401	E-1003	



NOTES

1. 1.1 MILLION m^3 OF EAST ZONE PIT REACTIVE WASTE ROCK TO BE PLACED ON UPSTREAM SIDE OF STARTER DAM, BELOW THE ULTIMATE PHREATIC SURFACE TO ACHIEVE LONG TERM SUBMERGENCE.
2. REACTIVE WASTE ROCK FROM THE MAIN ZONE PIT WILL BE PLACED IN THE MINED-OUT EAST ZONE PIT, WHICH WILL BE FLOODED UPON CLOSURE.
3. DUMP Nos. 1, 2, AND 3, AND THE AREA RESERVED FOR REACTIVE TAILINGS, WILL BE FLOODED FOR CLOSURE, WITH THE MINIMUM POND LEVEL MAINTAINED AT EL. 1068m.

July 25, 1994 @ 01:55 p.m.
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4.3 Metallurgical Testwork

4.3.1 Testwork Completed to Date

In 1993, Lakefield Research Inc. completed a comprehensive testwork program on samples of diamond drill core from the Main Zone. This work established the design parameters required for a process flowsheet. Results are similar to earlier preliminary testwork by Kennecott Copper Corporation in the 1960's, and by Granby Mining Company in the 1970's.

In April 1994, Lakefield Research began testwork on samples of diamond drill core representing the East Zone, to establish how this ore would be processed. Testwork is still in progress, but preliminary results indicate that the East Zone has much more pyrite than the Main Zone, requiring the use of lime to achieve a good copper separation.

Testwork to establish a separation of the molybdenite from the copper concentrate is ongoing, but preliminary results indicate that extractions typical of similar porphyry copper deposits such as Gibraltar Mines can be achieved.

4.3.2 Grinding Work Index

Granby Mining Company performed grinding testwork in the 1970's, and found that the Main Zone ore was harder than most porphyry copper deposits in British Columbia. Testwork by Lakefield Research indicated similar results. Testwork by A.R. MacPherson Consultants indicated that a semi-autogenous primary mill, followed by ball milling was a practical approach.

Table 4.2 summarizes the results of grinding testwork on ore-grade samples taken from the Main Zone and the East Zone of the Huckleberry Project. Identical suites of grinding testwork indicate that the East Zone is generally easier to mill than the Main Zone.

4.3.3 Metal Recoveries and Concentrate Grades

Table 4.3 shows the results of metallurgical testwork on ore-grade samples from the Main Zone and East Zone of the Huckleberry Project. Results indicate that approximately 94% of the copper in Main Zone mill feed can be recovered into a concentrate grading 27% copper, and that 93.5% of the copper in East Zone mill feed can be recovered into a concentrate grading 27% copper. Approximately 72% of the silver and 40 to 55% of the gold will be concentrated with the copper. A separate molybdenum concentrate will recover about 50% of the total molybdenum in the ore.

4.4 Milling Process

Figure 4.1 is a conceptual flowsheet for the milling process at the Huckleberry Project. The ore that is delivered directly from the mine will be dumped into a hopper ahead of a gyratory crusher, where it will be reduced to a nominal 150 mm size at a rate of 750 t/hr. Additional ore will be stockpiled near the crusher, where it will augment direct mine delivery, as required. Once crushed, the ore will be stockpiled in a covered heap with a live capacity of about 12,000 t.

Ore will be withdrawn by feeders beneath the stockpile at 625 t/hr and fed with water to a large semi-autogenous grinding mill. The mill will be 8.45 m in diameter by 3.81 m long, and will be driven by a 6000 HP motor. The discharge from the mill will be screened at 9.5 mm. The oversize will be recycled, and a crusher will reduce this material to -12 mm, if required. The screen undersize will be pumped to the grinding circuit, which will consist of two ball mills. Each ball mill will measure 5.49 m in diameter by 8.84 m long, and will be driven by 6000 HP motors. The mills will operate in closed circuit with their own hydrocyclone cluster for classification purposes. The overflow from the hydrocyclone clusters will contain ore ground to approximately 80% passing 133 μm, and it will be fed as a slurry to the flotation circuit.

The flotation circuit will consist of two banks of cells producing a copper rougher concentrate and a rougher tailing. The copper rougher concentrate will be reground in another ball mill, prior to further treatment in the copper cleaning flotation circuit. There, two additional stages of cleaning will produce a final concentrate and a further tailings product. The configuration of the circuit will

Table 4.3 **Anticipated metal recoveries and concentrate grades, based on metallurgical testwork on the Main Zone and East Zone of the Huckleberry Project.**

	Assays					Distribution, %			
	% Weight	Cu %	Mo %	Au g/t	Ag g/t	Cu	Mo	Au	Ag
Main Zone:									
Mill Feed	100.00	0.458	0.015	0.052	1.40	100.0	100.0	100.0	100.0
Copper Concentrate	1.59	27.0	0.16	1.31	57.2	94.0	20.0	40.0	65.0
Molybdenum Concentrate	0.012	0.6	54.0	-	-	-	50.0	-	-
Tailings	98.40	0.028	0.004	0.032	0.50	6.0	30.0	60.0	35.0
East Zone:									
Mill Feed	100.00	0.518	0.015	0.059	1.40	100.0	100.0	100.0	100.0
Copper Concentrate	1.79	27.0	0.15	1.81	50.8	93.5	20.0	55.0	65.0
Molybdenum Concentrate	0.012	0.6	54.0	-	-	-	50.0	-	-
Tailings	98.20	0.034	0.004	0.027	0.50	6.5	30.0	45.0	35.0