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CIRQUE PROPERTY

PROSPECTUS

Submitted to:

British Columbia Mine Development
Steering Committee

Submitted by:



Curragh Resources Inc.
Toronto, Canada

July 1989



PROJECT FACT SHEET

CORPORATE DATA

Project Name: Cirque Lead-Zinc-Silver Project

Company Name and Address: Curragh Resources Inc.
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Toronto, Ontario

Contact/Title: Mr. Marvin Pelley, P.Eng.
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117 Industrial Road
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Y1A 2T8
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PROJECT DETAILS

Project Location: 280 km north of Mackenzie, B.C.
57° 30'N Latitude
124° 50'W Longitude

Exploration Cost to Date: \$20.1 million

Development Cost: \$19.7 million

Estimated Total Capital Cost: \$120 million

Minerals: Pyrite, sphalerite, galena, barite

**Mining Method and
Production Rate:** Room and pillar
3500 tonnes/day

Process Plant/Mill: Sag mill, ball mill, separate lead and zinc
flotation

Ore Beneficiation Process: Crushing, grinding (sag and ball mills), flotation (lead and zinc circuits), thickeners, filtering and drying

Proposed Mine Life: + 16 years

MINERAL RESERVES

Reserves: Geological: 34.6 x 10⁶ tonnes
2.1% Pb, 7.8% Zn, 47 g/t Ag

Preliminary Mineable: 18.9 x 10⁶ tonnes
2.7% Pb, 9.2% Zn, 57 g/t Ag

Cut-off Grade: 8% lead and zinc for preliminary mineable

Potential for Additional Reserves: + 15.4 x 10⁶ tonnes indicated at south Cirque and potential on Fluke and Elf claims

ACCESS/TRANSPORTATION

Road: Williston Lake Road
Omineca Road

Water: Williston Lake barge route

Air Access: Schedule service to Mackenzie; charter to Finbow Airstrip; and helicopter to site

POWER SUPPLY: Diesel electric. Also considering development of transmission line to B.C. Hydro facility at Bennett Dam

WORKFORCE INFORMATION:

Construction Workforce: Approximately 200
(Annual Average)

Operation Workforce: Approximately 250; 200 on site
(Annual Average)

Housing Options: Fly-in, fly-out operation. Single status on site camp. Housing in existing communities of Fort St. John, Mackenzie and Prince George.

Workforce Rotation/Schedule: Mine: Seven 12-hour shifts followed by 7 days off or similar

Mill: Seven 12-hour shifts followed by 7 days off or similar

PRELIMINARY DEVELOPMENT SCHEDULE:

Stage I Environmental Report: January 15, 1990

Detailed Feasibility Study: January 15, 1990

Site Construction Startup: June 15, 1990

Mine Production Startup: July, 1991

Mill Process Startup: October, 1991

1.0 INTRODUCTION

1.1 Preamble

The Cirque lead-zinc-silver ore deposit, located in northwestern British Columbia 925 km north of Vancouver and 475 km northeast of Prince Rupert, constitutes the most significant discovery to date in the Gataga mineral camp. The property was acquired by Curragh Resources Inc. in 1985 from Cyprus Anvil Mining Corporation. Curragh Resources Inc. is a Canadian-controlled company originally organized to acquire the assets of the Cyprus Anvil Mining Corporation from Dome Petroleum Company.

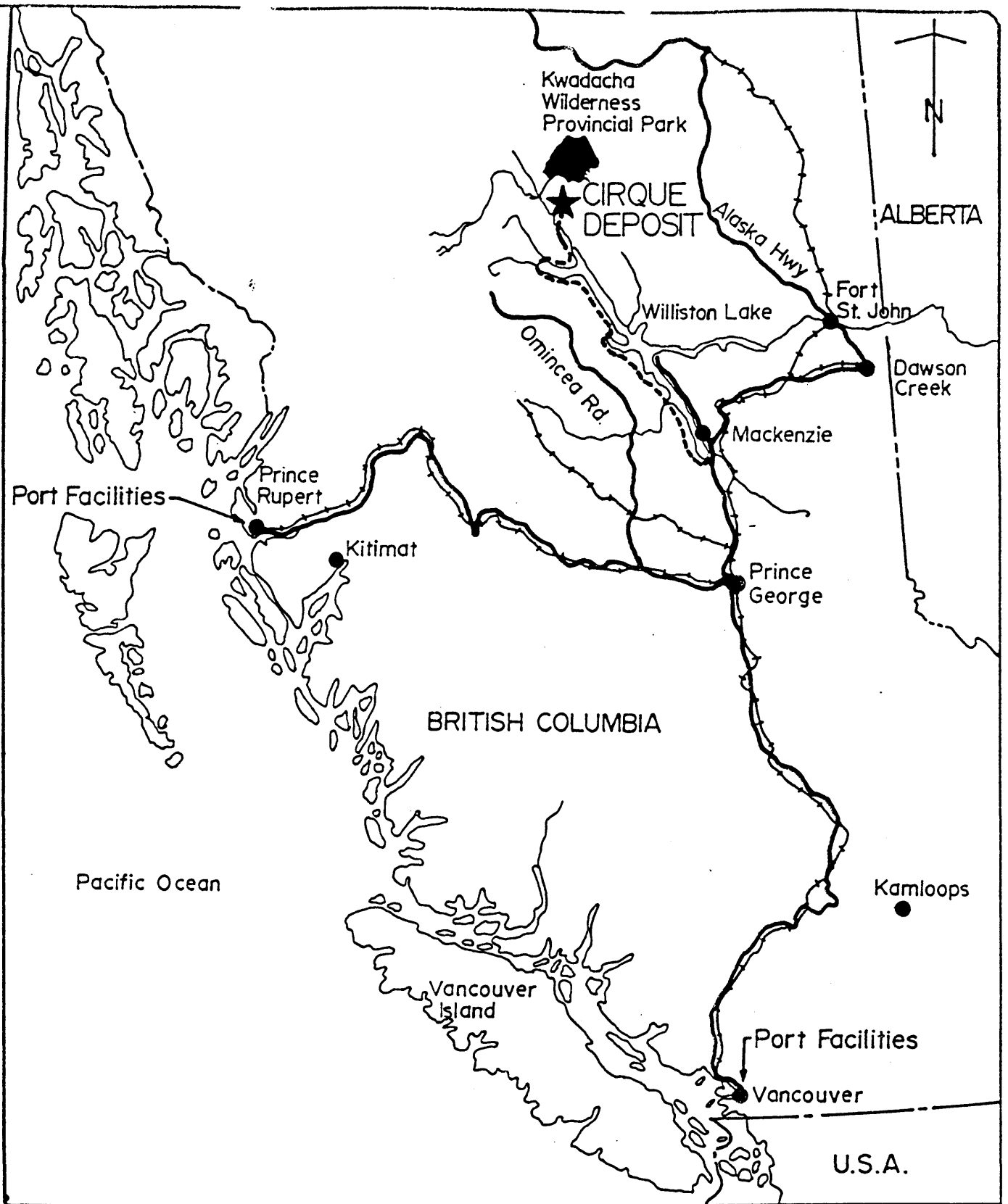
The total geological ore reserve is about 50 million tonnes of 9.5% combined lead-zinc and 42 grams/tonne silver in the Cirque and South Cirque deposits. In the Cirque deposit a higher grade portion (above an 8% Pb and Zn cutoff grade) is estimated to average 12% Pb and Zn and 57 grams/tonne silver. This Prospectus outlines the project proposed by Curragh Resources Inc. for the mining of this higher grade ore reserve. It presents short discussions on the Cirque deposit geology, the planned production mining, milling, and related infrastructure development, and an overview of the existing land use, environmental setting, and proposed or ongoing environmental and socioeconomic assessment of the project.

1.2 Project Location and Setting

The Cirque deposit is located 280 km north of Mackenzie, the nearest railhead, at 57° 30' N and 124° 50' W (Figure 1-1). The local terrain can be described as a highlands-foothills transition between the northcentral plateau to the west and Rocky Mountains to the east. The area was opened to development by the construction of the Bennett Dam in the 1960's, with the communication and transportation infrastructure developed further since then in support of expanding oil, gas, and pulp and paper interests in the area.

1.3 Historical Perspective

The Gataga camp deposit, of which Cirque is a part, was discovered by Canex Exploration (Placer Development Ltd.) in 1974 while prospecting geochemical



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Figure I-I: Location Map

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anomalies from a 1970 survey by General Crude Oil Ltd., Pembina Pipeline Ltd., and Sun Oil Ltd. The Cirque discovery itself, located about 80 km southeast of the original Driftpile Creek Gataga discovery, was made in 1977 through a joint venture between Cyprus Anvil and Hudson's Bay Oil and Gas Ltd. A total of 20 million dollars was spent on the project by these owners between 1978 and 1982. This included 11 million dollars on exploratory drilling and 5.3 million dollars on road and airstrip construction.

A metallurgical study by Kamloops Research and Assay Laboratory Ltd., in 1981, indicated that this Cirque deposit would produce an ore concentrate of excellent quality with little deleterious side products. Thus after Curragh Resources Inc. acquired the property, an economic study was commissioned in 1986 which estimated that the lead-zinc Paid Metal production cost would be very competitive.

2.0 GEOLOGY AND RESERVES

2.1 Geology

The Gataga camp is a late-Paleozoic stratiform deposit within the Selwyn basin sub-province of the Canadian Cordillera. This basin is bordered by the Cassiar platform on the west and the Mackenzie platform on the northeast and extends from northcentral B.C. to Alaska. The basin consists primarily of chert, shale, and coarser grained clastic sedimentary rocks with minor volcanic components. The stratigraphy consists of carbonaceous, pelitic sedimentary rocks with minor clastic components (i.e. Road River Formation) overlain by a chaotic assemblage consisting of turbidity fans, submarine density flows, and slump breccias with interbedded shale and chert (i.e. Earn Group). The Earn Group is the host of the Gataga camp.

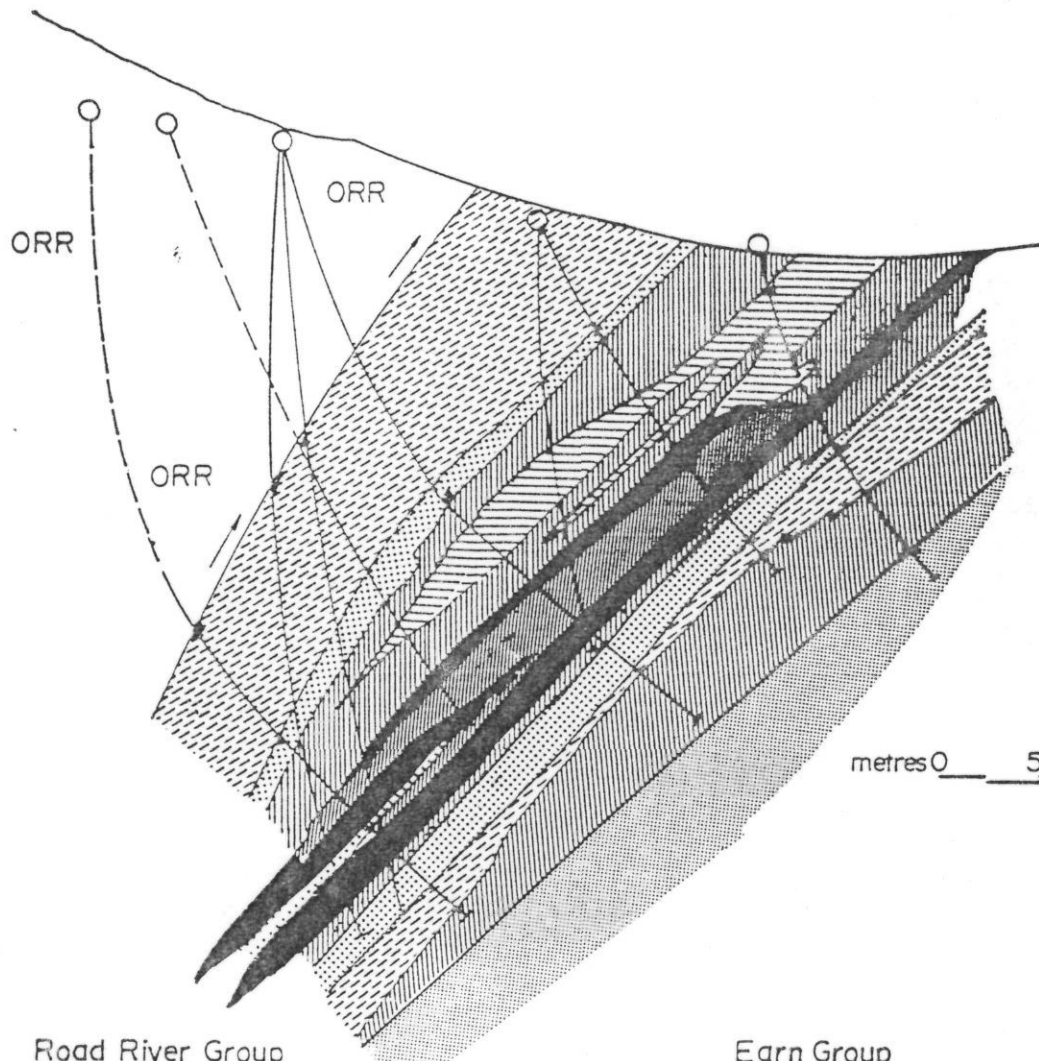
At the Cirque deposit, the Earn Group consists of the Gunsteel, Akie, and Warneford Formations (Figure 2-1). The Gunsteel is the primary host of the Cirque deposit. It is characterized by black, carbonaceous, locally pyritic, siliceous shale and ribbon bedded porcellanite approximately 140 m thick. The porcellanite members occur at the upper and lower contacts and are 10-20 m thick. The Akie Formation consists of soft, grey, laminated shales and in the vicinity of the Cirque deposit is interbedded with it (Figure 2-1). It contains minor calcareous siltstone and intraformational siltstone breccia beds, some of which are also found within the ore deposit. The Warneford Formation, which consists of coarse sandstone and chert pebble conglomerate interbedded with grey to black shale, is not abundant at Cirque.

The Cirque deposit geometry can be described as a plunging, elongate, east tapering, lensoid body 1000 m long, 300 m wide, and 2-60 m thick. It dips 30-45° to the southwest and plunges 30° to the south. Thus in plan view the deposit extends north-south, with the up plunge end truncated by the present day erosion surface (Figure 2-1).

The deposit consists of three facies, with a barite rich facies fringed by pyritic and laminar banded pyritic facies. The baritic facies consists of fine to medium grained barite and <40% sulphides, with the sulphides occurring as 1-5 mm thick laminations of pyrite, sphalerite, and to a smaller degree galena. By comparison, the pyritic facies,

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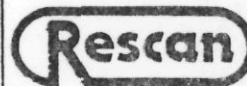
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metres 0 50 100

- Road River Group
- ORR Undivided
- Silurian Siltstone

- Earn Group
- Akie FM
- Shale (DAP)
- Siltstone & Breccia (DAs)
- Gunsteel FM
- Porcellanite (DGc)
- Siliceous Shale (DGpr)
- Laminar Banded Pyrite
- Baritic Facies
- Pyritic Facies



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Figure 2-1: Ore Body Stratigraphy

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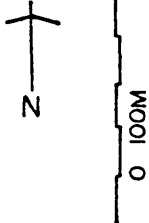
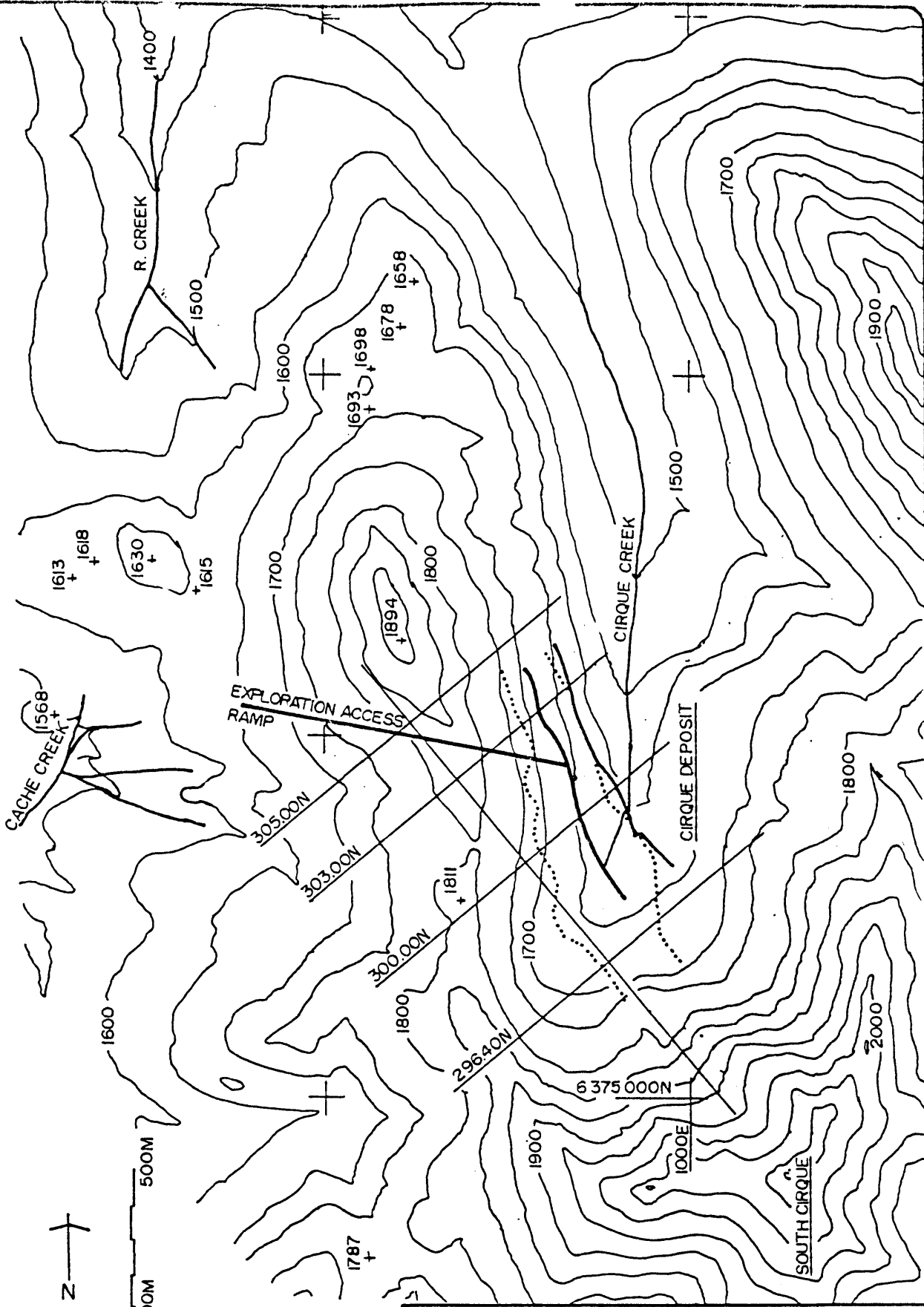
which grades into the baritic, contains from 40 to 100% pyrite, sphalerite, and galena, in a gangue of barite with minor amounts of quartz and carbonate. The laminar banded pyritic facies consists of 0.1 to 20 cm thick beds of fine framboidal pyrite in a siliceous shale. The sphalerite, galena, and barite occur as sparsely disseminated grains in these layers.

Overall, the pyritic facies dominates in the northern part of the Cirque deposit and the baritic facies in the southern part (Figure 2-1), with the laminar banded pyritic facies occurring to the east and above the baritic and pyritic facies (Figure 2-1). The ore grade of the laminar banded facies is low, constituting only a minor part of the total lead-zinc-silver reserve.

2.2 Advanced Feasibility

An underground exploration program is proposed to verify the previous drill indicated reserve estimate, to confirm the surrounding geology, to classify the rock conditions, and to obtain bulk ore samples for metallurgical process testing. This exploratory program has been approved and is underway. The duration is estimated to be seven months including mobilization and surface plant setup.

The most suitable location for the exploration portal is considered to be west of the deposit in the hanging wall (Figure 2-2). This site provides a reasonable and safe collar location with adequate space for a plant and camp nearby. The drivage in waste to the ore zone will be 900 m at -11% from a collar elevation of 1630 m. The proposed decline is 4 m high and 3.4 m wide, with short remuck stations excavated at 150 m intervals. Actual exploration will consist of a drift on the long section of the ore zone and mined in association with diamond drilling from the drift to define the ore deposit geometry. The drift will be 600 m long, driven at a maximum +18% inclination and result in the mining of 30 thousand tonnes of rock of which 2/3 may be acid generating. Only minor quantities of ore will be mined. Waste will be stored in the Cache Creek drainage basin in a dump at the portal if not acid generating or on a properly prepared stockpiling pad if potentially acid generating. Site preparation will include surface drainage and substrate permeability control. Water quality in the drainage basin will be routinely tested to guard against acid leaching conditions in the ore stockpile.



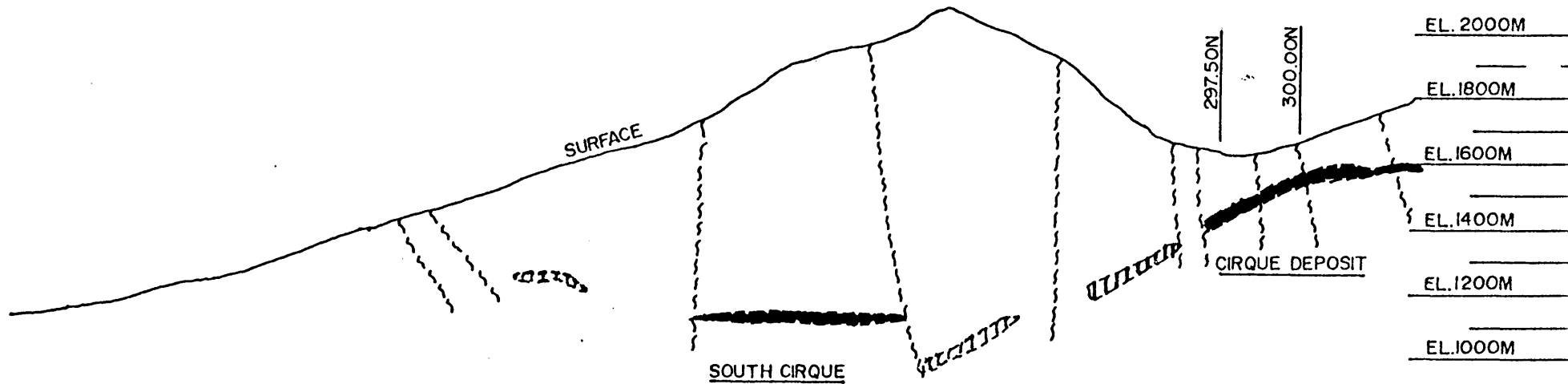
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Figure 2-2: Exploration Adit Location



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SECTION Looking WEST

 Known Sulphides
 Exploration targets

0 10M 50M

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	Figure 4-1: Mine Longitudinal Section

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