

PR 89 - 014



**EXPLORATION**  
**OREX** Inc.  
CENTENNIAL BUSINESS CENTER  
UPPER PENTHOUSE  
1660 HOLLIS STREET  
HALIFAX, NOVA SCOTIA  
B 3 G 1 V 3

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NOTICE OF A PROJECT  
GOLDBORO PROJECT

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PRESENTED TO THE NOVA SCOTIA  
DEPARTMENT OF ENVIRONMENT

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1 7 A P R I L 1 9 8 9

DUPLICATE AVAILABLE

# PR 89 - 014

## Table of Contents

1.	Name of Undertaking	1
1.1.	Name of Proponent	1
1.2.	Address	1
1.3.	Chief Executive Officer	1
1.4.	Principal Contact Person for Purposes of Environmental Impact Assessment	1
2.	The Undertaking	2
2.1.	Nature of the Undertaking	2
2.2.	Purpose/ Rationale/ Need for the Undertaking	2
3.	Description of the Undertaking	2
3.1.	Geographical Location	2
3.2.	Physical Features	6
3.3.	Construction	7
3.4.	Operation	7
3.5.	Occupations	8
3.6.	Project-Related Documents	8
4.	Approval of the Undertaking	9
5.	Schedule	9
6.	Funding	10
7.	Report of a Public Meeting Held in Goldboro, March 27, 1989	11
8.	Environmental Impact Study	12

## List of Figures

- ✓ **Figure 1.** Goldboro Project, Location Map 3
- ✓ **Figure 2.** Goldboro Project, Claim Map 4

## List of Appendices

- ✓ **Appendix 1.** Topographic Map of Country Harbour Area, 11F/4 & 11C/13, Scale 1:50,000
- ✓ **Appendix 2.** Topographic Map of Goldboro Area, 11F/04-Z1, Scale 1:10,000
- ✗ **Appendix 3.** Surface Plan, Goldboro Area, Scale 1:10,000 *Not available*
- ✓ **Appendix 4.** Past Mining Activities at Goldboro Property
- ✗ **Appendix 5.** Plan of Existing Surface Installations at Goldboro Site, Scale 1:1,000 *Not available*
- ✓ **Appendix 6.** Topographic Map of Goldboro Site, Scale 1:1,000
- ✓ **Appendix 7.** List of Project-Related Documents

*NA/4*

**1. Name of Undertaking**

**1.1. Name of Proponent**

Orex Exploration Inc.

**1.2. Address**

67, Rue Perreault est  
Rouyn-Noranda, Québec  
J9X 3C1  
Tel.: (819) 797-1400  
Fax: (819) 797-1550

**1.3. Chief Executive Officer**

Mr. Yves Morissette, President  
67, Rue Perreault est  
Rouyn-Noranda, Québec  
J9X 3C1  
Tel.: (819) 797-1400  
Fax: (819) 797-1550

**1.4. Principal Contact Person for Purposes of Environmental Impact Assessment**

Mrs. Musetta Thwaites, Regional Manager  
Orex Exploration Inc.  
Upper Penthouse  
1660 Hollis Street  
Halifax, Nova Scotia  
B3J 1V3  
Tel.: (902) 423-1811  
Fax: (902) 420-0763

## 2. The Undertaking

### 2.1. Nature of the Undertaking

The undertaking consists of mining gold ore at Goldboro property using an open pit method, the processing of the ore using a gravitational mill with the flotation process and possibly with the cyanidation of flotation concentrates for gold recovery, and the development of related surface structures. Heap leaching will be considered at the beginning of the project, during the construction of the mill, for the treatment of ore. It would be done in a confined cell within the tailings impoundment.

### 2.2. Purpose/ Rationale/ Need for the Undertaking

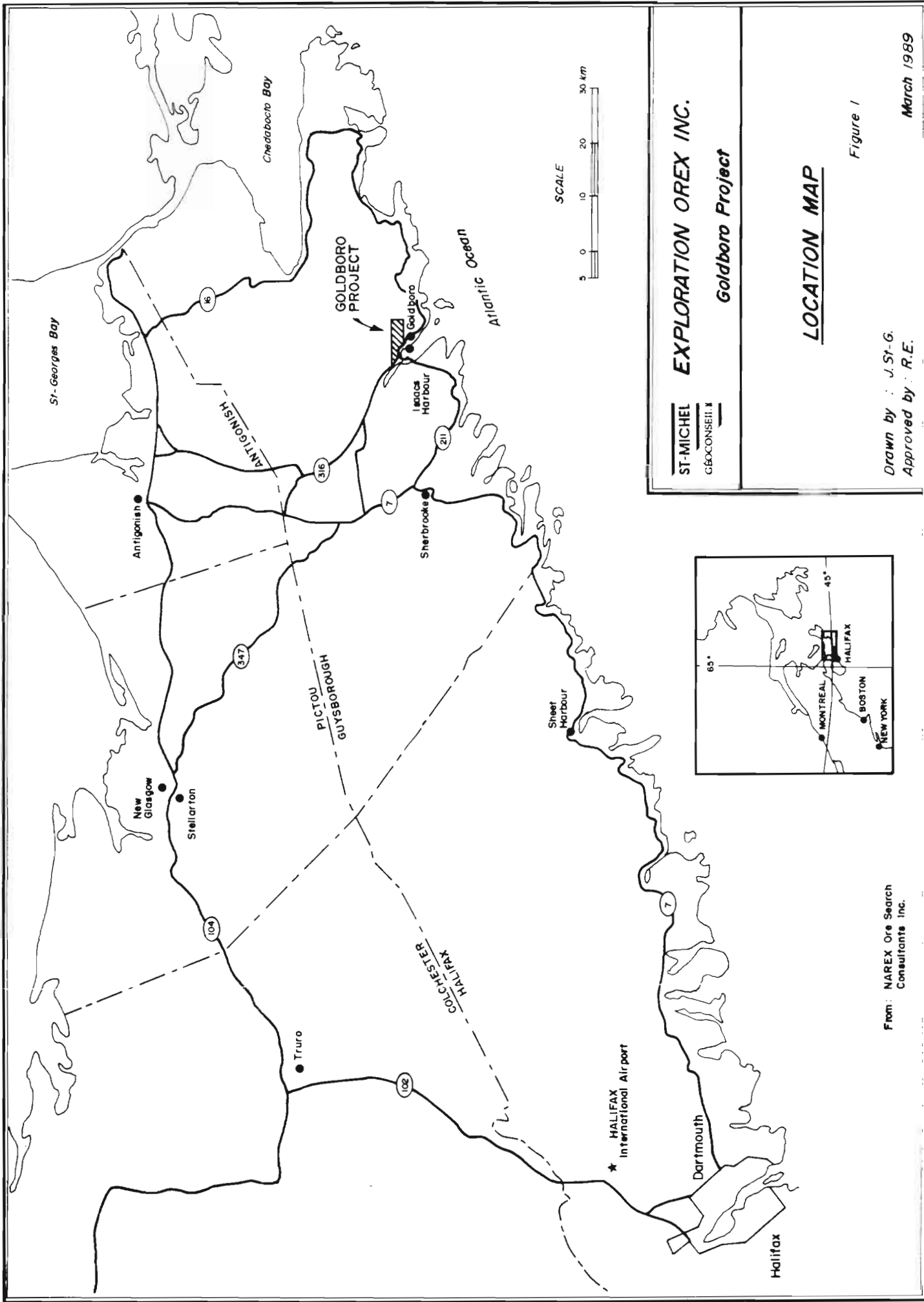
The main purpose of the present undertaking is to initiate the exploitation of Goldboro gold deposit in September 1989. Results of a new calculation of ore reserves from recent surface drilling and underground geological work indicate that a considerable volume of ore is found at Goldboro property, which justifies the exploitation of the orebody. Results of the technical and financial feasibility studies of Goldboro project demonstrate the viability of the project.

## 3. Description of the Undertaking

### 3.1. Geographical Location

Goldboro property is located in Guysborough County, Nova Scotia, 65 km South-East of Antigonish, and 180 km North-East of Halifax. A map locating Goldboro project is presented in Figure 1. The villages of Goldboro and Isaacs Harbour are located near the project. The coordinates of the site are 45°11'30" to 45°12'30" North and 61°37'30" to 61°40'40" West. It is accessible via Highway 316 and a public gravel road crosses the property.

The property consists of 37 claims covering an area of 1,480 acres. Limits of the property are shown on the claim map presented in Figure 2. Several old shafts are found on it: Dolliver Mountain, West Gold Brook, Boston-Richardson and East Gold Brook. A topographic map of the area indicating the location of the property is presented in Appendix 1. A photography map of the mine site is included in Appendix 2. Surface



**EXPLORATION OREX INC.**

**Goldboro Project**

**LOCATION MAP**

Figure 1

Drawn by : J. St-G.  
 Approved by : R.E.

March 1989

ST-MICHEL  
 GÉOCONSEIL INC.

From : NAREX Ore Search  
 Consultants Inc.



rights are held by the Nova Scotia Department of Lands and Forests and by private land-owners. Private properties are located westward and form a series of narrow strips oriented South-West to North-East. A surface plan showing surface properties in Goldboro area is included in Appendix 3.

Goldboro property is underlain by rocks of the Cambro-Ordovician Meguma group, subdivided into the Goldenville Formation (sandstones interbedded with thin slate horizons) and the Halifax formation (slates with subordinate sandstones).

The area is characterized by slightly rolling terrain. There is no bedrock exposure and the elevation varies between 0 m and 75 m. The slope of the land is smooth (less than 15%) and drainage conditions are quite variable. The landform consists of basal moraine West of the property and of fluvial and outwash plains eastward. The overburden reaches 15 meters at places. Soils consist mainly of fine to moderately coarse sandy loams with stones. Organic deposits occur in poorly drained areas.

The area is covered with mixedwood and softwood forests of spruce, balsam fir, tamarack and birch. There are also thickets and wetlands scattered throughout the area. Gold Brook Lake (also known as Seal Harbour Big Lake) is located at the North-East corner of the property. It drains southward in Gold Brook. Detailed information on the natural and human environments will be provided in an environmental impact study. A historic of past mining activities at Goldboro property is presented in Appendix 4.



### 3.2. Physical Features

All existing on-site surface structures are listed below and located on the surface plan of Goldboro property presented in Appendix 5 and on the topographic map in Appendix 6.

#### Camp site

- Bunkhouses (3)
- Kitchen
- Recreation hall
- Storage shed
- Electrical room
- Septic tanks and disposal field

#### Mine site

- Guard house and gate
- Dry and garage
- Offices (4)
  
- Portal and decline (1,364 foot long with a 15 % slope)
- Waste rock pads (3)
- Temporary ore pad
- Concrete pad
- Settling and polishing ponds with decant tower
- Final effluent
  
- Rehabilitated Boston-Richardson shaft (440 foot deep)
- 90 foot headframe
- Collarhouse
- Hoist room and compressor room
- Winch room
- Electrical sub-station
  
- Septic tanks and disposal fields (2)
- Pumping station and water line
- Powerline
- Access road
  
- Core shack
- Powder magazine
- Cap magazine

The preferred location of major physical features (such as the mill, the waste rock pad, the tailings impoundment, slurry line, final effluents, new roads, pipelines, powerlines) has not been selected so far and will be presented in an environmental impact study, along with additional information on considered alternative locations. The area to be

considered for selecting the location of surface structures and for the development of the mine is shown on the surface plan presented in Appendix 3.

### 3.3. Construction

The construction of surface structures at Goldboro property will start September 1<sup>st</sup>, 1989 and shall be completed by August 1990. A detailed schedule of construction-related activities on site will be provided in the environmental impact study. Related work (such as clearing, expropriation, overburden removal, dynamiting) will be presented as well. No construction work will be undertaken prior to receiving proper authorizations from the Government.

Potential sources of pollutants during the construction period will be identified in the environmental impact study. The emission of pollutants (airborne emissions, liquid effluents and solid waste materials) will be limited in volume and mitigative measures will be taken for disposing these properly.

### 3.4. Operation

A description of the proposed operation for the mining of Goldboro ore reserves is presented below. Present estimates in the first 400 vertical feet of Goldboro project justify the utilization of an open pit mining method. The scenario considered for the development and the exploitation of Goldboro project consists in the setting up of a treatment plant using gravity and flotation processes and possibly using the cyanidation of flotation concentrates for gold recovery. It will get into the production stage in April 1990. In total, between <sup>500 t pd.</sup> 175,000 tons to <sup>500 t pd.</sup> 1,750,000 tons of ore per year will be processed at the mill, which implies the mining of between <sup>SR 2:1</sup> 350,000 tons to <sup>S:1</sup> 8,750,000 tons of material ??  
(per year, by open pit mining. Five percent (5%) of tailings slurry generated will have a high content of arsenopyrite, and will have to be confined in a separate cell within the tailings impoundment. Heap leaching will be considered at the beginning of the project, during the construction of the mill, for the treatment of ore. This would be done in a confined cell within the tailings impoundment. }?

A more detailed description of the development and the operation of the project will be provided in the environmental impact study. Engineering consulting firms will work on the design and the choice of the location of the mill plant, the tailings impoundment, the waste rock dump and an ore storage pad. The choice of the design of these structures and and the justification of their final location together with information on other considered alternatives, will be presented in the environmental impact study along with a detailed description of operation conditions, technology and equipment. Details on the open pit operation will be presented as well in that study.

Potential sources of pollutants during the operation period will consist mainly of liquid wastes (from the tailings impoundment, the ore pad, the waste rock pile) and solid wastes such as mining wastes (of which 5 % with a high content in arsenopyrite) and waste rocks. We do not anticipate any major emission of airborne pollutants. Detailed information on the characteristics of the pollutants, the volume generated, proposed points of discharge and proposed treatment facilities will be presented in the environmental impact study.

### 3.5. Occupations

*Scale of operation ?*      *indirect ?*  
*social ?*

Goldboro project will create approximately 488 new jobs and generate an annual aggregate remuneration of more than \$13,000,000 in the area. Average direct jobs created will be of about 195 jobs per year for the first four years of the project. Average indirect and induced job creation will be of approximately 293 jobs per year for the same period. A detailed enumeration and breakdown of occupations anticipated for Goldboro project will be presented in the environmental impact study.

### 3.6. Project-Related Documents

A bibliography of all project-related documents already generated by or for the proponent are presented in Appendix 7.

#### 4. Approval of the Undertaking

The main permits, licenses, approvals, and other forms of authorization required for the undertaking, together with the names of the authorities responsible for issuing them are presented below.

##### **Nova Scotia Department of Environment**

- Industrial wastes approval under the environmental protection act
- License under the water act

##### **Nova Scotia Department of Lands and Forests**

- Crown land permit

##### **Nova Scotia Department of Mines and Energy**

- Exploitation license

##### **Nova Scotia Department of Health:**

- Authorization for the implantation of on-site sewage disposal systems
- Approval for potable water supplies

##### **Guysborough County Municipality:**

- Building permit

#### 5. Schedule

The requirements of governmental regulations should be met by July 15, 1989 in order to obtain approval for the undertaking by September 1, 1989, for starting the construction of surface structures (mill plant, tailings impoundment, waste rock dump, ore storage pad, and other required structures), to initiate the mining of the open pit during the fall of 1989, and to start the milling of ore in September 1990.

Mining      Sept 1989  
milling      Sept 1990

## 6. Funding

Funds for financing the project have been requested from the following agencies:

?

### **Nova Scotia Department of Small Business Development**

Joseph Howe Building, 5<sup>th</sup> Floor

1690 Hollis Street

Halifax, Nova Scotia

B3J 3J9

- Loan guarantee

### **Atlantic Canada Opportunities Agency**

1489 Hollis Street

Halifax, Nova Scotia

B3J 2V9

- Grant for a feasibility study

## 7. **Report of a Public Meeting held in Goldboro, March 27, 1989**

A public meeting was held in the community of Goldboro, on March 27, 1989, at 19:30 hrs. The main objectives of this meeting were:

- to present information to the population of Goldboro on the nature of the mining project and environmental control
- to obtain comments from the population on the project.

In total, 121 persons attended the public meeting. Five persons from Orex Exploration Inc. and two persons from St-Michel Géoconseil Inc. attended. Mrs. Musetta Thwaites, Regional Manager for Orex Exploration Inc. presented detailed information on the nature of the project ( economics, engineering, manpower).

Mr. Jean Gagnon, Biologist for St-Michel Geoconseil Inc. presented information on environmental control during the development and the exploitation of Goldboro project. He pointed out that Orex Exploration Inc. considers it as a must to develop Goldboro project in order to lessen negative impacts on the environment. He mentioned that some negative impacts were unavoidable. These impacts will be caused by the development of an open pit, a waste rock dump and a tailings site. Mr. Gagnon pointed out that after the completion of the project, Orex Exploration Inc. will have to reclaim disturbed areas.

Some participants asked questions on the nature of the project and job opportunities and raised the following concerns for Goldboro mining project:

- environmental control from the government
- potential contamination of water streams
- requirements for reclamation after the completion of the project

It was answered that the development and the operation of the project will be done in order to minimize negative impacts on the natural environment, this in compliance with strict governmental regulations. Orex Exploration Inc. will monitor and control the quality of water at final effluents so there is no contamination of water streams. After the completion of the project, Orex Exploration Inc. will reclaim disturbed areas, and the open pit will get filled with water. Participants were invited to contact Nova Scotia Department of Environment for further information on requirements for environmental control for the mining industry in the province.

A participant mentioned the presence of a couple of Bald eagle in Isaacs Harbour area. This information will be given to the engineering consulting firm in charge of the environmental impact study.

Many participants expressed their support to the project. The public meeting ended at 21:30 hrs.

#### 8. Environmental Impact Study

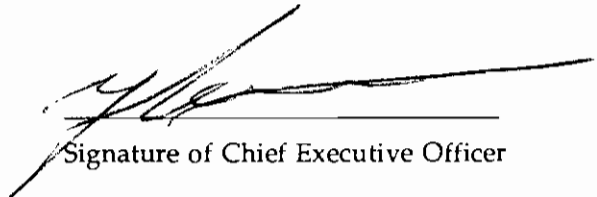
Orex Exploration Inc. requires an environmental impact study to assess the impact of the construction phase and the operation of the project on the local environment and to propose mitigative measures in order to minimize environmental risks. The main objective of this study will be to integrate in the best possible way all the elements of the project with the biophysical and human environments in order to avoid major negative impacts.

The environmental impact study will be prepared in accordance with guidelines issued by the Nova Scotia Department of Environment. An engineering consulting firm from Nova Scotia will be hired for its realization and for the request of environmental permits. The consulting firm will establish and maintain close contacts with the Nova Scotia Department of Environment in order to ensure that the study is done accordingly with the environmental legislation currently effective in the province. The following elements will be considered in the study:

- Characteristics of the project
- Description of the existing environment (physical, biological and human)
- Assessment of environmental impacts
- Mitigation of impacts and assessment of residual impacts
- Follow-up and environmental control
- Site reclamation

20 April 79

Date

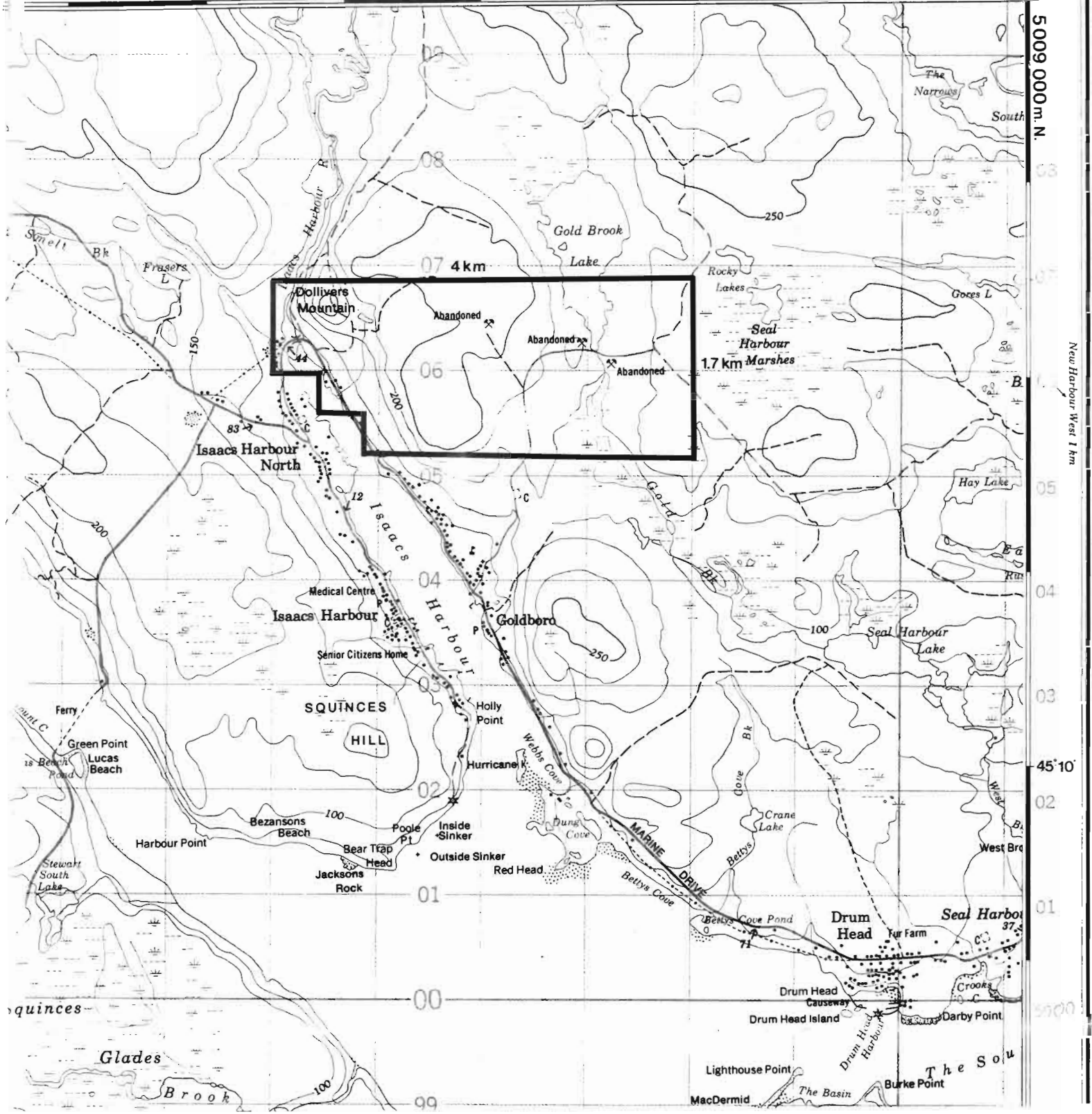


Signature of Chief Executive Officer

**Appendix 1**

**Topographic Map of Country Harbour Area  
11F/4 & 11C/13, , Scale 1:50,000**





Metres 1000 0 1000 2000 3000 4000 Mètres

**COUNTRY HARBOUR**  
NOVA SCOTIA NOUVELLE-ÉCOSSE

 **GOLDBORO PROPERTY**

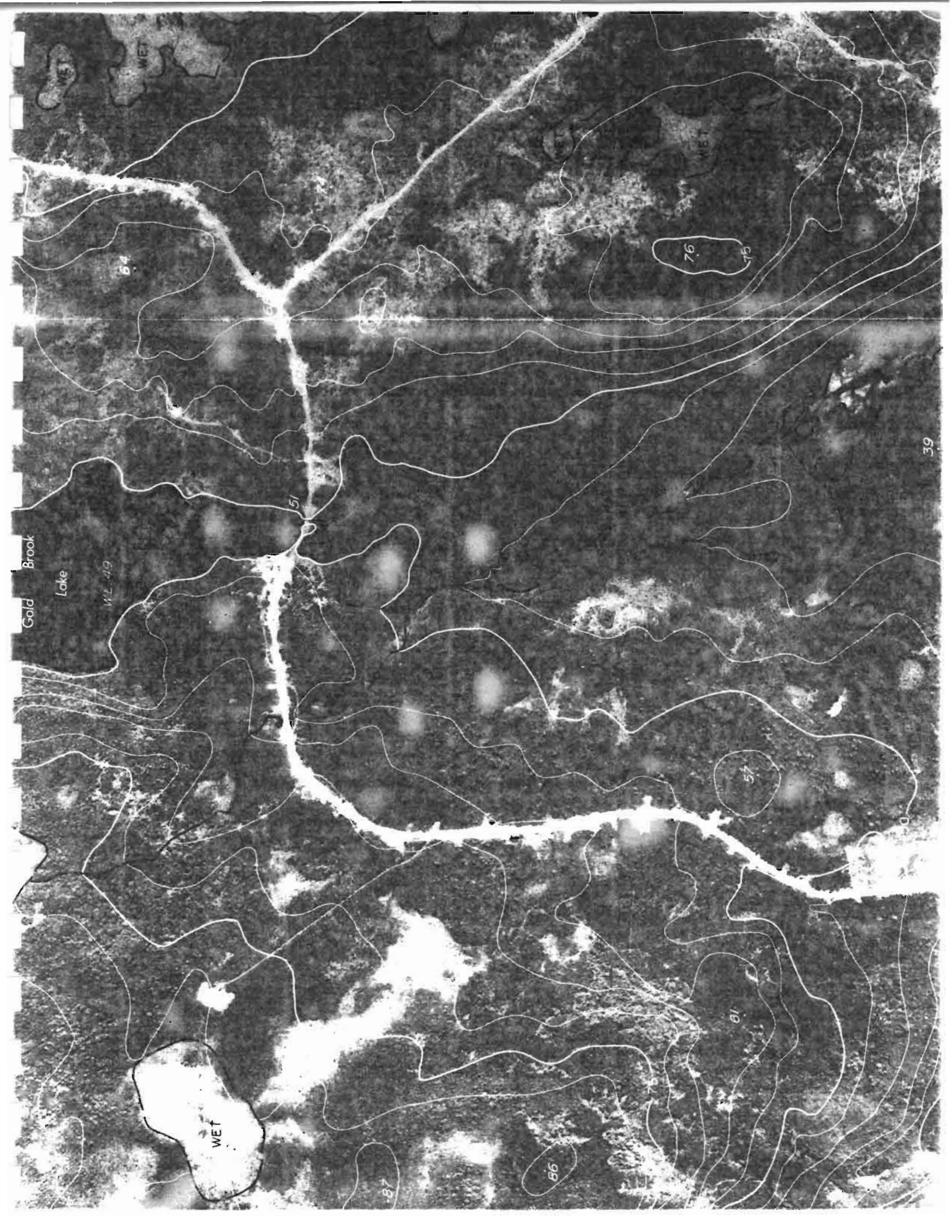
11 F/4 & 11 C/13

Scale 1:50 000 Échelle

**Appendix 2**

**Topographic Map of Goldboro Area**

**11F/04-Z1, Scale 1:10,000**



**Appendix 3**

**Surface Plan, Goldboro Area**

**Scale 1:10,000**

## **Appendix 4**

### **Past Mining Activities at Goldboro Property**

#### Appendix 4. Past Mining Activities at Goldboro Property

Gold-bearing mineralization was first found on the property in 1861 and the Geological Commission of Canada identified a zone of gold-bearing quartz veins in 1862. It was called the Richardson Belt and later became the site of the Boston-Richardson Mine, which was in operation from 1893 to 1912. The property was the site of additional sporadic exploration work between 1896 and 1934. West Gold Brook, Dolliver Mountain and East Gold Brook deposits were identified and partially developed through underground work during that period. Narex Ore Search Consultants Inc. initiated a surface drilling program of Goldboro property in 1985. In 1987, Narex realized 38,917 feet of diamond drilling at the Goldboro property, which led to the discovery of new mineralized zones under the Boston-Richardson Belt.

During 1988, Orex Exploration Inc. carried out over 34,463 feet of surface and underground definition drilling. This drilling program, allowed the study of the newly discovered belts beneath the old Boston-Richardson mine. It also included nine holes which were drilled near the old West Gold Brook mine, located westward.

An underground exploration program was realized during 1988 at the Boston-Richardson mine, by Orex. Over 415,8 m of decline, with a 15 % slope were driven, providing direct access to mineralized zones from development drifts at the 125 and 250 foot levels, in order to do geological work for the realization of a feasibility study. These cross cuts confirm the interpretation of drilling data and consequently substantiate the potential of Goldboro project. Ore samples are presently assayed to verify ore grade estimates.

The old Boston-Richardson shaft has been rehabilitated with the construction of a 90 foot headframe with a 6 foot drum. This shaft gives access to the 400 foot level. Offices and a garage have been installed on site. A camp including sewers, electricity and water has been set up as well.

**Appendix 5**

**Plan of Existing Surface Installations at Goldboro Site**

**Scale 1:1,000**

**Appendix 6**

**Topographic Map of Goldboro Site,  
Scale 1:1,000**



## **Appendix 7**

### **List of Project-Related Documents**

## Appendix 7. List of Project-Related Documents

**Dubé, Martin**, July 15, 1988. Report on the settling pond system, Goldboro project. Presented to the Nova Scotia Department of Environment, Halifax, Nova Scotia for Onitap Resources Inc. and Exploration Orex Inc.

**Exploration Orex Inc.**, 1988. Annual report. Presented to share-holders. 18 pages.

**Exploration Orex Inc.**, January 1989. Goldboro project. Presentation Report. 22 pages.

**Exploration Orex Inc.**, April 1989. Goldboro project. Presentation Report. 21 pages.

**Gagnon, Jean**, April 14, 1988. Environmental study for the obtaining of a certificate authorizing the realization of an underground exploration program for the Goldboro project, Goldboro, Nova Scotia. Presented to the Nova Scotia Department of Lands and Forests, Halifax, Nova Scotia for Onitap Resources Inc. and Exploration Orex Inc., 26 pages + Appendices.

**Gagnon, Jean**, April 15, 1988. Environmental study for the obtaining of a certificate authorizing the realization of an underground exploration program for the Goldboro project, Goldboro, Nova Scotia. Presented to the Nova Scotia Department of Environment, Halifax, Nova Scotia for Onitap Resources Inc. and Exploration Orex Inc., 26 pages + Appendices.

**Gagnon, Jean**, May 12, 1988. Addendum to the environmental study for the Goldboro project. Presented to the Nova Scotia Department of Environment, Halifax, Nova Scotia for Onitap Resources Inc. and Exploration Orex Inc., 21 pages + Appendices.

**Gagnon, Jean**, May 12, 1988. Addendum to the environmental study for the Goldboro project. Presented to the Nova Scotia Department of Lands and Forests, Halifax, Nova Scotia for Onitap Resources Inc. and Exploration Orex Inc., 21 pages + Appendices.

**Gagnon, Jean**, July 8, 1988. Addendum to the environmental study for the Goldboro project (Second Part). Presented to the Nova Scotia Department of Environment, Halifax, Nova Scotia for Onitap Resources Inc. and Exploration Orex Inc., 9 pages + Appendices.

**Gagnon, Jean, Dubé, Martin and André St-Michel**, July 8, 1988. Additional information for the underground exploration program at the Goldboro property. Presented to the Nova Scotia Department of Environment, Halifax, Nova Scotia for Onitap Resources Inc. and Exploration Orex Inc., 8 pages + Appendices.

**Gagnon, Jean, Lampron, Sylvie and André St-Michel**, June 2, 1988. Underground exploration program at the Goldboro property. Presented to the Nova Scotia Department of Mines and Energy for Onitap Resources Inc. and Exploration Orex Inc., 24 pages + Appendices.

**Lampron, Sylvie**, April 14, 1988. Technical study for the obtaining of a certificate authorizing the installation of an on-site sewage disposal system for the Goldboro project, Goldboro, Nova Scotia (camp site). Presented to the Nova Scotia Department of Health for Onitap Resources Inc. and Exploration Orex Inc., 15 pages + Appendices.

**Lampron, Sylvie**, October 14, 1988. Technical study for the obtaining of a certificate authorizing the installation of an on-site sewage disposal system for the Goldboro project, Goldboro, Nova Scotia (shaft area). Presented to the Nova Scotia Department of Health for Onitap Resources Inc. and Exploration Orex Inc., 7 pages + Appendices.

**St-Michel, André**, March 15, 1988. Addenda to the review of the exploration program performed by Narex Ore Search Consultants Inc. on the Goldboro project, Guysborough Township, Nova Scotia. 16 pages + Appendices.



ST-MICHEL  
GEOCONSULT

EXPLORATION OREX INC.  
GOLDBORO Project

Topographical map

PR89-014 SCALE 1"=1000

WEST

EAST

450m.E

525m.E

600m.E

675m.E

750m.E

825m.E

900m.E

975m.E

1050m.E

1125m.E

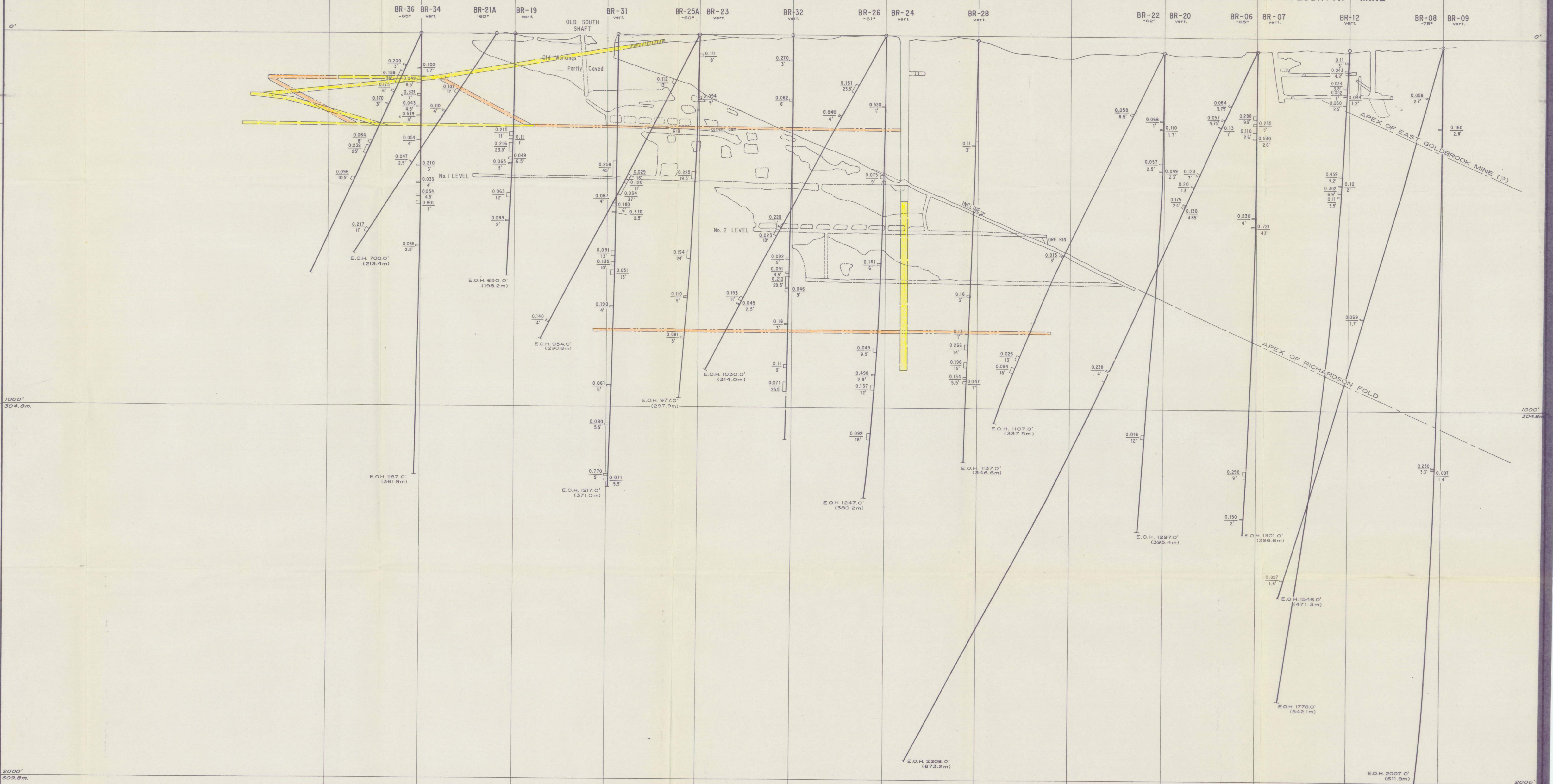
1200m.E

1275m.E

1350m.E

### BOSTON-RICHARDSON MINE

### EAST GOLDBROOK MINE



1000'  
304.8m

1000'  
304.8m

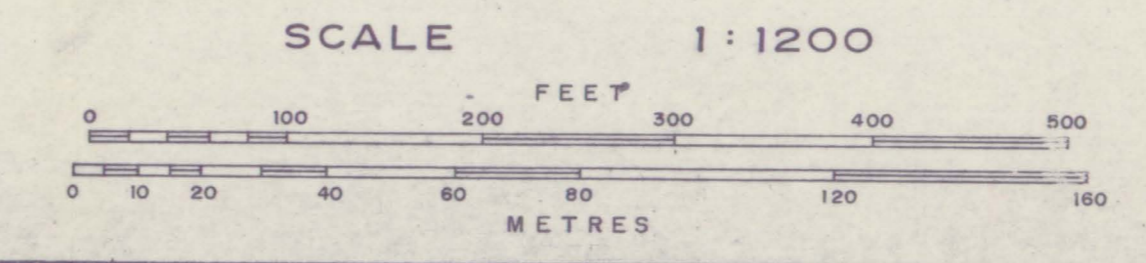
2000'  
609.6m

2000'  
609.7m

PROPOSED UNDERGROUND DEVELOPMENTS

1988

1989



ONITAP RESOURCES INC.

LOCATION OF  
**NEW BELT AND 3RD BELT**  
 BELOW  
**BOSTON-RICHARDSON MINE**

**LONGITUDINAL SECTION**  
 LOOKING NORTH

Work by: NAREX Ore Search Consultants Inc.  
 NOTE: Plane of section is at 50m. north of baseline O.

PR89-014