



017101

To: Northwest Regional Reclamation Committee

Date: Dec. 21, 1988

## PROPERTY FILE

Re: Proposed Limestone/Lime Quarry and Plant - Aristazabal Island

Enclosed for your review is the outline of a proposed development.

Quarry operations are not considered part of the normal mine development review process and as such I would expect this project to proceed to the permit stage; unless you foresee a serious problem, on completion of your review.

Please review this project and send to me the requirements your ministry or branch has with respect to permits that would be required. In order to provide co-ordinated response, I would appreciate having your reply by January 31, 1988.

B. H. Good, P. Eng.,  
Chairman.

BHG/ek

- R. Crook, Victoria (8 copies)
- D.W.Flynn, Smithers
- Waste Management, Smithers
- Water Management, Smithers
- Fish & Wildlife, Smithers
- S. Hamilton, Fed Fish, Prince Rupert
- Peri Mehling, EPS, Vancouver
- J. Munn, Mid Coast District Forestry
- E. J. Hall, Smithers
- J. Errington, Victoria
- B. Brodie, Lands, Smithers

MINISTRY OF ENERGY, MINES  
AND PETROLEUM RESOURCES

DEC 23 1988

Rec'd

ENGINEERING AND  
LULU DISTRICTS - MCH

103A 001

# LAREDO LIMESTONE LTD.

212-409 Granville Street  
Vancouver, B.C. V6C 1T2

Phone: (604) 688-8061  
Fax: (604) 688-8071

Mine Development Steering Committee  
c/o Mineral Policy Evaluation Branch  
Mineral Resources Division  
Parliament Buildings  
Victoria, B.C. V8V 1X4

December 14, 1988


Dear Sirs:

Re: Limestone Quarry Development - Aristazabal Island, B.C.

It is our intent to proceed with the development of a limestone quarry as described in the attached Prospectus and Fact Sheet.

We trust that the information contained in the Prospectus is in sufficient detail to allow you to review and approve of the project.

Yours truly,



D.G. Matheson, P.Eng.  
President

MINE DEVELOPMENT REVIEW PROCESS

PROJECT FACT SHEET

Page 1 of 2

Laredo Limestone Ltd. Quarry

December 1988

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CORPORATE DATA:

PROJECT NAME: LAREDO QUARRY

COMPANY NAME AND ADDRESS: LAREDO LIMESTONE LTD.  
212 - 409 GRANVILLE STREET  
VANCOUVER, B.C. V6C 1T2

CONTACT/TITLE: D.G. MATHESON  
PRESIDENT

PROJECT DETAILS:

PROJECT LOCATION: MINERAL CLAIMS LAREDO 1 AND LAREDO 2  
SKEENA MINING DIVISION  
ARISTAZABAL ISLAND  
BRITISH COLUMBIA  
LATITUDE 52° 42'N LONGITUDE 129° 05'W

ESTIMATED COST: \$ 18,000,000

MINERALS (Types to be Mined): Ca CO<sub>3</sub> - LIMESTONE

MINE SYSTEM (Open Pit or Underground): OPEN PIT i.e. QUARRY

ESTIMATED PRODUCTION: 8000 TONNES PER DAY

PROCESS PLANT/MILL (Type of Process): CRUSHING AND SCREENING

PROPOSED MINE LIFE (Years): 30 YEARS PLUS

MINERAL RESERVES/RESOURCES:

RESERVES/RESOURCES (Tonnes in each Category):

90,000,000 Tonnes Ca CO<sub>3</sub> Ore

AVERAGE GRADE OF ORE (Each Mineral Commodity): 97% CaCO<sub>3</sub>

CUT-OFF GRADE: 90% Ca CO<sub>3</sub>

POTENTIAL FOR ADDITIONAL RESERVES: UP TO 1.9 BILLION TONNES

MINE DEVELOPMENT REVIEW PROCESS

PROJECT FACT SHEET

Page 2 of 2

Laredo Limestone Ltd. Quarry

December 1988

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ACCESS/TRANSPORTATION

ROAD: No exterior access roads. On-island road from permanent quarry site.

RAIL: Nil

AIR ACCESS: Charter float plane from Bella Bella (closest point with facilities).

SHIPPING: Own port facilities at quarry site.

POWER SUPPLY:

REQUIREMENTS: 5 Megawatts own generation.

SUPPLY ALTERNATIVES: a. Fuel generators.  
b. Will investigate hydro possibilities constructed by Owner.

WORKFORCE INFORMATION:

TOTAL OPERATIONAL WORKFORCE (Annual Average at Full Production):  
Approximately 60 persons.

HOUSING OPTIONS: Permanent Camp on Aristazibal Island.

CONSTRUCTION WORKFORCE: 12 Man years - peak 30 persons.

CONSTRUCTION CAMP: 50 Persons.

WORKFORCE ROTATION: 2 Weeks On / 2 Weeks Off

INDIRECT/INDUCED EMPLOYMENT: Services - no estimate.

DEVELOPMENT SCHEDULE:

STAGE I SUBMISSION FILED: January 1989

SITE CONSTRUCTION STARTUP: March 1989

PRODUCTION STARTUP: 4th Quarter 1989

**PROSPECTUS**  
**for**  
**MINE DEVELOPMENT REVIEW PROCESS**  
**PROVINCE OF BRITISH COLUMBIA**

**for a**  
**LIMESTONE QUARRY**  
**(LAREDO QUARRY)**  
**for**  
**LAREDO LIMESTONE LTD.**

**December 6, 1988**

# LAREDO LIMESTONE LTD.

## LAREDO QUARRY

December 1988

### INTRODUCTION

The Laredo Quarry Project of Laredo Limestone Ltd. is being developed to mine and process a high quality calcite limestone deposit located on Aristazabal Island on the west coast of British Columbia. The island is located 560 kilometers northwest of Vancouver, 145 kms south of Kitimat and 175 kms southeast of Prince Rupert. The deposit is on the east side of the island facing the Laredo Channel. Access is generally by boat or float plane from Bella which is 95 kms to the southeast. Bella is reached by regularly scheduled airline from Vancouver or Port Hardy.

### HISTORY

The deposit was first staked in 1899 and part of it was leased for a quarry in 1906.

11,000 tonnes limestone was quarried in 1952 but because of a small market the operation was shut down that same year.

In 1960 preproduction work was undertaken in the form of 8 cored vertical drill holes, ranging from 12 meters to 90 meters, and in the form of bulk sampling. These investigations resulted in a report by Allan P. Fawley, Ph.D., P.Eng., Consulting Mining and Geological Engineer which indicated extensive highgrade reserves. Market conditions again precluded a production decision.

In 1983, confirming investigations, including extensive sampling, were carried out by Norman L. Tribe, P.Eng., Consulting Geologist. His report was reviewed again in 1988 and confirmed previous results.

Market surveys now indicate a growing market both in Canada and the United States on the West Coast.

### GEOLOGY

The general geology of Aristazabal Island is late Paleozoic and early Mesozoic sedimentary rocks that are intruded by granitic rocks of the Jurassic or Cretaceous Age.

The Claim areas, Laredo 1 and Laredo 2, are a continuous series of limestone beds that have altered to marble and dip to the southwest. These are intruded by a diorite mass to the north. In places the beds contain dioritic (or andesite) dikes and sills.

GEOLOGY AND RESERVES (Continued)

The entire limestone mass probably covers an area of more than 400 hectares extending as much as 2400 meters back from the shoreline.

Claim Laredo 1 has quarryable reserves of 80,000,000 to 90,000,000 tonnes of limestone. The adjacent Laredo 2 Claim has the possibility of another 2 billion tons.

In 1952 the 11,000 tonnes of limestone that were quarried graded 98% Ca CO<sub>3</sub>. Drill core samples, bulk samples and grab samples indicate overall grades of 95% to 98% with most of the volume in the higher range.

PRODUCTION LEVELS AND LIFE OF PROJECT

The planned daily production is 8,000 tonnes.

The proposed yearly tonnage is as follows:

Year 1 -	135,000	tonnes
Year 3 -	800,000	tonnes
	rising to	
Year 7 -	1,800,000	tonnes

The operation will be expanded beyond year 7 at the rate of 3% per year up to the level of 2.7 million tonnes.

The project life on the above schedule with the presently identified quarryable reserves ( 80 million tonnes ) will be 37 years.

MINE WORKINGS (QUARRY)

The quarry will be located on Claim Laredo 1 as shown on the accompanying Figure 1 (Main Quarry).

Timber will be logged off. Bush and overburden (which is minimal) will be removed by bulldozer.

Mining will be by the step method of quarrying. The limestone will be drilled and blasted then removed by face shovels to a mobile in-pit crusher.

All overburden and waste rock will initially be piled on the Main Quarry location and then re-spread when space allows.

STOCK PILES

Stockpiles of processed rock will be located as shown in detail on Figure 2. In the event that fine material ( minus 8 mm ) is to be produced, covered storage or silos will be erected.

PROCESSING (MILLING) AND TAILINGS SYSTEMS

Processing will be sited adjacent to the stockpiles just off the quarry floor ( Figure 2). Limestone will be crushed and screened to sizes needed for sale on the market. The Flow sheet for the project is shown on Figure 3. There will be no Tailings.

POWER SUPPLY

Power will be generated by diesel or natural gas powered generator sets.

The main generators will be located at the Main Quarry site (Figure 2). The requirement will be approximately 5000 Kilowatts but will be finally determined when the quarry equipment is fully designed and the horsepower calculated. These generators will be housed in an appropriate building.

Another diesel generator set of 75 kilowatts and a standby 75 Kw set will be located and housed at the permanent campsite.

Investigations will be undertaken to determine if there is sufficient water flow in adjacent creeks to justify converting to a hydro electric system in time.

OTHER ON-SITE FACILITIES

Located as close to the quarry as possible will be :

- Maintenance Shop
- Fuel Tanks
- Office and Change Building.

PROPERTY ACCESS

Primary access will be by Crew Boat from Bella Bella which will be permanently crewed, based at Aristazabal Island and run regularly. In addition, there will be a work boat and a small cargo boat available as required.

Intermittent access will be by float plane from Bella Bella which is the base for at least two seaplane companies.

Communication will be by satellite telephone and by radio.



### LOADING AND SHIPPING

Material will be drawn from the product stockpiles by conveyor and moved to dockside where it will be loaded on barges or bulk carrier ships by a ship/barge loading system.

The dock will be created with stone filled cribs or by driving a piling system topped by a structural steel framework. Water depths are sufficient to allow large draft vessels close to the shore. The dock ( harbour ) area is on the lee side of Aristazabal Island and additionally protected by the Ramsbothom Islands which stand off about 800 meters from the shore.

Limestone will be transported by bulk carrier ship to the U.S. west coast and by barge to Canadian and Alaskan points.

### WORKFORCE

#### Construction:

The construction force will be skilled machinery installers and building erectors. Some site work will be involved. Estimate is 12 person years, peaking at 30 persons.

#### Production:

Initially, the quarry will be operated , maintained and serviced (including camp and crew boat) by 15 personnel plus a manager =16 on one 12 hour shift per day, 14 days on site and 14 days off site.

When a second shift is required (over 0.7 million tonnes per year level) the number of personnel will double to 32.

At full production the workforce will number approximately 60.

### HOUSING OF WORKFORCE

The workforce will be housed in a permanent camp located 2 kilometers north of the quarry site at Beale Bay.

Initially the camp will house construction personnel and then be converted for production personnel.

The camp will be designed for 30 persons.

ENVIRONMENTAL IMPACT ISSUES

From the Quarry Operation possible environmental impacts would be as follows:

1. Fugitive Dust
  - Blasting Operations. Blasting methods will be designed to minimize this effect.
  - Crushing Operations . Dust collection systems will be installed.
  - Loading Operations. Pneumatic loading of fine products will virtually eliminate this dust.
2. Noise
  - The impact of noise will only be on the working personnel. Hearing protection equipment will be mandatory.
3. Fuel Storage
  - Dikes will be installed to contain possible spills and cleanup procedures will be designed.
4. Explosives Storage
  - Acceptable explosive storage will be installed.

No chemicals will be used in the processing operation.

At the Camp Operation possible environmental impacts could be as follows:

1. Sewage
  - Sewage will be treated to meet environmental standards and discharged into the ocean.
2. Garbage
  - Garbage will be compacted and then incinerated or hauled to a proper landfill site as required by environmental standards.
3. Fuel Storage
  - Dikes will be installed to contain possible spills and cleanup procedures will be designed.

SOCIO-ECONOMIC IMPACT ISSUES

There are no inhabitants of Aristazabal Island. The community that will be primarily affected by this operation will be Bella Bella our chosen transportation jump-off point.

It is planned that maintenance and senior operators will be skilled personnel from the closest point. Lesser skills will be hired locally i.e. Bella Bella etc. and trained for their positions. Indications are that there will be sufficient local labour and thus no special infrastructure will have to be added.

Personnel will be transported to the site and housed in a camp. The work cycle will be 14 days on site working 12 hour shifts per day and 14 days out.



**LAREDO**

**WHEEDMUN**

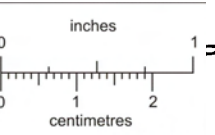
**COLUMBIA**

**MOUNTAINS**

**VANCOUVER ISLAND**

**GOLDEN EARS**

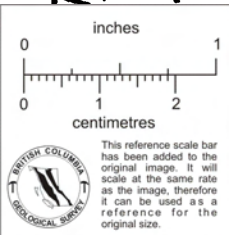
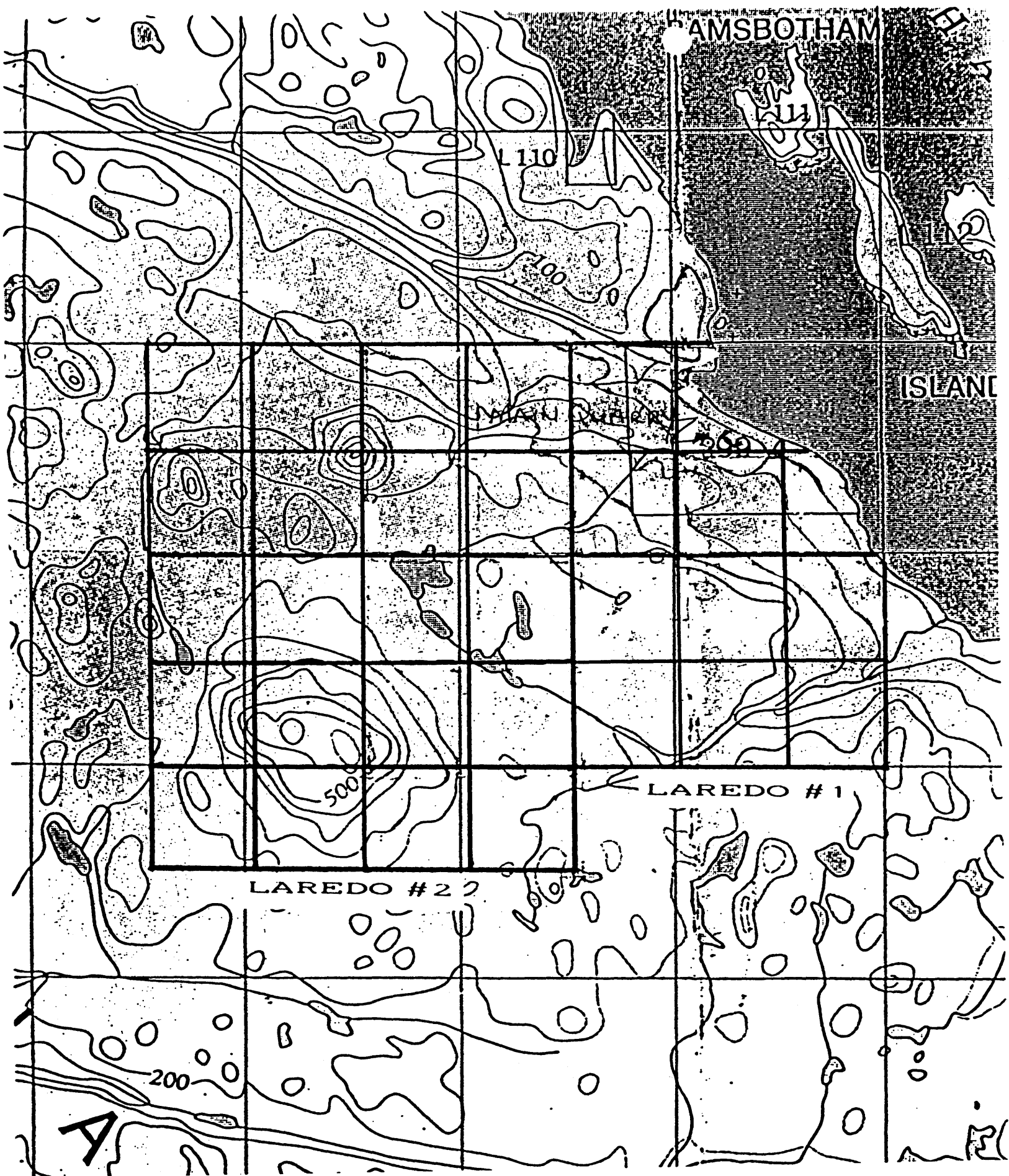
**VANCOUVER**



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**- LOCATION PLAN -**

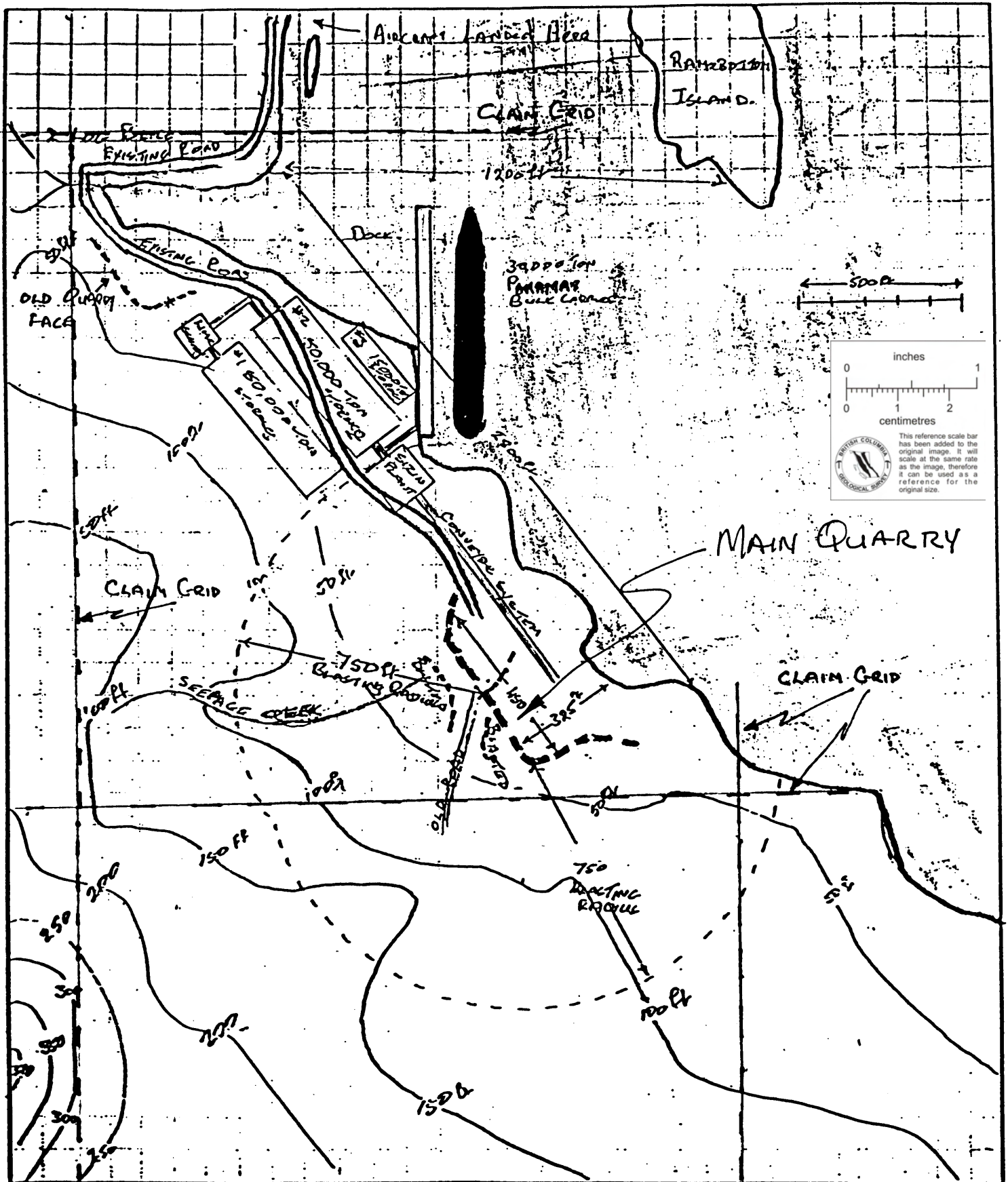




**LAREDO LIMESTONE LTD.**

**SCALE:**      $7/16''$  = 250 Meters  
                    $7/8''$  = 500 Meters  
                    $1\ 3/4''$  = 1000 Meters

**FIGURE 1**



**MINE MAKERS INCORPORATED**

Client **LAREDO Lime Stone**

Project **LIME STONE QUARRY**

Subject **SKETCH LAYOUT OF QUARRY & DOCK, NTS**

By **WEST**

CHKD

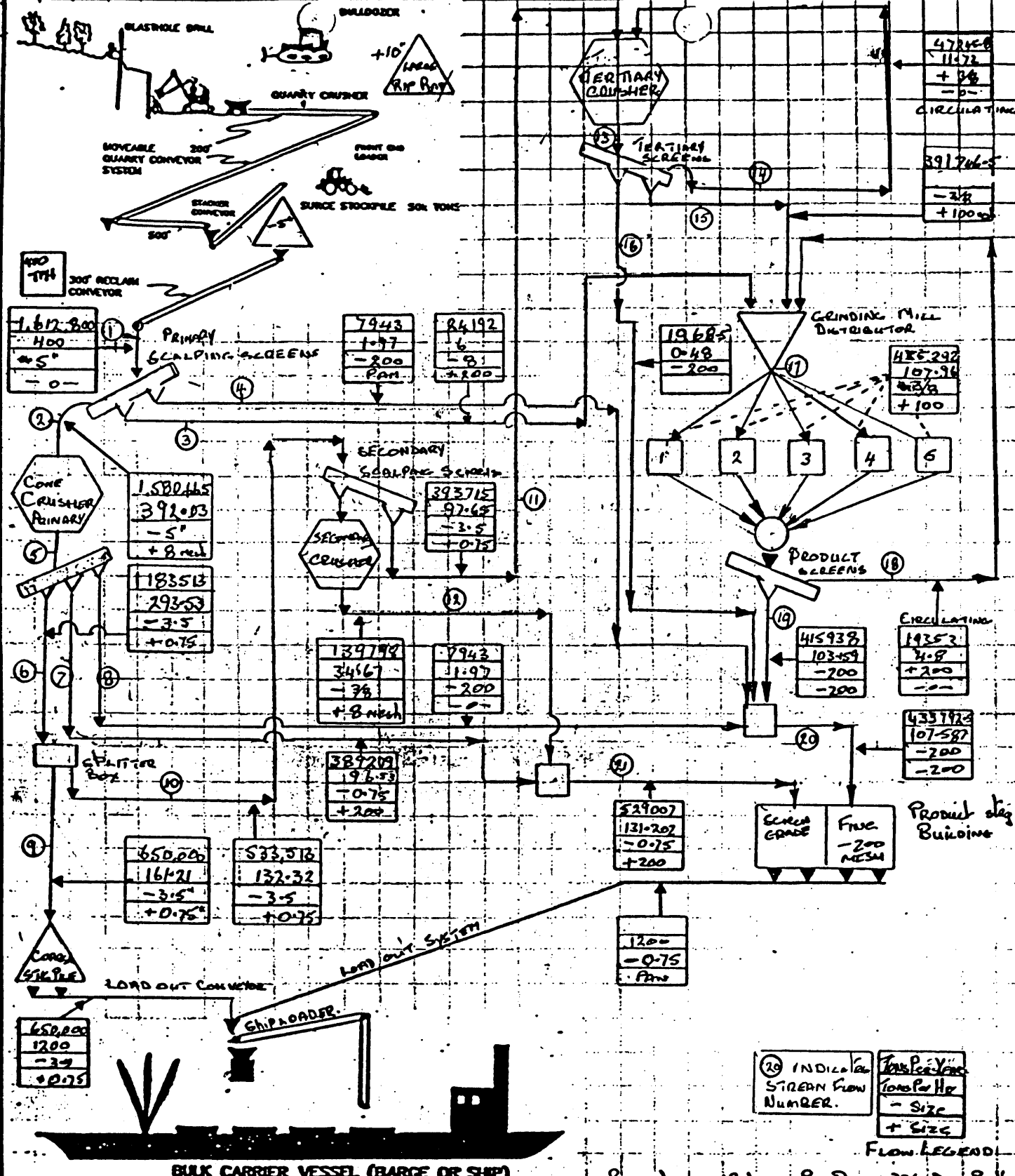
Date **DEC 13/88**

Job No.

SK. No. **FIGURE 2**

Rev.

Sheet **1** of **1**

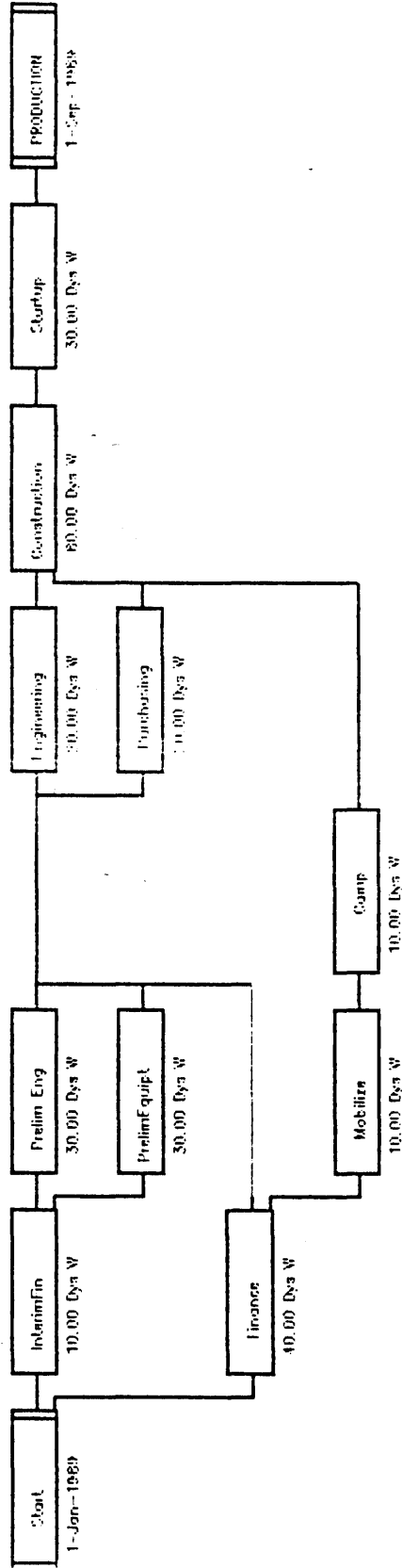


Flow Legend: Based on 12 hours per day x 336 days per year 400 TPH feed

CLIENT: LAZARO LIME STONE  
 PROJECT: Quarry Crushing Circuit @ 400 TPH  
 SUBJECT: Material Balance

By: WERT  
 CHKD: \_\_\_\_\_  
 Date: Dec 5<sup>th</sup> / 80  
 Job No. \_\_\_\_\_  
 St. No. FIGURE 3  
 Rev. \_\_\_\_\_  
 Sheet \_\_\_\_\_ of \_\_\_\_\_

PERT Chart Project: MURPHY 3 - Dec - 1968



Legend

Task	Planned	Actual
Milestone	Planned	Actual
Subproject	to	
Task Log	to	to
Critical Path	to	to
Black Path	to	to