Province of British Columbia
Ministry of Energy, Mines and
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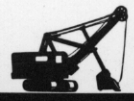
Geological Survey Branch



DIMENSION STONE AERIAL PHOTOGRAPH STUDY OF SOUTHWESTERN BRITISH COLUMBIA

By Jay W. Page

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INTRODUCTION

The demand for dimension stone in the world has increased significantly in recent years, and there has been considerable interest in developing this resource in British Columbia. However, despite a wide variety of natural stone resources, there has only been minor local production and most dimension stone used in the province is imported

The Geological Survey Branch has successfully promoted awareness of this resource through a variety of conference displays and publications. Recent publications include: a popular information circular *British Columbia Dimension Stone* (White and Hora, 1988), a *British Columbia Dimension Stone Market Study* (Page, 1989), and a number of articles in the annual publication *Geological Fieldwork*. This work has raised the awareness of the potential for developing this resource in British Columbia, however, most recent activity has focused on historical quarry sites.

An aerial photograph study was proposed as the most cost-effective means of providing a public database to promote the exploration for and development of new dimension stone quarries. Many essential features of successful quarries are visible on aerial photographs, and these areas can be located for a fraction of the cost of ground searches. The cost of exploring for quarry sites was considered by most interested parties to be prohibitive, and there was no systematic exploration being carried out. In October, 1990 Westex Exploration Ltd. was contracted by the Ministry of Energy, Mines and Petroleum Resources to carry out an aerial photograph study of selected intrusions in accessible areas of southwestern British Columbia.

The aerial photograph study covered gabbro and granodiorite intrusions as indicated by geological mapping within the area of Knight Inlet, Bute Inlet, Toba inlet, Jervis Inlet, Howe Sound, Squamish, Pemberton, Duffy Lake road, the north side of the Fraser Valley, and the Hope-Coquihalla area. The study also included quartz diorite intrusions in the Squamish to Duffy Lake road corridor. A total of 30 potential quarry sites were identified, of which approximately 25 were previously unknown. A description of the evaluation techniques and a detailed study report of each potential quarry site are included in the following report.

ACKNOWLEDGMENTS

The assistance of Z. D. Hora, Industrial Minerals Subsection, Geological Survey Branch is gratefully acknowledged. He made the original suggestion of using aerial photographs to locate potential dimension stone quarry sites, and the technique would not have been developed and successfully applied without the support of both Danny and Gib McArthur. Funding was provided by the British Columbia Ministry of Energy, Mines, and Petroleum Resources.

DIMENSION STONE

A commonly used definition of dimension stone is any rock which has been cut or quarried to specific dimensions. Given this very general definition, the stone industry has a very rigorous set of criteria to define what constitutes a marketable product. Included in these criteria are features of the stone itself; the geological features of the quarry site, especially the capability of the quarry to produce large blocks; and economic considerations such as: quarry development and production costs, transportation costs, fabrication costs at the plant, and marketing costs.

FEATURES OF STONE

The primary physical features of a dimension stone are its colour, texture, strength, and its ability to take a polish. It is of great importance that the stone be free from deleterious features, such as fractures or the presence of sulphides. The colour and textural features are market preferences, and studies have indicated that there is a steady demand for grey, black, pink and red granites. Exotic granites such as "Blue Pearl" (an alkaline feldspar syenite) are currently very popular but their use is limited by supply and consequently price. In terms of texture, granites are most marketable when they are completely uniform in texture, and free from streaks or foliations. In general, the coarse-grained granites have a larger market than fine-grained granites, although fine grain sizes dominate in some interior applications. For more information on markets the reader is referred to the Geological Survey Branch publication *British Columbia Dimension Stone Market Study* (Page,1989).

The physical standards for the use of stone in building construction have been determined by the American Society for Testing and Materials (ASTM). Its standards are based on an exhaustive testing of materials and evaluate all engineering criteria which affect the use of stone in construction, including: compressive strength, flexural strength, absorption, density, and freeze-thaw degradation. The importance of a stone meeting the ASTM standards depends upon its intended use. In many situations, meeting the standards is not essential. For example, a weakness in a stone can often be adequately compensated for by cutting it thicker, or by incorporating it into a stronger structure. However, most dimension stone in the marketplace meets the ASTM standards and a stone does not, will be discounted.

The ability of a granite to take a good polish depends largely on the freshness of silicate minerals present. If the silicate minerals have been altered, they will polish poorly. This applies especially to rocks containing kaolinized or sercitized feldspars, and chlorite altered pyroxene. Another problem arises when polishing granites which contain biotite. The biotite often flakes off, creating pits; this is especially true of coarse-grained biotite. Also, rocks composed of minerals with large contrasts in their hardness are difficult to polish, but this is also a function of the type of polishing equipment used.

There are a large number of features common to most rocks which are unacceptable in dimension stone. Stone that is completely free from defects, has all of

the desired market attributes, and can be economically quarried is rare. It is difficult to categorically identify market preferences for colour and texture because they change from year to year, but it is possible to make an objective evaluation of the physical features. Most of the deleterious physical features are in fact the same as, or similar to, the features covered by the ASTM standards. The following list highlights some of the more common problems, but is not exhaustive.

- The presence of sulphides which rust, causing stains and weakness in the stone.
- The presence of alteration minerals which weaken the stone, create absorption problems and polish poorly.
- The presence of cavities which weaken the stone and create absorption problems.
- A low density which suggests high porosity or cavities and hence strength or absorption problems.
- A high permeability (absorption) rate which may result in problems with staining or physical degradation due to freeze-thaw cycles.
- The presence of microfractures creates an obvious strength problem.
- Rocks that are poorly cemented or do not have an interlocking crystal structure are weak.
- The presence of large crystals with a good cleavage, such as orthoclase, can be a source of weakness in a stone. The cleavage plane may be an important factor in the failure of the stone under stress.
- A high biotite content or large flakes of biotite causes polishing problems.
- The presence of quartz veins, streaks due to variations in mineral composition (flashes), or xenoliths (knots) are generally considered unattractive because they disrupt the uniform abstract pattern desired in granites. Their presence may also indicate strength problems.
- A high quartz content causes excessive wear on saw blades during cutting. In general, fabrication plants will not process a stone with a quartz content greater then 30 percent.

FEATURES OF QUARRY SITES

The physical and geological features of a quarry site determine the cost of production, and most successful modern quarries have many features in common. It is essential that quarries be able to produce large blocks of consistent quality. Modern fabricating plants require rectangular blocks, with parallel sides cut to close tolerances, and weighing 20 to 30 tonnes.

A quarry must be able to produce blocks of a consistently high, uniform quality with a low waste factor. This requires mobile, trackless equipment and the development of the quarry on a system of benches. Another important feature is the tendency of stone in a quarry to split cleanly along predictable planes, allowing for efficient removal of quarry blocks. Other factors such as the steepness of the site, amount of overburden or waste removal required before production, and access to transportation have a major influence on development and production costs.

ECONOMIC CONSIDERATIONS

The economic features which determine the commercial viability of a quarry are closely related to the physical features of the stone and the quarry site, plus additional related factors such as development and operating costs, use of efficient quarrying techniques, the application of modern technology, good management and a favourable regulatory and taxation environment.

The viability of a quarry is largely dependant upon the capital costs prior to production, and the ability of a quarry to carry those costs until a sustainable level of production is reached. Success in the dimension stone industry requires a large capital investment and a long term commitment, especially when compared to other types of quarries, such as sand and gravel quarries. Crucial to the ability of this industry to attract investment is the security of tenure to stone resources. These factors should be reflected in the regulatory and taxation environment.

The following comments are general observations about economic factors affecting the operation of dimension stone quarries.

- The markets for quarry blocks and for finished stone products are different. Buyers of quarry blocks are fabricating plants, not architects or consumers. Pacific Granistone's operation in Delta is the only finishing plant in western North America. Currently, local quarries have only two options if they do not build their own plant: they can have their blocks cut by Pacific Granistone, or they can export their blocks.

- The higher value of many premium or exotic granites is often a result of higher costs of production, not higher profits. This may be due to a high waste factor at the quarry site or during the cutting operation.

- The prices paid to quarries for different types of granite do not show the same variation as do the prices of finished products.

- Transportation costs have a large influence in defining the market area for a particular stone.

- Development and operating costs appear to have a much greater influence on profitability then does the type of stone.

- The lower the profit margin for a quarry, the closer the relationship there must exist between the quarry and a plant.

- Profitable quarries appear to be efficient quarries which can deliver large quantities of uniform stone to plants on schedule.

- The primary applications for granite dimension stone are large commercial projects, such as exterior cladding for office towers. The types of granite chosen for these projects generally reflect conservative tastes in colour and texture. Supplying these type of projects may be the only way that many quarries can achieve sustainable and profitable levels of production.

- Sales support by the vendor (the fabrication plant or its agent) and reliability of the quarry have a bigger influence on market penetration than small variations in price.

- A quarry and a plant must have a track record and be able to guarantee delivery of a uniform high quality product on schedule before they can win large commercial contracts. This requires that the quarry have proven and developed reserves ready for production, and a good supply of blocks on hand. Plants must have two or more gang saws and sufficient resources to provide compensation in the event of inadequate performance. Potential quarries must consider an association with a successful plant, if they expect to supply large commercial projects.

- The ability of a quarry to produce large, rectangular blocks of the optimum size for a given plant's saws has a large influence on the cost of production at that plant. This is a major factor in the demand for the quarry's blocks, and is more important than small variations in price for the rough stone. The size and shape of the blocks has become a very important consideration in the international market for quarry blocks, and is one of the primary reasons why european countries, such as Sweden, can successfully compete with third world countries.

DIMENSION STONE AERIAL PHOTOGRAPH STUDY

OBJECTIVE

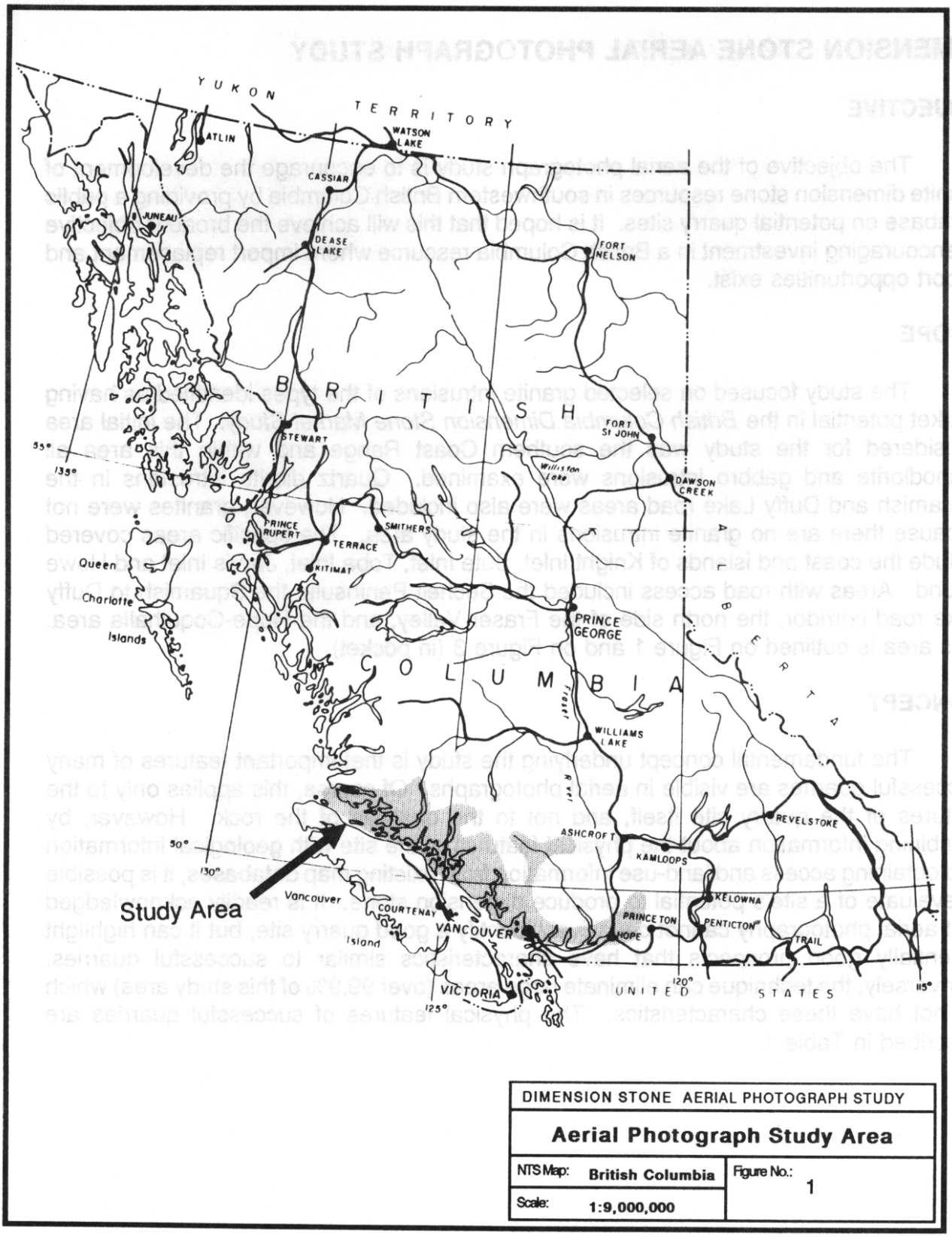
The objective of the aerial photograph study is to encourage the development of granite dimension stone resources in southwestern British Columbia by providing a public database on potential quarry sites. It is hoped that this will achieve the broader objective of encouraging investment in a British Columbia resource where import replacement and export opportunities exist.

SCOPE

The study focused on selected granite intrusions of the types identified as having market potential in the *British Columbia Dimension Stone Market Study.* The initial area considered for the study was the southern Coast Range and within this area all granodiorite and gabbro intrusions were examined. Quartz diorite intrusions in the Squamish and Duffy Lake road areas were also included. However, granites were not because there are no granite intrusions in the study area. The specific areas covered include the coast and islands of Knight Inlet, Bute Inlet, Toba Inlet, Jervis Inlet and Howe Sound. Areas with road access included the Sechelt Peninsula, the Squamish to Duffy Lake road corridor, the north side of the Fraser Valley, and the Hope-Coquihalla area. This area is outlined on Figure 1 and on Figure 3 (in pocket).

CONCEPT

The fundamental concept underlying the study is that important features of many successful quarries are visible in aerial photographs. Of course, this applies only to the features of the quarry site itself, and not to the qualities of the rock. However, by combining information about the physical features of the site with geological information and obtaining access and land-use information from existing map databases, it is possible to evaluate of a site's potential to produce dimension stone. It is readily acknowledged that aerial photography cannot definitively identify a good quarry site, but it can highlight potentially good prospects that have characteristics similar to successful quarries. Conversely, the technique can eliminate large areas (over 99.9% of this study area) which do not have these characteristics. The physical features of successful quarries are described in Table 1.



DIMENSION STONE AERIAL PHOTOGRAPH STUDY	
Aerial Photograph Study Area	
NTS Map: **British Columbia**	Figure No.: 1
Scale: **1:9,000,000**	

TABLE 1
FEATURES OF SUCCESSFUL QUARRIES

FEATURES OF QUARRIES	PHYSICAL FEATURES	INFORMATION SOURCE	PHOTO TECHNIQUE
Marketable stone	Rock type Colour Texture Composition Meets ASTM specifications No deleterious features	Geological mapping " " " No information No information	Outcrop areas located in small-scale photo study of intrusions. N/A N/A
Production of large blocks	Solid rock with wide-spaced fractures.	Aerial photographs	Fracture patterns Grey tone Erosion patterns Vegetation patterns
Low development costs: 1. Low stripping ratio 2. Good access 3. Local infrastructure 4. Compatible land-use	 Bare rock, thin overburden Proximity to roads Transportation & towns N/A	 Aerial photographs Topographic maps Topographic maps Land-use maps	 Outcrop areas visible Roads may be visible N/A N/A
Competitive operating costs: 1. Low waste factor 2. Low or moderate slope 3. Long work season 4. Efficient mechanization 5. Low energy costs 6. Good management	 All physical features above. Slope Elevation, aspect N/A N/A N/A	 Above information Aerial photographs Topographic maps N/A B.C. Hydro N/A	 Above techniques Slope visible Location plotted from photo N/A N/A N/A
Marketing strategy	N/A	N/A	N/A
Favourable regulatory environment	N/A	Government regulations	N/A

ASSUMPTIONS

A number of assumptions are made in this study; primarily that solid outcrop areas with the right type of rock, moderate topography and reasonable access are potential quarry sites. A large number of other factors enter into the evaluation of potential quarry sites, as already discussed. However, when only the physical features which can be seen in aerial photographs are considered, this is a reasonable assumption. An additional assumption based on economic criteria is that steep slopes and alpine areas are not suitable for quarry sites. Again this is a reasonable assumption, as the objective is to locate economically viable quarry sites, not simply sites from which it is possible to quarry large blocks of stone.

The primary purpose for using aerial photographs is to locate areas of solid rock. Most other information, such as geology, access, elevation, etc. is integrated from other sources. Areas of solid rock are difficult to identify, except where exposed on ridges or in cliff faces, or suggested by the presence of exfoliation fractures. In interior areas, boulder fields formed from exfoliation processes may indicate underlying solid rock. However, because of the difficulty of identifying solid rock, a more common practice is to identify areas of fractured rock and infer that solid rock exists where evidence of fracturing is lacking.

The presence of fractured rock is interpreted from erosion and vegetation patterns. In this study it was assumed that the following features indicate areas of fractured rock:

- A high density of large fractures, made visible by differential erosion or vegetation patterns.
- Large intersecting fracture sets, which may have associated smaller fractures not visible in photographs.
- A high-density drainage pattern.
- The presence of talus slopes, especially if they are large relative to the size of cliffs.
- A mottled grey tone on exposed rock surfaces, caused by an irregular surface with fractures accentuated by shadows.
- An irregular outcrop pattern, suggesting intersecting fracture sets.
- Trees in outcrop areas are usually rooted in fractures.
- Thick forest cover indicates overburden

LIMITATIONS

There are some significant limitations in the use of aerial photographs to locate quarry sites even given the above assumptions. The most significant is a function of the scale of the photographs. A site must measure at least 3 millimetres by 3 millimetres on the photographs to be noticed, and if the initial photo study is carried out at a scale of 1:40000 then the site must be approximately 1 hectare in size. Larger scale photographs can be used for the preliminary search, but increasing the scale requires examination of more photographs. An upper limit to this option is that the largest scale photographs available for most areas are of approximately 1:15000 scale. Another limitation is that a site must have rock exposed or it will not be noticed when studying large areas on numerous photographs. This limitation applies equally to sites which are partly covered by forest or overburden. The study was able to identify a number of large, potential quarry sites, however, it is acknowledged that there are probably many inconspicuous sites that were not identified. This is especially true of sites with less than 1 hectare of rock exposed, such as the Cayoosh Creek quarry which was not identified in the study.

Limitations exist with the other sources of information which are integrated into this study. The accuracy of geological mapping at a scale of 1:250000 is questionable. Large variations in texture and composition are known to exist in most intrusions, and many separate but similar intrusions are grouped together at this scale of mapping. There is little information in the geological database about any of the features which are deleterious and cause a rock to be unsuitable for use as dimension stone. In glaciated areas, outcrops of fractured rock can present a smooth, rounded shape. This can be very difficult to distinguish in aerial photographs unless the outcrop also forms part of a cliff, where the fracturing will be indicated by talus development. Another limitation is that access and land-use information is out of date on most older maps.

METHODOLOGY

The study drew upon information from a variety of sources including the *British Columbia Dimension Stone Market Study*, geological maps, topographic and land-use maps, and rough estimates of the economic factors affecting the viability of quarries. Figure 2 illustrates how this information was integrated into the study.

The project area was systematically examined using the following procedure:

- Granodiorite and gabbro intrusions in the study area, and quartz diorite intrusions in the Squamish to Duffy Lake road corridor were identified on geological maps.

- Access and land status of these intrusions were checked on topographic and land-use maps.

- Aerial photographs of intermediate scale, approximately 1:31680 to 1:40000, were obtained and outcrop areas of solid rock identified.

- Larger scale aerial photographs, at scales of 1:15000 to 1:20000 were obtained and outcrop areas were studied in detail.

- Each detailed study area was evaluated and the results compiled into a report. Evaluation criteria are summarized in Table 2.

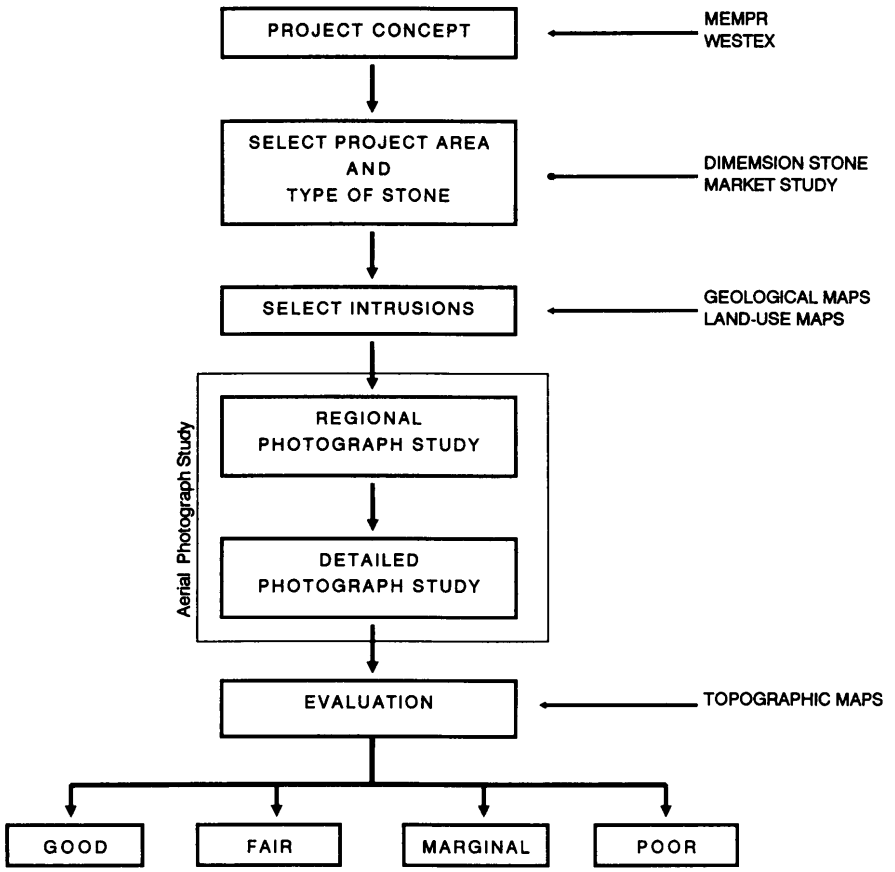


FIGURE 2 AERIAL PHOTOGRAPH STUDY - METHODOLOGY

TABLE 2
EVALUATION CRITERIA

RATING	ROCK QUALITY	SLOPE	ACCESS
Good	Solid	Low	Good
Fair	Solid	Moderate	Moderate
Marginal	Some fracturing	Moderate	Poor
Poor	Fractured	Steep	Poor

RESULTS

The study successfully identified a number of potential granite dimension stone quarry sites. A total of 725 stereo pairs of photographs were examined in the regional study, from which 165 sites were chosen for detailed study. The results of the regional study are tabulated in Appendix I. The detailed study identified 30 sites as economically interesting and they were then rated using criteria summarized in Table 2. The distribution of results is shown below in Table 3.

TABLE 3
DISTRIBUTION OF RESULTS

NTS AREA	AERIAL PHOTOGRAPH STUDIES		DETAILED STUDY RESULTS			
	REGIONAL	DETAILED	GOOD	FAIR	MARGINAL	POOR
92F	37	6	2	2	1	1
92G	142	24	1	1	1	21
92H	57	27	0	3	2	22
92J	102	10	0	0	0	10
92K	264	77	2	7	5	63
92L	88	17	0	2	1	14
92N	35	4	0	0	0	4

The regional study of the NTS 92J map sheet area identified 10 sites for detailed study, including sites in the Cayoosh Creek area. However, none of these sites could be recommended and there are no detailed reports for this area. The regional study of this area is summarized in Appendix I, and geological references for the Pemberton-Duffy Lake areas are provided at the end of this report.

A consideration when reviewing the results of this study is that 27 of the 30 sites are granodiorite, and in all probability only a few will ever be considered for production. Some will have deleterious features, and the economic attributes of a few will be superior to the rest. However, in the absence of detailed information, which can only be provided by fieldwork, none of the sites can be singled out.

Five of the sites are on private land, and their inclusion in the report is to identify a potential resource, not necessarily to identify a development opportunity. These sites are: Fox Island, Kelly Island, Squamish, Malamute Bluff, and parts of Nelson Island. In

addition, areas near the Wildroot Heights and Jefferd Creek sites are also privately owned, and land-use restrictions may apply. Table 4 summarizes the results of the detailed study.

TABLE 4
SUMMARY OF DETAILED PHOTOGRAPH STUDY

SITE NAME	ROCK TYPE	NTS MAP	RATING	MAP REFERENCE
Wildroot Heights	Gabbro	92F/15	Fair	92F-1
Nelson Island	Granodiorite	92F/9	Fair	92F-2
Fox Island	Granodiorite	92F/9	Good	92F-3
Kelly Island	Granodiorite	92F/9	Good	92F-4
Jefferd Creek	Granodiorite	92F/16	Marginal	92F-5
Squamish	Granodiorite	92G/11	Marginal	92G-1
Malamute Bluff	Granodiorite	92G/11	Fair	92G-2
Olsen Creek	Granodiorite	92G/11	Good	92G-3
Nicolum Bluffs	Granodiorite	92H/6	Fair	92H-1
Gemse Col	Granodiorite	92H/11	Fair	92H-2
Bighorn Peak	Granodiorite	92H/11	Marginal	92H-3
Llama Peak	Granodiorite	92H/11	Marginal	92H-4
South Anderson River	Granodiorite	92H/11	Fair	92H-5
Baresides Mountain	Granodiorite	92K/12	Fair	92K-1
McBride Bay	Granodiorite	92K/11	Fair	92K-2
Kwalate Point	Granodiorite	92K/13	Fair	92K-3
Homathko River	Granodiorite	92K/15	Good	92K-4
Francis Bay	Granodiorite	92K/6	Fair	92K-5
Mount Barner	Diorite	92K/7	Fair	92K-6
Cosmos Shore	Granodiorite	92K/11	Fair	92K-7
Bohn Point	Granodiorite	92K/2	Good	92K-8
Toba Inlet	Granodiorite	92K/8	Marginal	92K-9
Estero Basin	Granodiorite	92K/11	Marginal	92K-10

Topaz Bluffs	Granodiorite	92K/12	Fair	92K-11
Slane Creek	Granodiorite	92K/1	Marginal	92K-12
Knight Inlet	Granodiorite	92K/12	Marginal	92K-13
Hole-In-The-Wall	Granodiorite	92K/6	Marginal	92K-14
Watson Cove	Granodiorite	92L/16	Fair	92L-1
Mount Appolina	Quartz Diorite	92L/16	Marginal	92L-2
Chatham Channel	Granodiorite	92L/9	Fair	92L-3

The Mount Barner site is underlain by diorite, which was not a rock type indicated by the market study. However, the site was noticed while carrying out a detailed photograph study of a nearby area. The site meets all the evaluation criteria and depending on the characteristics of the stone, it may be suitable as a grey or dark grey granite.

Ten marginal sites are included in this report. Marginal sites are not rigorously defined because, although they are in general "fair" sites with poor access, the access information on existing maps is often more than 10 years out of date and the sites may be accessible now or in the near future. It is a matter of judgement whether a marginal site should be excluded, or included because it may become accessible. In some cases large-scale photographs were not available and consequently there is less confidence in the photo interpretation. Other marginal sites had contradictory information (there being indications of both solid and fractured rock). The Squamish site is also included in this category although land-use constraints may prevent it from being developed.

The study also included an evaluation of known dimension stone quarry sites, including both current and past producers, but excluding aggregate or rip-rap quarries. Table 5 summarizes the results of this study. It should be noted that a poor rating, especially for the existing quarries, does not mean that they are poor quarries, but simply that features of successful quarries are not visible in aerial photographs of these sites. Sites without a detailed study were considered poor after the regional study, and a detailed study was not warranted. Squirrel Cove is now a provincial park and was not studied.

In conclusion, aerial photographs have been successfully used to identify potential quarry sites in southwestern British Columbia. The technique appears to have wide application and could be used to locate potential quarry sites in other parts of the province.

TABLE 5
EVALUATION OF EXISTING QUARRIES & OCCURRENCES

NAME	MINFILE #	NTS AREA	REGIONAL STUDY	DETAILED STUDY	RATING
Quarry Bay (Nelson Is.)	092F 189	92F	Yes	No	-
Kelly Island Quarry	092F 196	92F	Yes	Yes	Good
Fox Island Quarry	092F 378	92F	Yes	Yes	Good
Hardy Island Quarry	092F 425	92F	Yes	No	-
Sechelt Quarry	092GSW002	92G	Yes	Yes	Poor
Squamish Quarry	-	92G	Yes	Yes	Poor
Cayoosh Creek Quarry	-	92J	Yes	No	-
Baveno	092K 114	92K	Yes	Yes	Poor
Squirrel Cove	092K 120	92K	No	-	-
Granite Mountain	092K 128	92K	Yes	No	-
Knight Inlet Quarry	092K 140	92K	Yes	No	-

INTERPRETATION OF DATA

The following guidelines are to assist the reader in the interpretation of the information in the detailed study reports.

Site - An informal name of a potential quarry site, but not necessarily the same name as the geographic area name. The geographic area was named in the regional study and it may include several detailed study sites.

Rating - Good, fair or marginal. No detailed summaries of poor sites are included.

Map Reference - Refers to individual location maps and to the number on the study area map.

Rock Type - The dominant rock type indicated by published geological mapping.

Colour - The expected colour, based on the rock type. Not independently confirmed.

NTS Map Sheet - 1:50000 scale topographic map.

Elevation - Lowest elevation of the site.

Latitude, Longitude - Approximate location of site rounded to the nearest minute. For more accuracy refer to location maps.

Access - This is access to the area, not to the site.

Quarry Developments - Current or historical developments in the vicinity.

Aerial Photograph Pairs Studied - Photograph No.1 and Photograph No.2 are the respective left and right photographs of the pair examined.

Structure - The large-scale structural information visible in the photographs.

Vegetation Cover - The rock or forest cover at the site.

Topography - The type of topography at the site.

Evaluation - The rating based on the evaluation criteria.

Sources of Geological Information - The geological maps, open files and reports that provided geological information about the sites.

DETAILED STUDY REPORTS

NTS AREA 92F

WILDROOT HEIGHTS

Rating: Fair

Map Reference: 92F-1

Rock Type: Gabbro

Colour: Dark grey to black.

NTS Map Sheet: 92F/15

Elevation: 180 metres

Latitude: 49° 54′

Longitude: 124° 33′

Location: Immediately north of Wildroot Heights subdivision, approximately 2 kilometres north of Powell River.

Access: The closest roads are residential streets in the Wildroot subdivision.

Quarry Developments: None are known in this area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC88051-112	BC88051-111	1:15000
BC5102-110	BC5102-109	1:31680

Structure: The area of outcrops is cut by several prominent northwesterly and northeasterly lineaments.

Vegetation Cover: Bare patches of rock exposed.

Topography: A series of small bluffs.

Photo Interpretation:

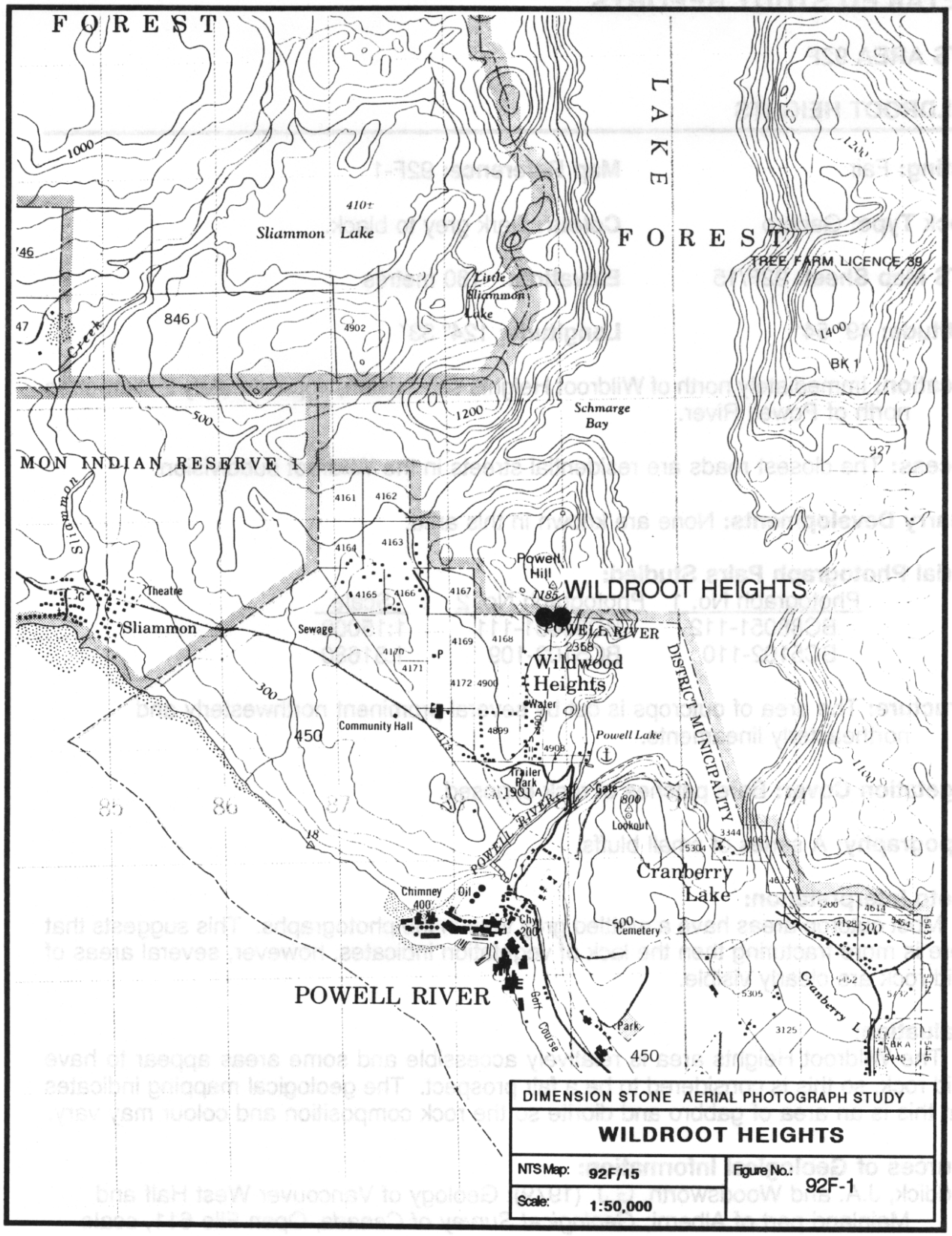
Most outcrop areas have a mottled grey tone in the photographs. This suggests that there is more fracturing then the lack of vegetation indicates, however, several areas of solid rock are clearly visible.

Evaluation:

The Wildroot Heights area is relatively accessible and some areas appear to have solid rock, so this is considered to be a fair prospect. The geological mapping indicates that this is an area of gabbro and diorite so the rock composition and colour may vary.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1979): Geology of Vancouver West Half and Mainland part of Alberni; *Geological Survey of Canada*, Open File 611, scale 1:125000.



DIMENSION STONE AERIAL PHOTOGRAPH STUDY	
WILDROOT HEIGHTS	
NTS Map: **92F/15**	Figure No.: **92F-1**
Scale: **1:50,000**	

NELSON ISLAND

Rating: Fair

Map Reference: 92F-2

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92F/9

Elevation: 10 metres

Latitude: 49° 40′

Longitude: 124° 09′

Location: On the south shore of Nelson Island, approximately 1 kilometre west of Quarry Bay.

Access: By boat.

Quarry Developments: There are three old quarries on Quarry Bay to the east.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC85015-136	BC85015-135	1:15000
BC85015-137	BC85015-136	1:15000
BC85015-138	BC85015-137	1:15000
BC5102-49	BC5102-48	1:31680

Structure: The outcrops are broken by a series of northeast-trending lineaments.

Vegetation Cover: Bare patches of rock exposed.

Topography: Low bluffs near the shore.

Photo Interpretation:

There is solid rock visible, although it is broken by regularly spaced northeast-trending fractures. A horizontal fracture set is suggested by erosion patterns along the shore.

Evaluation:

The south coast of Nelson Island offers a number of quarry opportunities, however, much of the land is privately owned, especially in the Quarry Bay area. The area indicated on the map appears to be Crown Land based on the land-use map for this area. This site is accessible and there is solid rock visible in the photographs, hence it is considered to be a fair site. The area southeast of Quarry Bay is privately owned and has been developed for summer cottages. All of these areas on Nelson Island appear to have limited reserves, and there appears to be little dimension stone potential in the interior of the island.

Sources of Geological Information:

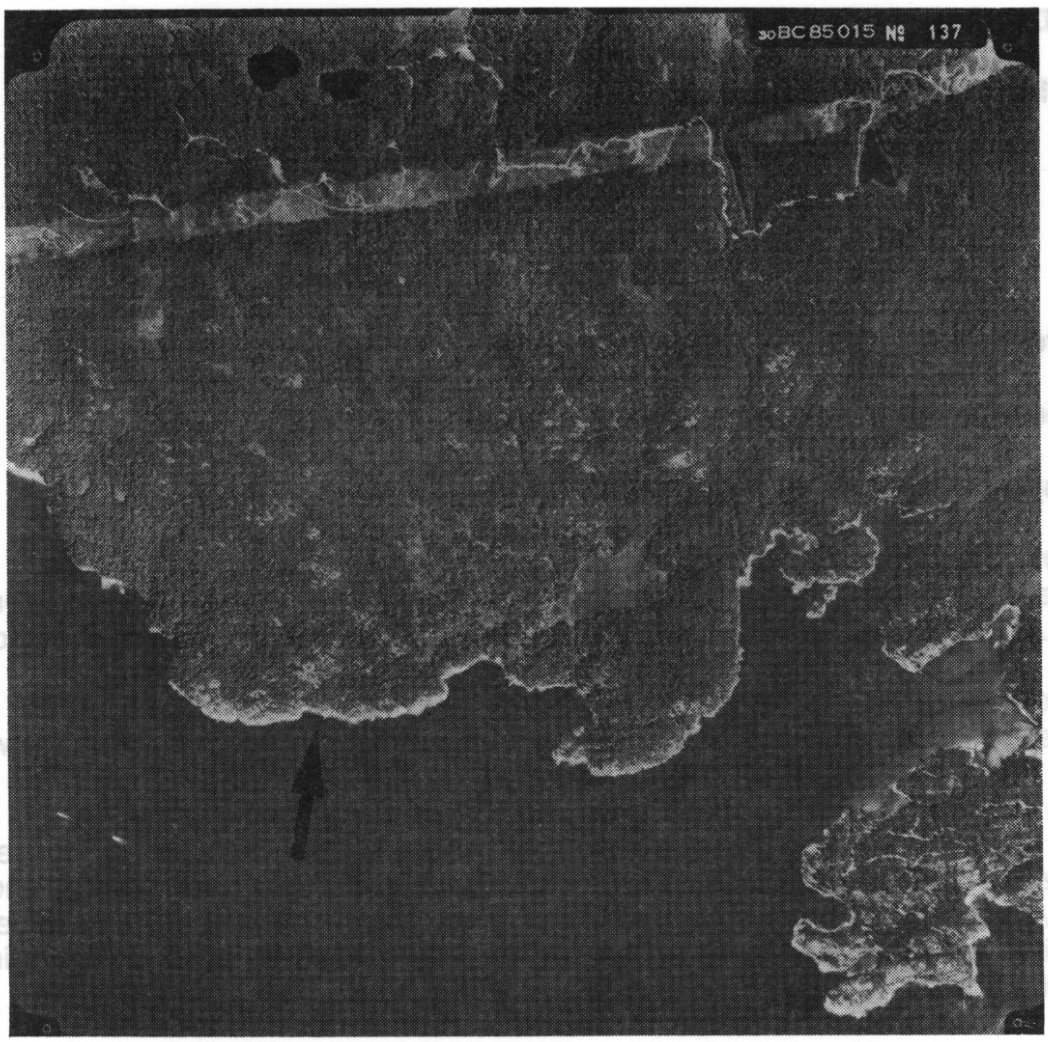
Carr, G.F. (1955): The Granite Industry of Canada; *Department of Mines and Technical Surveys*, Ottawa, Number 846, pages 158 - 181.

Parks, W.A. (1917): Report on the Building and Ornamental Stones of Canada; *Canadian Department of Mines*, Volume V, Report 452, 236 pages.

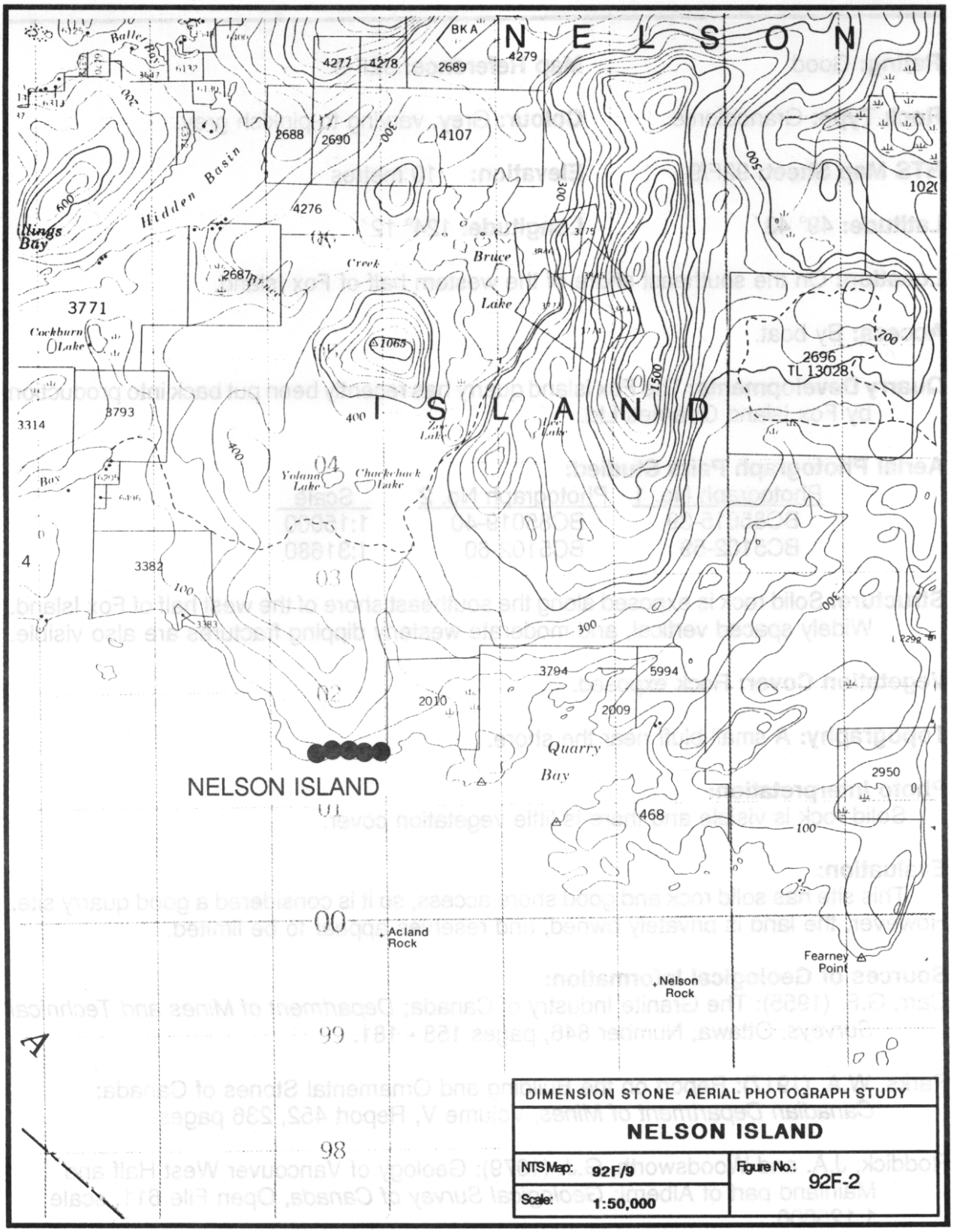
Roddick, J.A. and Woodsworth, G.J. (1979): Geology of Vancouver West Half and Mainland part of Alberni; *Geological Survey of Canada*, Open File 611, scale 1:125000.

White, G.V. (1986): Dimension Stone Quarries in British Columbia; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Geological Fieldwork, 1986; Paper 1987-1, pages 309-342.

White, G.V. and Hora, Z.D. (1988): British Columbia Dimension Stone; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Information Circular 1988-6, 32 pages.



PHOTOGRAPH 1 - NELSON ISLAND BC 85015-137 Scale 1:15,000


N E L S O N
I S L A N D
NELSON ISLAND
Hidden Basin
Bruce Creek
Bruce Lake
Cockburn Lake
Yolana Lake
Chuckeback Lake
Quarry Bay
Kings Bay
Bay
Acland Rock
Nelson Rock
Fearney Point
4277
4278
2689
4279
2688
2690
4107
4276
2687
3771
3793
3314
3382
3794
5994
2010
2009
2950
2696
TL 13028
468
1065
BKA
00
01
02
03
04
98
99
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
NELSON ISLAND
NTS Map: 92F/9
Scale: 1:50,000
Figure No.: 92F-2

FOX ISLAND

Rating: Good

Map Reference: 92F-3

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92F/9

Elevation: 10 metres

Latitude: 49° 43′

Longitude: 124° 12′

Location: On the southeast shore of the western half of Fox Island.

Access: By boat.

Quarry Developments: The Fox Island quarry has recently been put back into production by Fox Island Quarries Ltd.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC85015-39	BC85019-40	1:15000
BC5102-59	BC5102-60	1:31680

Structure: Solid rock is exposed along the southeast shore of the west half of Fox Island. Widely spaced vertical, and moderate westerly dipping fractures are also visible.

Vegetation Cover: Rock exposed.

Topography: A small bluff near the shore.

Photo Interpretation:
Solid rock is visible and there is little vegetation cover.

Evaluation:
This site has solid rock and good shore access, so it is considered a good quarry site. However, the land is privately owned, and reserves appear to be limited.

Sources of Geological Information:

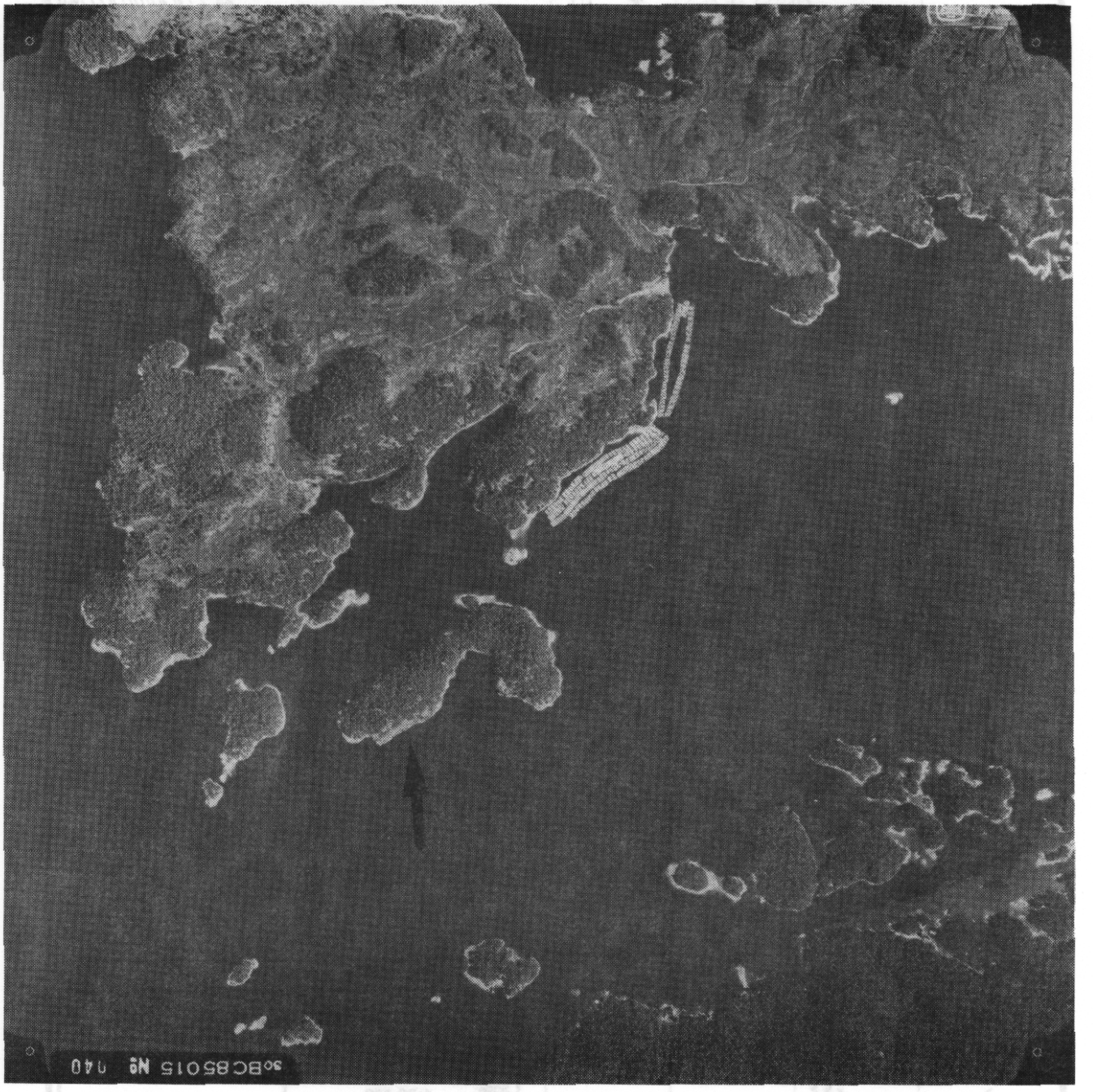
Carr, G.F. (1955): The Granite Industry of Canada; *Department of Mines and Technical Surveys*, Ottawa, Number 846, pages 158 - 181.

Parks, W.A. (1917): Report on the Building and Ornamental Stones of Canada; *Canadian Department of Mines*, Volume V, Report 452, 236 pages.

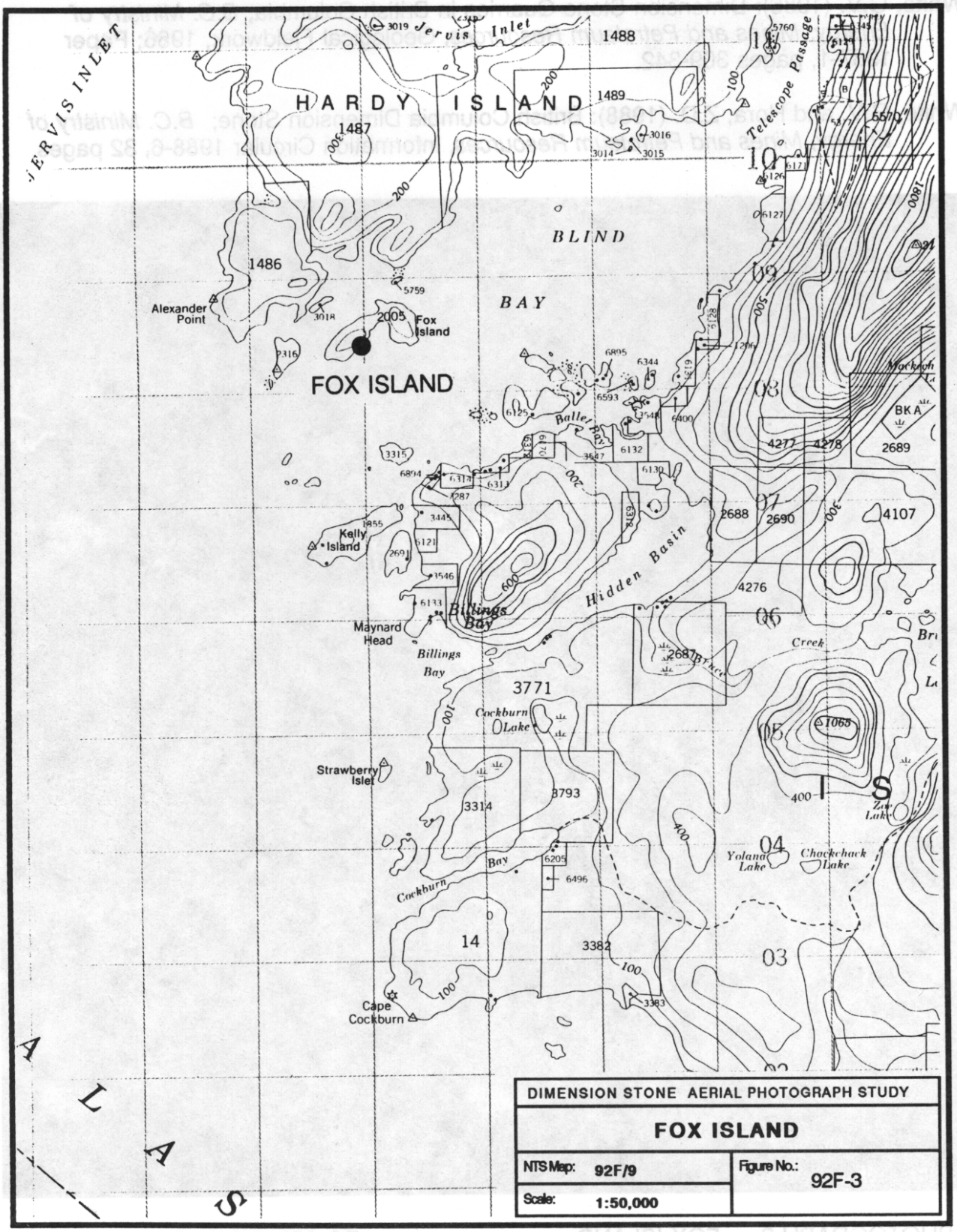
Roddick, J.A. and Woodsworth, G.J. (1979): Geology of Vancouver West Half and Mainland part of Alberni; *Geological Survey of Canada*, Open File 611, scale 1:125000.

White, G.V. (1986): Dimension Stone Quarries in British Columbia; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Geological Fieldwork, 1986; Paper 1987-1, pages 309-342.

White, G.V. and Hora, Z.D. (1988): British Columbia Dimension Stone; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Information Circular 1988-6, 32 pages.



PHOTOGRAPH 2 - FOX ISLAND BC 85015-040 Scale 1:15,000


JERVIS INLET
Jervis Inlet
HARDY ISLAND
1487
1488
1489
1486
BLIND
BAY
Alexander Point
Fox Island
FOX ISLAND
Telescope Passage
Kelly Island
Hidden Basin
Billings Bay
Maynard Head
Billings Bay
Cockburn Lake
Strawberry Islet
Cockburn Bay
Cape Cockburn
Yolana Lake
Chackchack Lake
Creek
Mackinnon
BK A
2689
4272
4278
2688
2690
4107
4276
2687
3771
3793
3314
3382
3383
1068
5570
5760
14
10
09
08
07
06
05
04
03
ATLAS
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
FOX ISLAND
NTS Map: 92F/9
Figure No.: 92F-3
Scale: 1:50,000

KELLY ISLAND

Rating: Good

Map Reference: 92F-4

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92F/9

Elevation: 10 metres

Latitude: 49° 42′

Longitude: 124° 13′

Location: The site is located on the southwest end of Kelly Island.

Access: By boat.

Quarry Developments: Kelly (Granite) Island is a former producer.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC85015-84	BC85015-83	1:15000
BC5102-59	BC5102-60	1:31680

Structure: The rock bluff appears to be solid in places, although some fracturing is suggested by a mottled grey tone.

Vegetation Cover: Rock exposed.

Topography: A small rock bluff on an island.

Photo Interpretation:

There is solid rock exposed, although part of the bluff appears to be fractured. The mottled grey tone may also be due to debris left from previous quarry operations.

Evaluation:

This site has solid rock and good access so it is given a good rating. However, the island is private property and reserves are limited.

Sources of Geological Information:

Carr, G.F. (1955): The Granite Industry of Canada; *Department of Mines and Technical Surveys*, Ottawa, Number 846, pages 158 - 181.

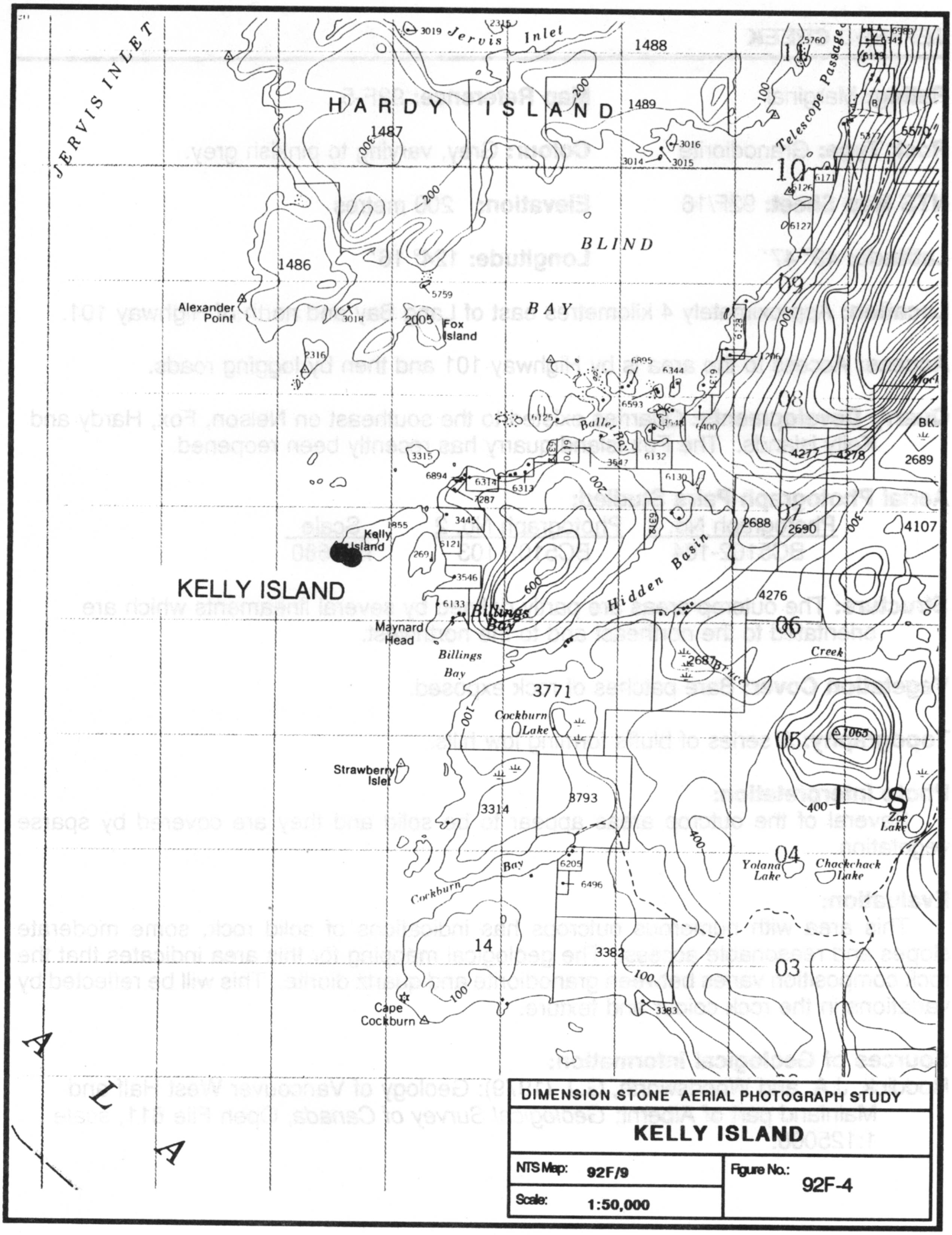
Parks, W.A. (1917): Report on the Building and Ornamental Stones of Canada; *Canadian Department of Mines*, Volume V, Report 452, 236 pages.

Roddick, J.A. and Woodsworth, G.J. (1979): Geology of Vancouver West Half and Mainland part of Alberni; *Geological Survey of Canada*, Open File 611, scale 1:125000.

White, G.V. (1986): Dimension Stone Quarries in British Columbia; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Geological Fieldwork, 1986; Paper 1987-1, pages 309-342.

White, G.V. and Hora, Z.D. (1988): British Columbia Dimension Stone; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Information Circular 1988-6, 32 pages.

PHOTOGRAPH 3 - KELLY ISLAND BC 85015-084 Scale 1:15,000


JERVIS INLET
Jervis Inlet
HARDY ISLAND
Telescope Passage
BLIND
BAY
Alexander Point
Fox Island
Kelly Island
KELLY ISLAND
Billings Bay
Hidden Basin
Maynard Head
Cockburn Lake
Strawberry Islet
Cockburn Bay
Cape Cockburn
Bruce Creek
Yolanda Lake
Chackchack Lake
Zoe Lake
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
KELLY ISLAND
NTS Map: 92F/9
Scale: 1:50,000
Figure No.: 92F-4

JEFFERD CREEK

Rating: Marginal

Map Reference: 92F-5

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92F/16

Elevation: 200 metres

Latitude: 49° 47′

Longitude: 124° 16′

Location: Approximately 4 kilometres east of Lang Bay and north of Highway 101.

Access: Access to the area is by Highway 101 and then by logging roads.

Quarry Developments: Quarries existed to the southeast on Nelson, Fox, Hardy and Kelly islands. The Fox Island quarry has recently been reopened.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC5102-104	BC5102-103	1:31680

Structure: The outcrop areas are partly defined by several lineaments which are orientated to the northeast and to the northwest.

Vegetation Cover: Bare patches of rock exposed.

Topography: A series of bluffs forming low hills.

Photo Interpretation:

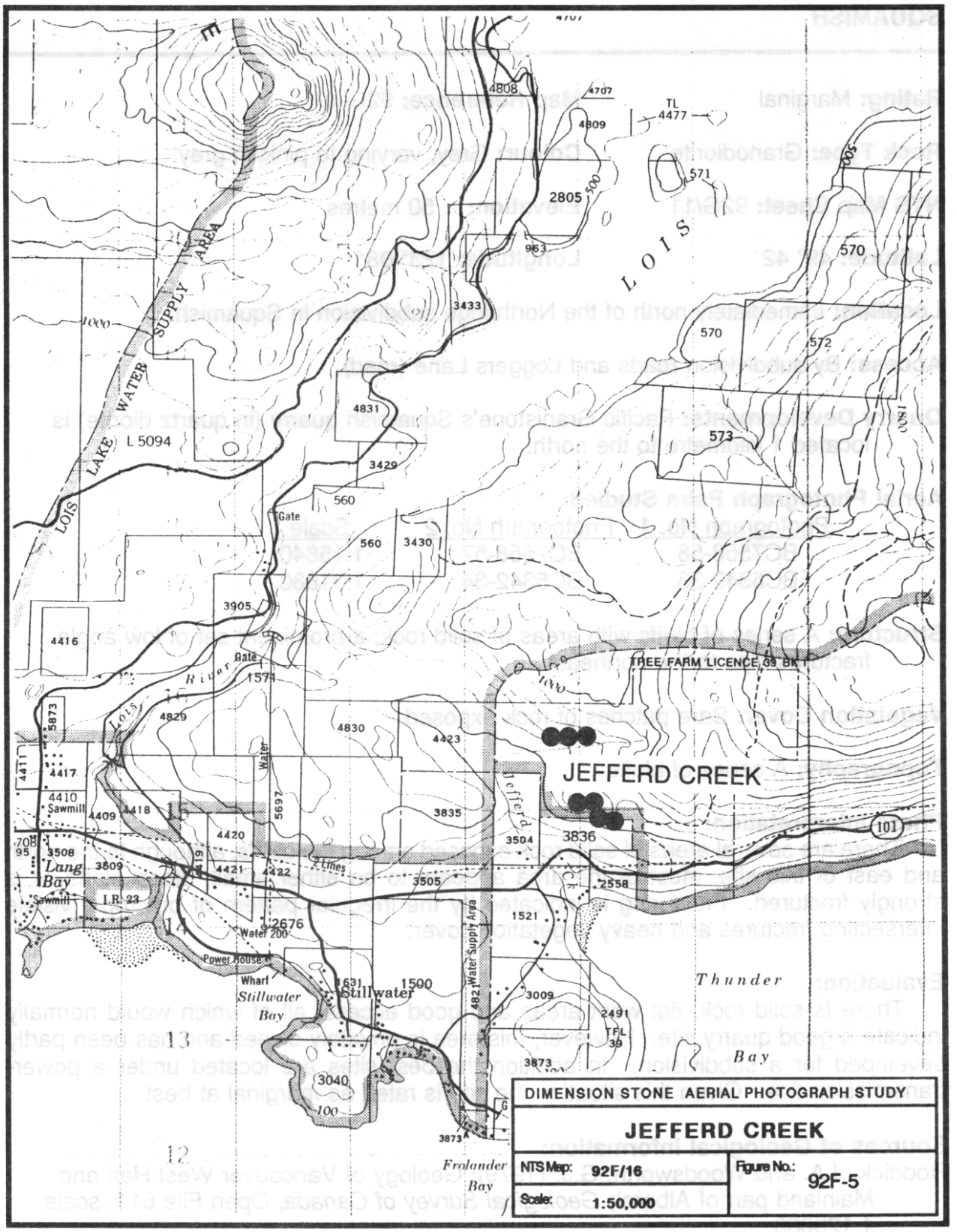
Several of the outcrop areas appear to be solid and they are covered by sparse vegetation.

Evaluation:

This area with numerous outcrops has indications of solid rock, some moderate slopes and reasonable access. The geological mapping for this area indicates that the rock composition varies between granodiorite and quartz diorite. This will be reflected by variations in the rock colour and texture.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1979): Geology of Vancouver West Half and Mainland part of Alberni; *Geological Survey of Canada*, Open File 611, scale 1:125000.


JEFFERD CREEK
TREE FARM LICENCE 39 BK
LOIS LAKE WATER SUPPLY AREA
L 5094
Lang Bay
Sawmill
I.R. 23
Stillwater
Stillwater Bay
Thunder Bay
Erolander Bay
Jefferd Creek
Water Supply Area
Power House
Wharf
Water 200
2 Lines
Gate
River
Lois
LOIS
101
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
JEFFERD CREEK
NTS Map: 92F/16
Figure No.: 92F-5
Scale: 1:50,000

NTS AREA 92G

SQUAMISH

Rating: Marginal

Map Reference: 92G-1

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92G/11

Elevation: 50 metres

Latitude: 49° 42′

Longitude: 123° 08′

Location: Immediately north of the Northridge subdivision in Squamish.

Access: By subdivision roads and Loggers Lane (road).

Quarry Developments: Pacific Granistone's Squamish quarry (in quartz diorite) is located 1 kilometre to the north.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC7558-58	BC7558-57	1:15840
BC5342-33	BC5342-34	1:31680

Structure: A series of bluffs with areas of solid rock; a prominent set of low angle fractures dips to the northeast.

Vegetation Cover: Bare patches of rock exposed.

Topography: A series of bluffs.

Photo Interpretation:

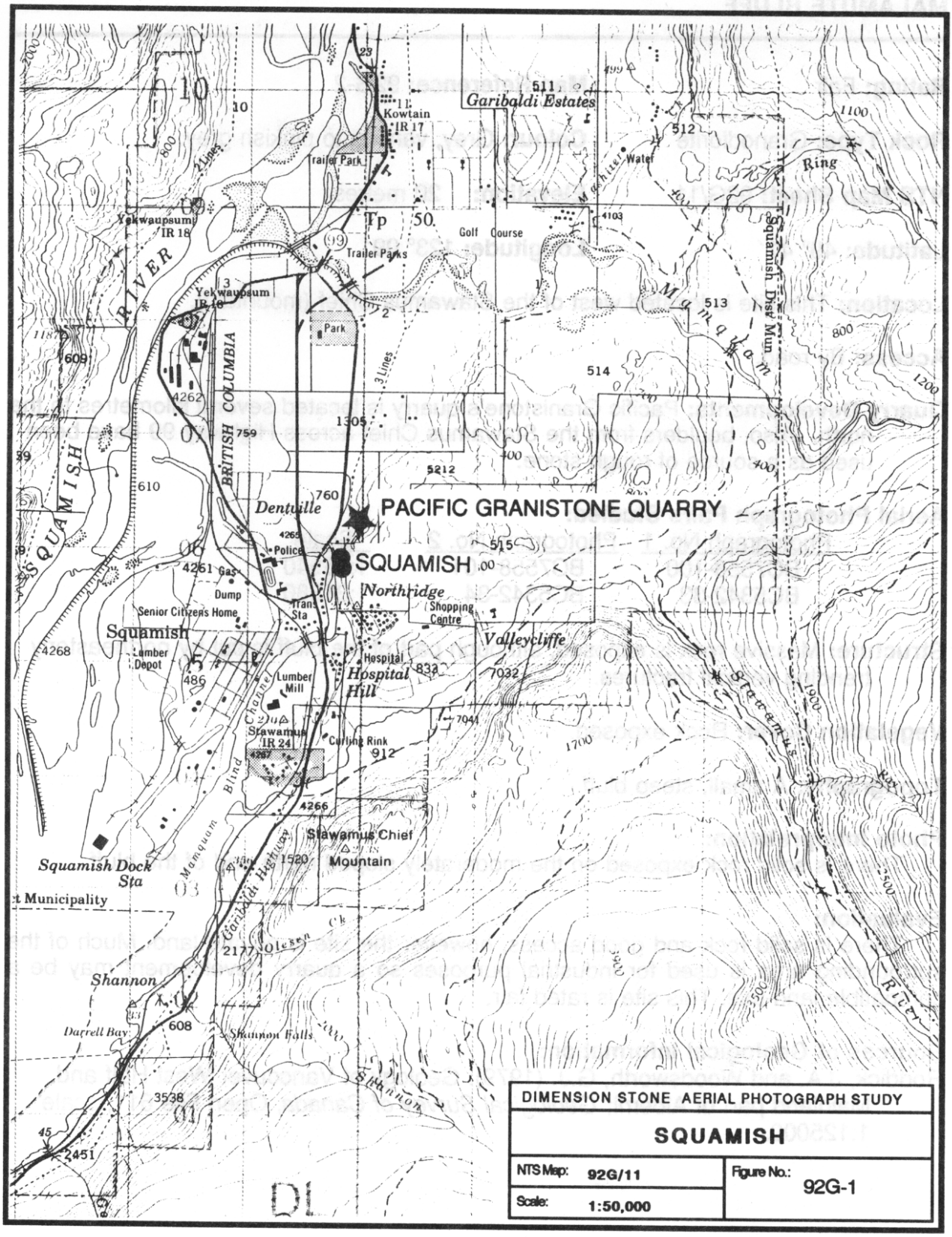
There are several areas of solid rock exposed among the bluffs, although to the north and east of this site, most of the area appears to be either small, steep bluffs or is strongly fractured. Fracturing is indicated by the irregular pattern of outcrops, visible intersecting fractures and heavy vegetation cover.

Evaluation:

There is solid rock, flat work areas and good access, all of which would normally indicate a good quarry site. However, this area is privately owned and has been partly developed for a subdivision. In addition the best sites are located under a power-transmission line. Given this situation the site is rated as marginal at best.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1979): Geology of Vancouver West Half and Mainland part of Alberni; *Geological Survey of Canada*, Open File 611, scale 1:125000.


PACIFIC GRANISTONE QUARRY
SQUAMISH
Garibaldi Estates
Kowtain IR 17
Yekwaupsum IR 18
Yekwaupsum IR 18
Golf Course
Trailer Parks
Trailer Park
Park
Dentville
Police
Gas
Dump
Senior Citizen's Home
Trans Sta
Northridge
Shopping Centre
Valleycliffe
Hospital
Hospital Hill
Lumber Mill
Lumber Depot
Squamish
Stawamus IR 24
Curling Rink
Stawamus Chief Mountain
Squamish Dock Sta
Municipality
Shannon
Darrell Bay
Shannon Falls
Garibaldi Highway
Blind Channel
Mamquam
Squamish River
British Columbia
Squamish Dist Mun
Ring
Water
Creek
3 Lines
2 Lines
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
SQUAMISH
NTS Map: 92G/11
Scale: 1:50,000
Figure No.: 92G-1

MALAMUTE BLUFF

Rating: Fair

Map Reference: 92G-2

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92G/11

Elevation: 20 metres

Latitude: 49° 41′

Longitude: 123° 09′

Location: This site is located west of the Stawamus Chief (mountain).

Access: By road.

Quarry Developments: Pacific Granistone's quarry is located several kilometres to the north. Also, boulders from the Stawamus Chief across Highway 99 have been used as a source of rough stone.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC7558-100	BC7558-101	1:15840
BC5342-33	BC5342-34	1:31680

Structure: Massive rock is exposed, although part of the bluff is cut by northeasterly trending vertical fractures.

Vegetation Cover: Rock exposed.

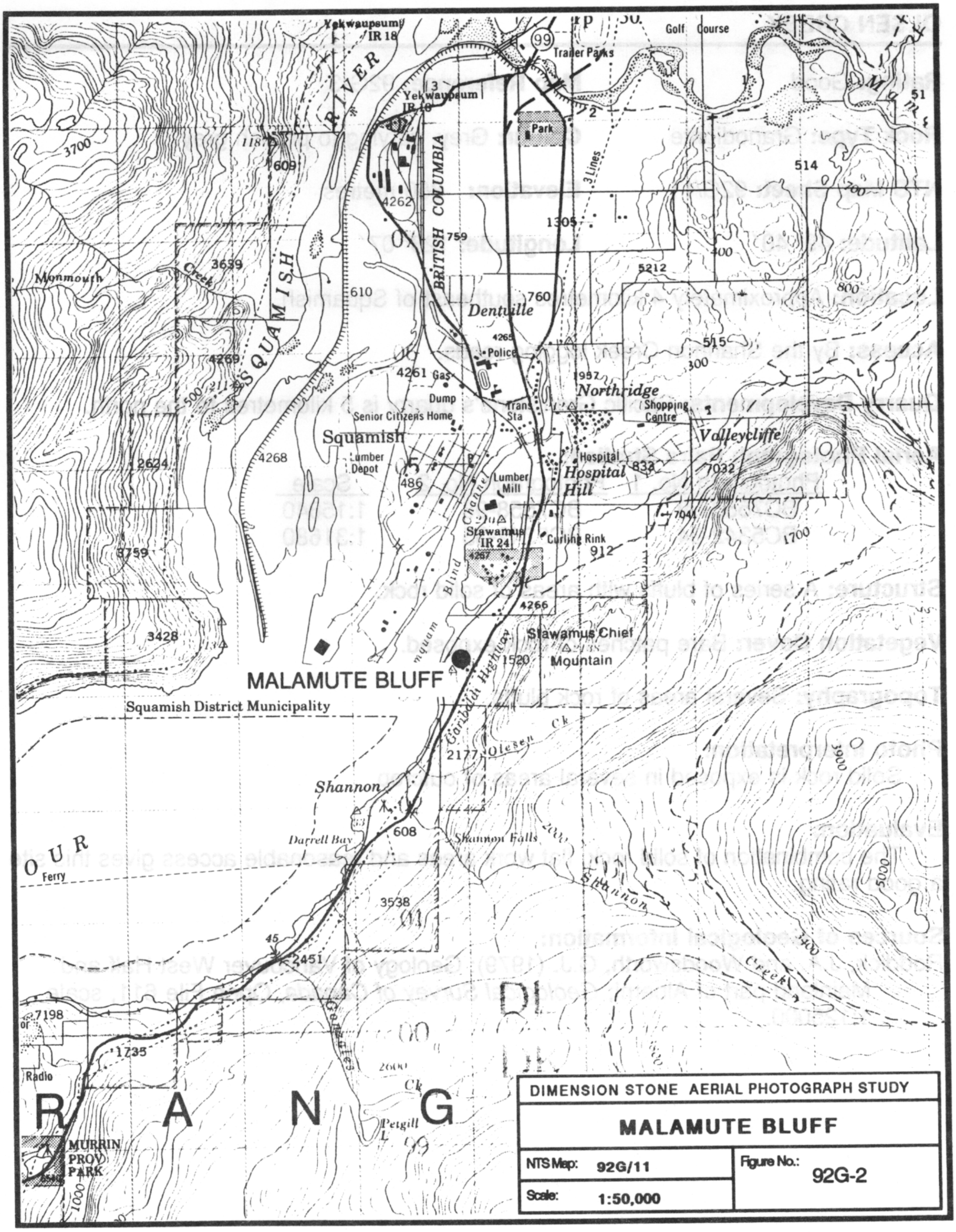
Topography: A small, steep bluff.

Photo Interpretation:
There is solid rock exposed on the moderately sloped north end of the bluff.

Evaluation:
There is solid rock and good access, however the site is private land. Much of the surrounding area is used for industrial purposes so a quarry development may be a compatible land-use. This site is rated fair.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1979): Geology of Vancouver West Half and Mainland part of Alberni; *Geological Survey of Canada*, Open File 611, scale 1:125000.



DIMENSION STONE AERIAL PHOTOGRAPH STUDY	
MALAMUTE BLUFF	
NTS Map: 92G/11	Figure No.: 92G-2
Scale: 1:50,000	

OLSEN CREEK

Rating: Good

Map Reference: 92G-3

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92G/11

Elevation: 850 metres

Latitude: 49° 40′

Longitude: 123° 07′

Location: Approximately 4 kilometres southeast of Squamish.

Access: By the Shannon Creek logging roads.

Quarry Developments: Pacific Granistone's quarry is 5 kilometres to the north.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC7558-99	BC7558-98	1:15840
BC5342-34	BC5342-35	1:31680

Structure: A series of bluffs with areas of solid rock.

Vegetation Cover: Bare patches of rock exposed.

Topography: Several areas of rock bluffs.

Photo Interpretation:

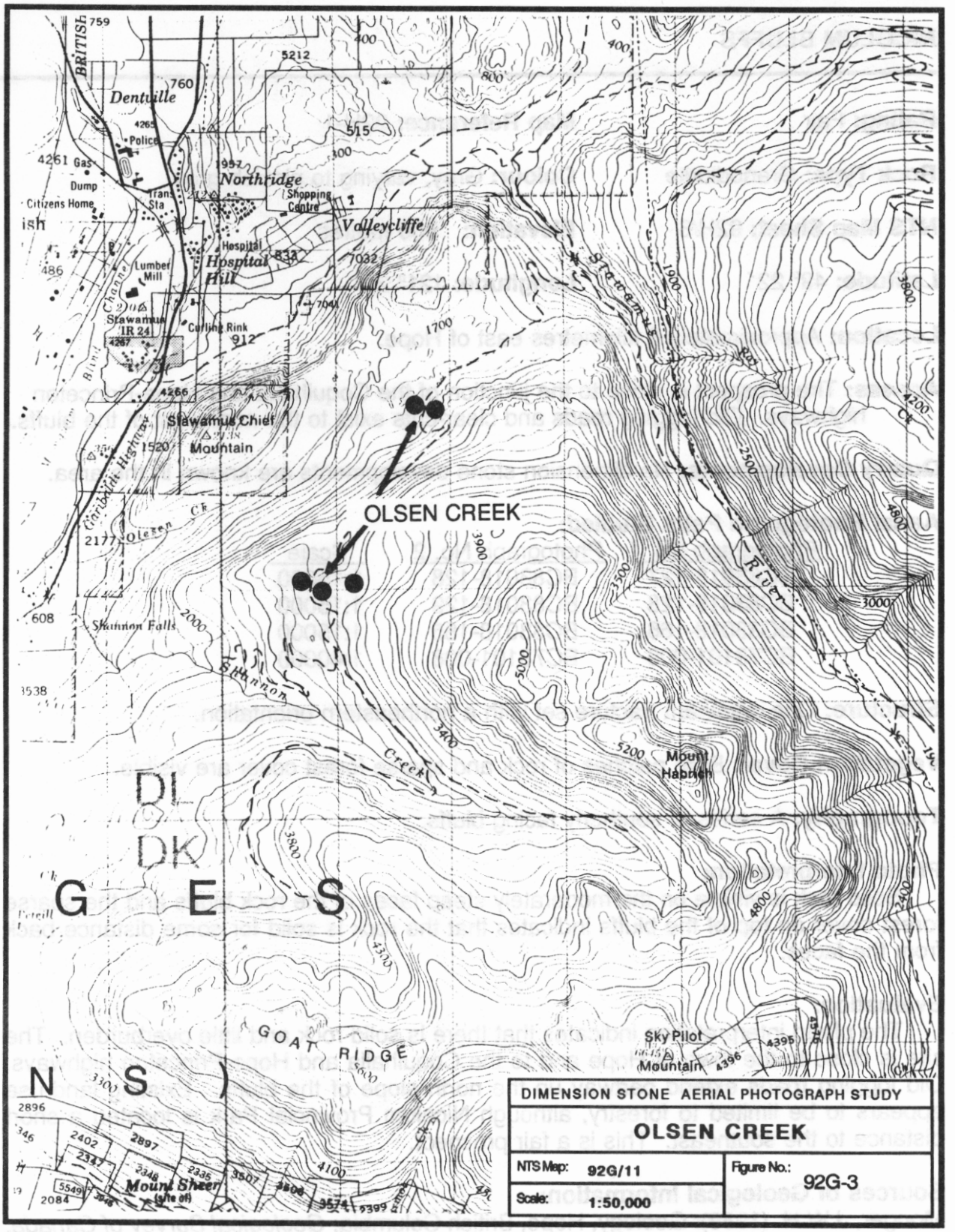
Solid rock is exposed in several areas of outcrop.

Evaluation:

The combination of solid rock, flat work areas and reasonable access gives this site a good rating.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1979): Geology of Vancouver West Half and Mainland part of Alberni; *Geological Survey of Canada*, Open File 611, scale 1:125000.


OLSEN CREEK
Dentville
Police
Gas
Dump
Citizens Home
Trans Sta
Northridge
Shopping Centre
Valleycliffe
Hospital
Hospital Hill
Lumber Mill
Stawamus IR 24
Curling Rink
Stawamus Chief Mountain
Olesen Ck
Shannon Falls
Shannon Creek
Stawamus R.
Mount Habrich
Sky Pilot Mountain
GOAT RIDGE
Mount Sheer
DL
DK
G E S
N S
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
OLSEN CREEK
NTS Map: 92G/11
Figure No.: 92G-3
Scale: 1:50,000

NTS AREA 92H

NICOLUM BLUFFS

Rating: Fair

Map Reference: 92H-1

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92H/6

Elevation: 500 metres

Latitude: 49° 22′

Longitude: 121° 21′

Location: Approximately 6 kilometres east of Hope.

Access: The prospect is close to the junction of the Coquihalla and Hope-Princeton highways. Old logging roads and clear-cuts exist to the northwest of the bluffs.

Quarry Developments: No dimension stone developments are known in the area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC83018-127	BC83018-128	1:15000
BC83018-128	BC83018-129	1:15000
BC83018-166	BC83018-165	1:15000
BC78101-009	BC78101-008	1:40000

Structure: One dominant fracture set with a northeastern orientation.

Vegetation Cover: Bare patches of rock and sparse forest cover are visible.

Topography: A series of southerly facing bluffs.

Photo Interpretation:

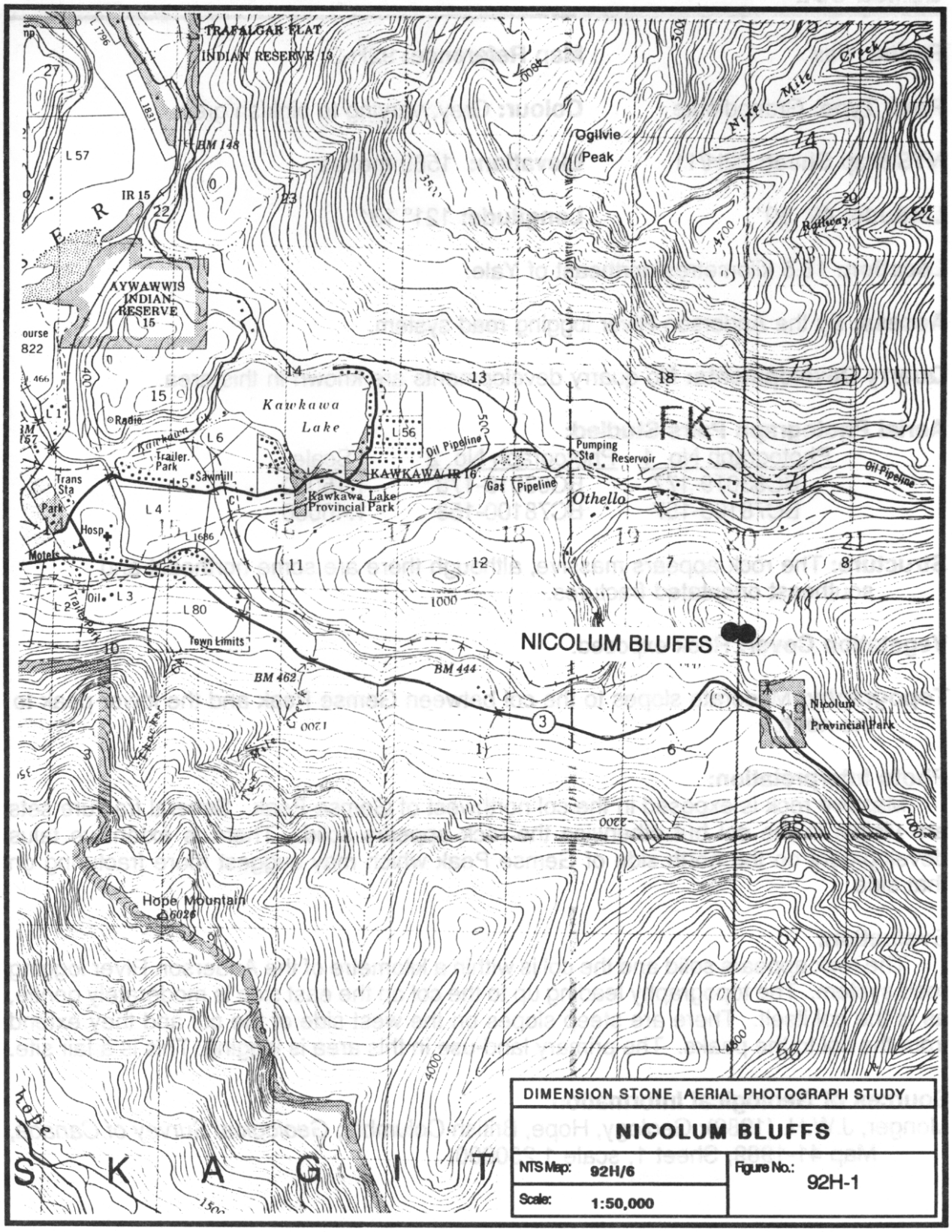
Solid rock is visible on the moderately steep faces of the rock bluffs and the sparse forest cover on top of the bluffs indicates that the rock is solid for some distance back from the faces.

Evaluation:

The photo interpretation indicates that there is solid rock and little overburden. The site is close to the town of Hope and to the Coquihalla and Hope-Princeton highways. Old logging roads extend partway up the north slope of the bluffs. Existing land-use appears to be limited to forestry, although Nicolum Provincial Park is located a short distance to the southeast. This is a fair prospect.

Sources of Geological Information:

Monger, J.W.H. (1989): Geology, Hope, British Columbia; *Geological Survey of Canada*, Map 41-1989, Sheet 1, scale 1:250000.


TRAFALGAR FLAT
INDIAN RESERVE 13
AYWAWWIS INDIAN RESERVE 15
IR 15
L 57
BM 148
Ogilvie Peak
Nixe Mile Creek
Railway
Kawkawa Lake
L 56
L 6
L 4
L 80
L 3
L 2
L 1
Radio
Trailer Park
Sawmill
Trans Sta
Park
Hosp
Motels
Oil
Oil Pipeline
Gas Pipeline
Pumping Sta
Reservoir
KAWKAWA IR 16
Kawkawa Lake Provincial Park
Othello
NICOLUM BLUFFS
Nicolum Provincial Park
Town Limits
BM 462
BM 444
Hope Mountain
6026
FK
SKAGIT
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
NICOLUM BLUFFS
NTS Map: 92H/6
Scale: 1:50,000
Figure No.: 92H-1

GEMSE COL

Rating: Fair

Map Reference: 92H-2

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92H/11

Elevation: 1560 metres

Latitude: 49° 39′

Longitude: 121° 13′

Location: 18.5 kilometres northeast of Yale.

Access: By the Anderson River logging road system.

Quarry Developments: No quarry developments are known in this area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC83019-177	BC83019-178	1:15000
BC78100-157	BC78100-158	1:40000

Structure: The rock appears massive, although there are some northeast and southeast orientated fractures.

Vegetation Cover: Rock exposed.

Topography: Moderate slopes to the col between Gemse Peak and the lower peak to the north.

Photo Interpretation:

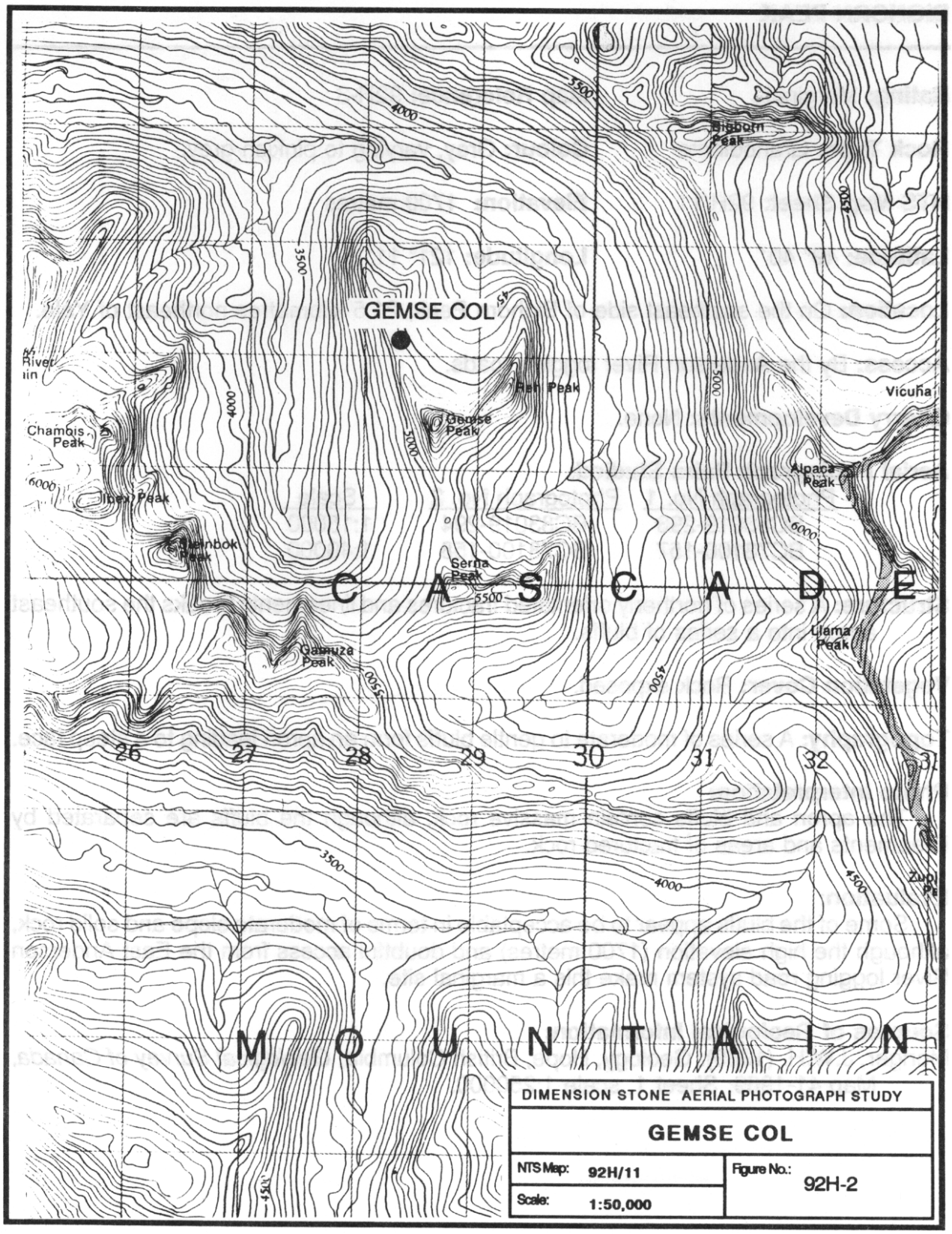
Massive rock is exposed in the col northwest of Gemse Peak. Several fracture sets are visible in the col but otherwise the rock appears solid. There is extensive talus development on the north side of Gemse Peak which may suggest more fracturing on that side.

Evaluation:

The rock appears solid and the col is within a kilometre of the Anderson River logging road system. The topography leading up to the col on the east side is moderately gentle, as is the col itself. There are steep slopes on the west side of the col and they extend from the col to the peaks. The primary land-use in this area is logging. This is a fair site.

Sources of Geological Information:

Monger, J.W.H. (1989): Geology, Hope, British Columbia; *Geological Survey of Canada*, Map 41-1989, Sheet 1, scale 1:250000.


GEMSE COL
Bighorn Peak
Vicuña
Alpaca Peak
Llama Peak
Goose Peak
Serna Peak
Chamois Peak
Ibex Peak
Gamuza Peak
C A S C A D E
M O U N T A I N
26
27
28
29
30
31
32
3500
4000
4500
5000
5500
6000
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
GEMSE COL
NTS Map: 92H/11
Scale: 1:50,000
Figure No.: 92H-2

BIGHORN PEAK

Rating: Marginal

Map Reference: 92H-3

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92H/11

Elevation: 1700 metres

Latitude: 49° 40′

Longitude: 121° 11′

Location: On the southeast side of Bighorn Peak, 21.5 kilometres northeast of Yale.

Access: By the Anderson River logging roads.

Quarry Developments: None.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC83019-293	BC83019-294	1:15000
BC78100-157	BC78100-158	1:40000

Structure: A series of northerly orientated fractures and lineaments breaks the southeast apron into a series of bluffs.

Vegetation Cover: Rock exposed.

Topography: A series of moderate to gentle bluffs form an apron leading to a steep face.

Photo Interpretation:

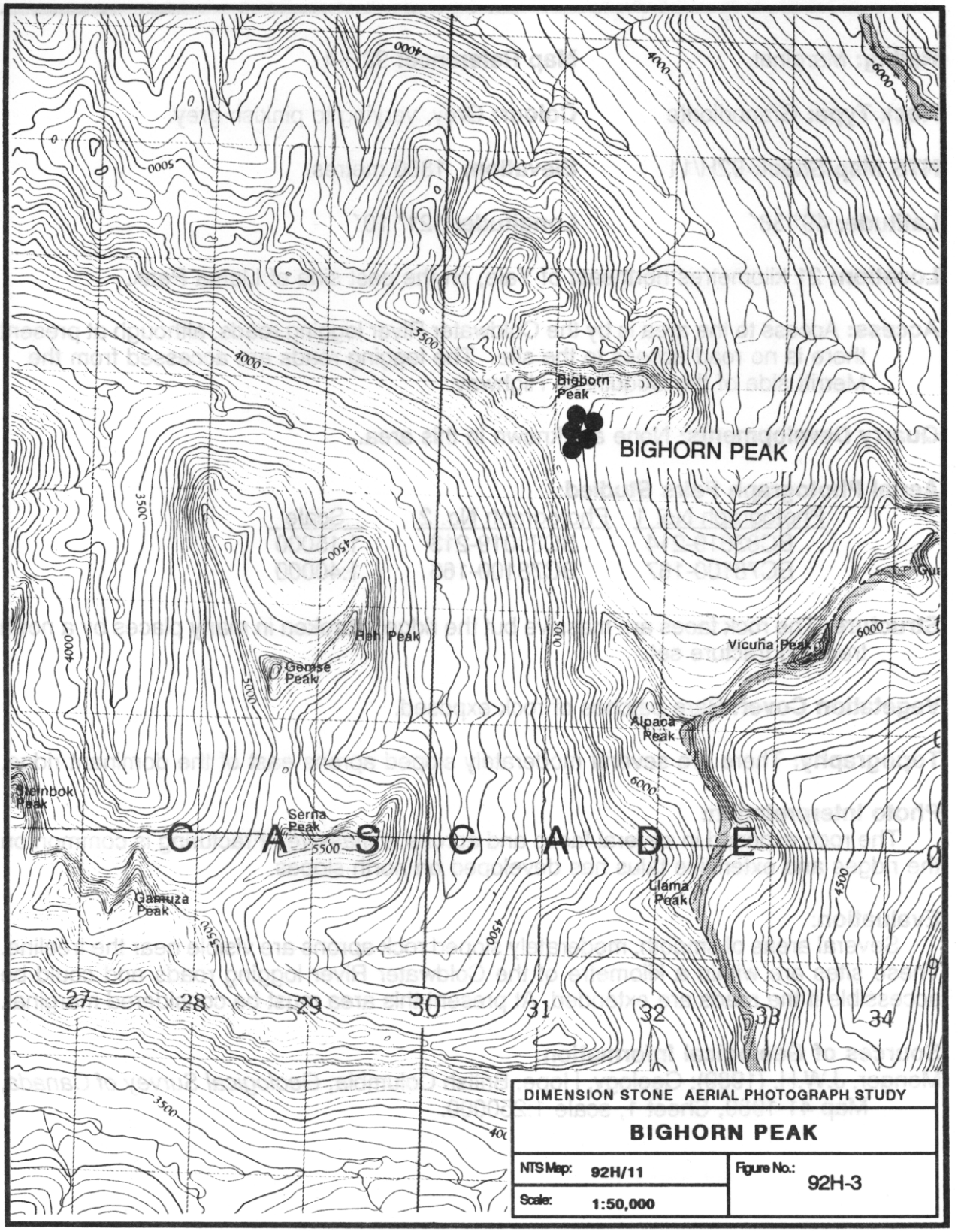
The apron and bluffs contain massive rock, although the bluffs are separated by lineaments and areas of fractured rock.

Evaluation:

Some of the bluffs appear to be acceptable in terms of moderate slope and solid rock, although the high elevation (1700 metres) and doubtful access from the East Anderson River logging road system make this a marginal site.

Sources of Geological Information:

Monger, J.W.H. (1989): Geology, Hope, British Columbia; *Geological Survey of Canada*, Map 41-1989, Sheet 1, scale 1:250000.


Bighorn Peak
BIGHORN PEAK
Vicuña Peak
Alpaca Peak
Llama Peak
Red Peak
Goose Peak
Serna Peak
Steinbok Peak
Gamuza Peak
C A S C A D E
27
28
29
30
31
32
33
34
4000
5000
6000
4500
5500
3500
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
BIGHORN PEAK
NTS Map: 92H/11
Scale: 1:50,000
Figure No.: 92H-3

LLAMA PEAK

Rating: Marginal

Map Reference: 92H-4

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92H/11

Elevation: 1800 metres

Latitude: 49° 38′

Longitude: 121° 10′

Location: 21 kilometres northeast of Yale, on the east side of Llama Peak.

Access: Access to the area is by the Coldwater River logging roads, although at present there is no road access to the site. The logging roads are accessed from the Merritt side of the Coquihalla Highway.

Quarry Developments: None are known in this area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC83019-214	BC83019-213	1:15000
BC78100-167	BC78100-166	1:40000

Structure: The rock faces are massive but the ridge is broken in many places by a north trending fracture set.

Vegetation Cover: Bare patches of rock exposed.

Topography: There are several moderately sloped aprons east of the dominant ridge.

Photo Interpretation:

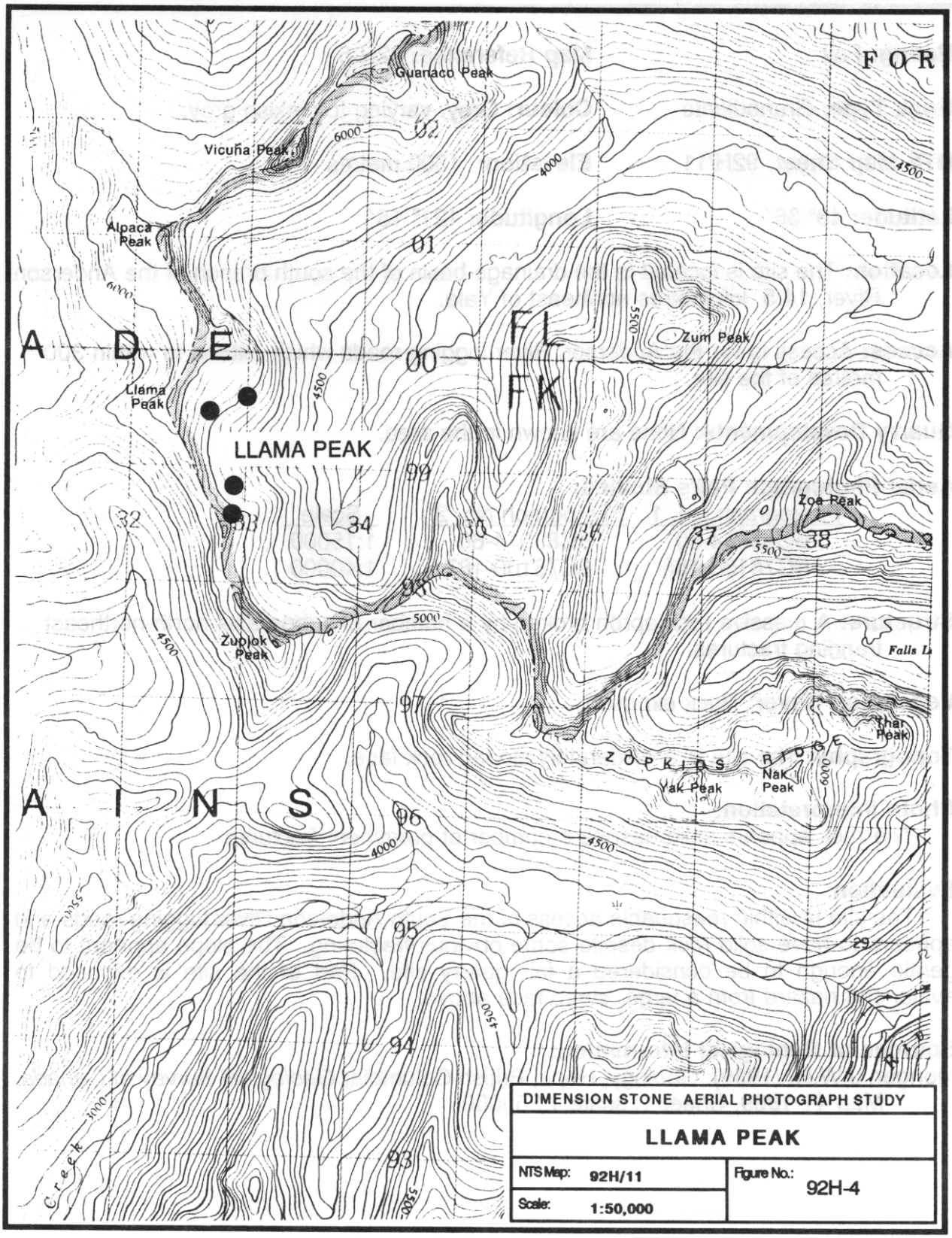
The rock exposed in several faces and aprons is massive. Fracturing is common on the ridges and extensive talus has developed on north slopes.

Evaluation:

Several areas of smooth, moderately sloped rock aprons are visible near the treeline. These sites are within a kilometre of the Coldwater River logging roads and could be accessible if the roads are extended. At present this area must be considered marginal.

Sources of Geological Information:

Monger, J.W.H. (1989): Geology, Hope, British Columbia; *Geological Survey of Canada*, Map 41-1989, Sheet 1, scale 1:250000.


Guanaco Peak
Vicuña Peak
Alpaca Peak
Llama Peak
LLAMA PEAK
Zum Peak
Zoa Peak
Zuplok's Peak
Falls L
Thar Peak
ZOPKIOS RIDGE
Yak Peak
Nak Peak
A D E
FL
FK
A I N S
F O R
Creek
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
LLAMA PEAK
NTS Map: 92H/11
Scale: 1:50,000
Figure No.: 92H-4

SOUTH ANDERSON RIVER

Rating: Fair

Map Reference: 92H-5

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92H/11

Elevation: 1300 metres

Latitude: 49° 36′

Longitude: 121° 15′

Location: The site is located in the drainage basin of the south branch of the Anderson River, 14.5 kilometres northeast of Yale.

Access: Access is via the Anderson River logging roads which extend to within 300 metres of the site.

Quarry Developments: None are known in the area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC83014-59	BC83014-60	1:15000
BC78100-168	BC78100-167	1:40000

Structure: A massive rock apron broken by a number of subparallel north-northeast trending fractures.

Vegetation Cover: Rock exposed.

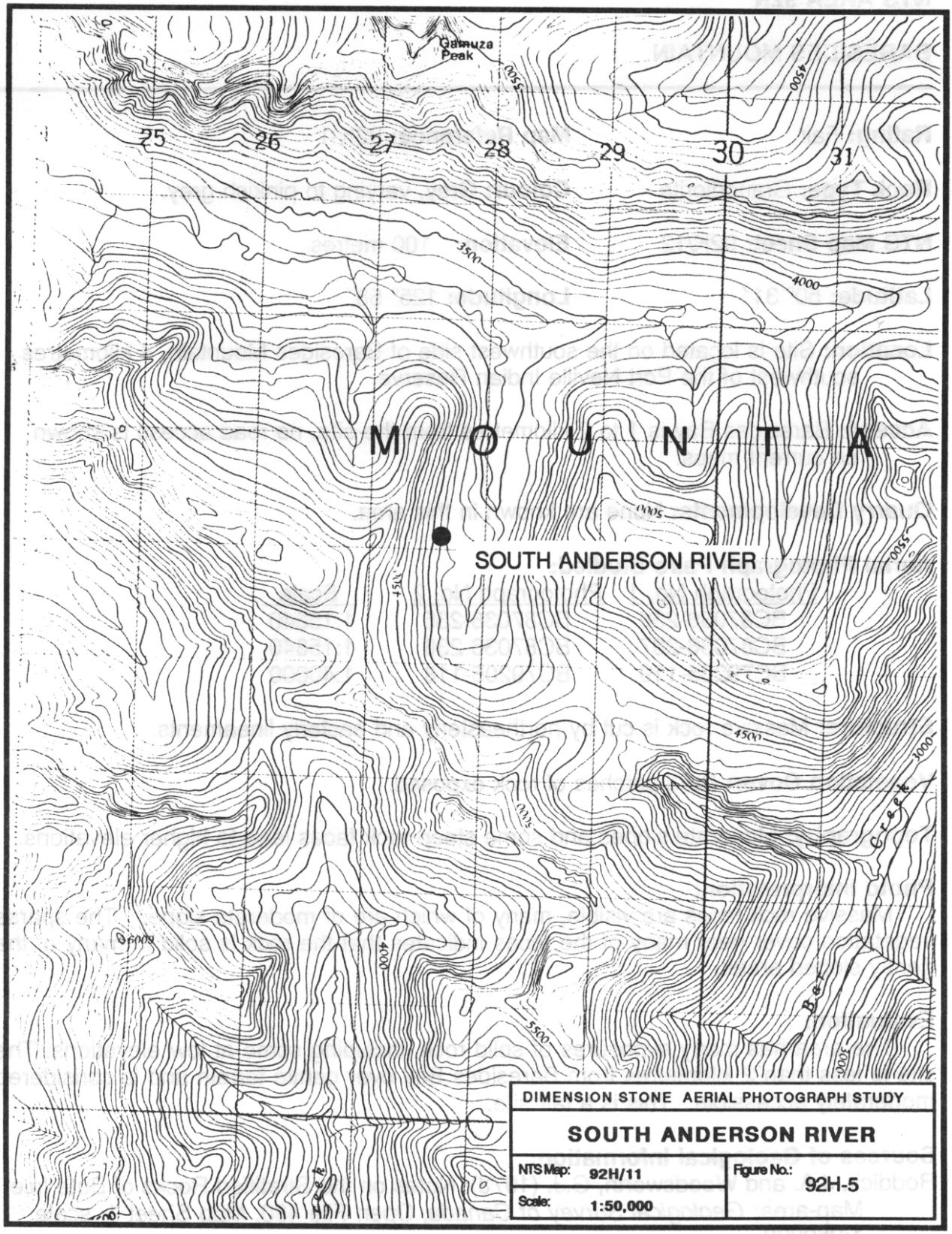
Topography: The site is a moderately sloped rock face.

Photo Interpretation:
The rock appears solid despite a number of prominent fractures.

Evaluation:
The site is within reasonable access of the South Anderson River logging roads and appears to have solid rock despite some obvious fracturing. The slope appears to be gentle enough to be considered a fair quarry site. Part of the site is exposed to avalanche hazard from a large, steep face above.

Sources of Geological Information:

Monger, J.W.H. (1989): Geology, Hope, British Columbia; *Geological Survey of Canada*, Map 41-1989, Sheet 1, scale 1:250000.


Galauza Peak
25
26
27
28
29
30
31
M O U N T A
SOUTH ANDERSON RIVER
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
SOUTH ANDERSON RIVER
NTS Map: 92H/11
Figure No.: 92H-5
Scale: 1:50,000

NTS AREA 92K

BARESIDES MOUNTAIN

Rating: Fair

Map Reference: 92K-1

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/12

Elevation: 100 metres

Latitude: 50° 31′

Longitude: 125° 58′

Location: Site is located on the southwest side of Baresides Mountain, 4 kilometres southwest of the Port Neville Indian Reserve.

Access: Baresides Bay is 1 to 2 kilometres from the site, no road access is shown on current maps.

Quarry Developments: None are known in this area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC87036-236	BC87036-235	1:15840
BC87036-237	BC87036-236	1:15840
BC79205-119	BC79205-118	1:40000

Structure: Massive rock is cut by northeasterly and easterly lineaments.

Vegetation Cover: Bare patches of rock exposed.

Topography: Moderate slopes and some steep rock faces lead to higher elevations.

Photo Interpretation:

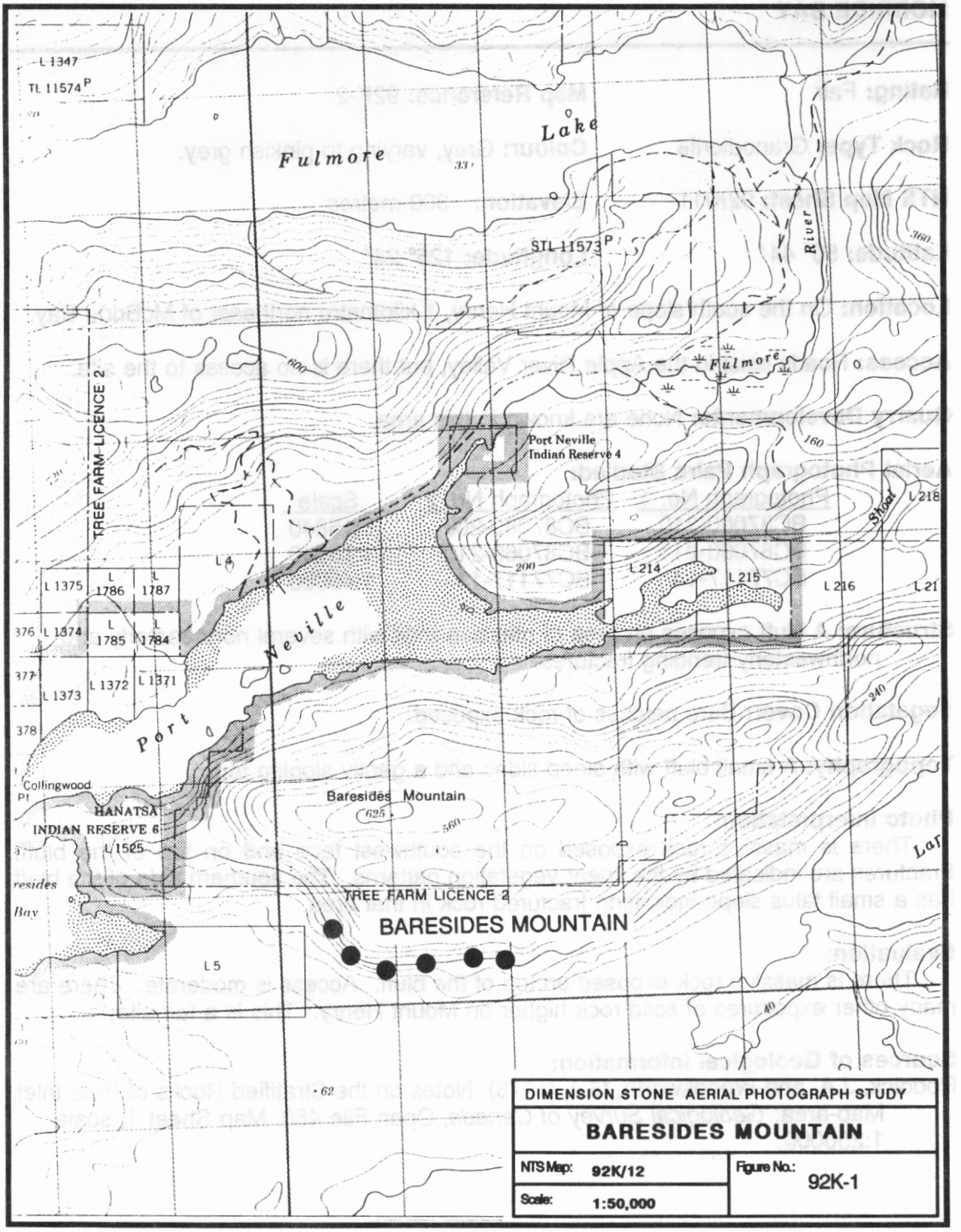
Massive rock faces are visible, many of which are of moderate slope. The sparse vegetation cover near many of the faces indicates that the rock is solid in many of the gently sloped areas.

Evaluation:

The area has many exposures of solid rock, including some at low elevations. The site is less than 2 kilometres from Baresides Bay over gentle terrain and is considered moderately accessible. This is a fair site.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.


L 1347
TL 11574 P
Fulmore
Lake
STL 11573 P
River
Fulmore
TREE FARM LICENCE 2
Port Neville
Indian Reserve 4
L 4
L 1375
L 1786
L 1787
L 1374
L 1785
L 1784
L 1373
L 1372
L 1371
Port Neville
L 214
L 215
L 216
L 218
Shoal
Collingwood Pt
HANATSA
INDIAN RESERVE 6
L 1525
Baresides Mountain
625
560
TREE FARM LICENCE 2
BARESIDES MOUNTAIN
L 5
Bay
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
BARESIDES MOUNTAIN
NTS Map: 92K/12
Scale: 1:50,000
Figure No.: 92K-1

MCBRIDE BAY

Rating: Fair

Map Reference: 92K-2

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/11

Elevation: 300 metres

Latitude: 50° 44′

Longitude: 125° 24′

Location: On the south slope of Mount Henry, 1 kilometre northeast of McBride Bay.

Access: Roads exist in the Apple River Valley, but there is no access to the site.

Quarry Developments: None are known in this area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC87060-210	BC87060-209	1:15840
BC87060-211	BC87060-210	1:15840
BC77117-14	BC77117-13	1:40000

Structure: A bluff exposes an area of massive rock with several northeasterly and northwesterly trending fractures.

Vegetation Cover: Bare patches of rock exposed.

Topography: A small bluff with steep sides and a gently sloping top.

Photo Interpretation:

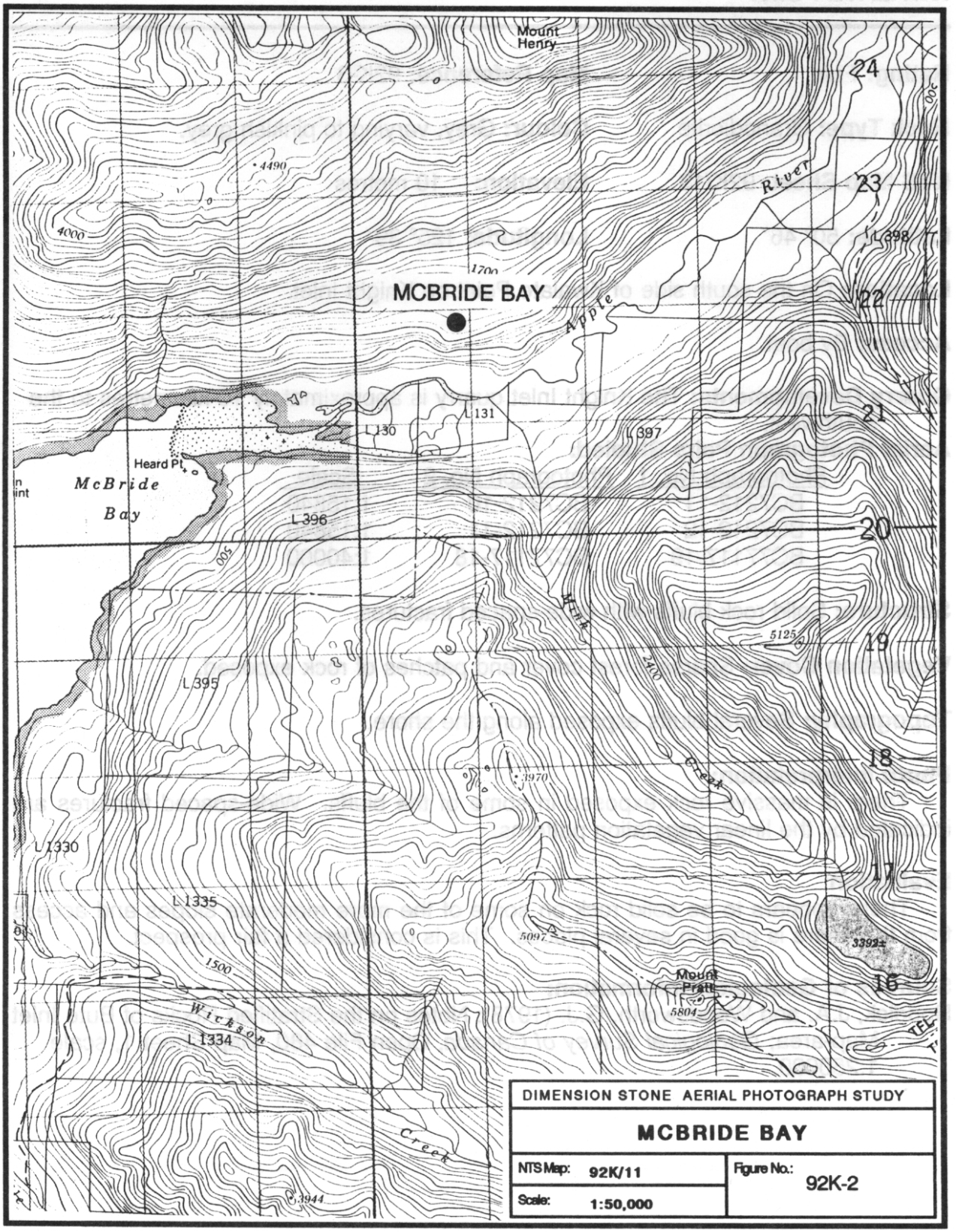
There is massive rock exposed on the southwest face and on top of the bluff. Fractures are indicated by the linear vegetation patterns. The southern side of the bluff has a small talus slope indicating fractured rock in that area.

Evaluation:

There is massive rock exposed on top of the bluff. Access is moderate. There are many other exposures of solid rock higher on Mount Henry. This is a fair site.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.


Mount Henry
MCBRIDE BAY
Apple River
L 398
L 131
L 130
L 397
Heard Pt.
McBride Bay
L 396
L 395
L 1330
L 1335
L 1334
Wickson Creek
Mount Pratt
5804
5125
5097
3970
3944
4490
4000
1700
2400
1500
500
24
23
22
21
20
19
18
17
16
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
MCBRIDE BAY
NTS Map: 92K/11
Scale: 1:50,000
Figure No.: 92K-2

KWALATE POINT

Rating: Fair

Map Reference: 92K-3

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/13

Elevation: 10 metres

Latitude: 50° 46′

Longitude: 125° 39′

Location: On the south side of Kwalate Point on Knight Inlet.

Access: By boat.

Quarry Developments: The Knight Inlet quarry is approximately 10 kilometres to the southwest.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC7212-11	BC7212-10	1:15840
BC7212-12	BC7212-11	1:15840
BC77117-19	BC77117-18	1:40000

Structure: Solid rock bluffs with wide-spaced fractures.

Vegetation Cover: Sparse forest cover and patches of rock exposed.

Topography: Several bluffs exposed along the shore.

Photo Interpretation:

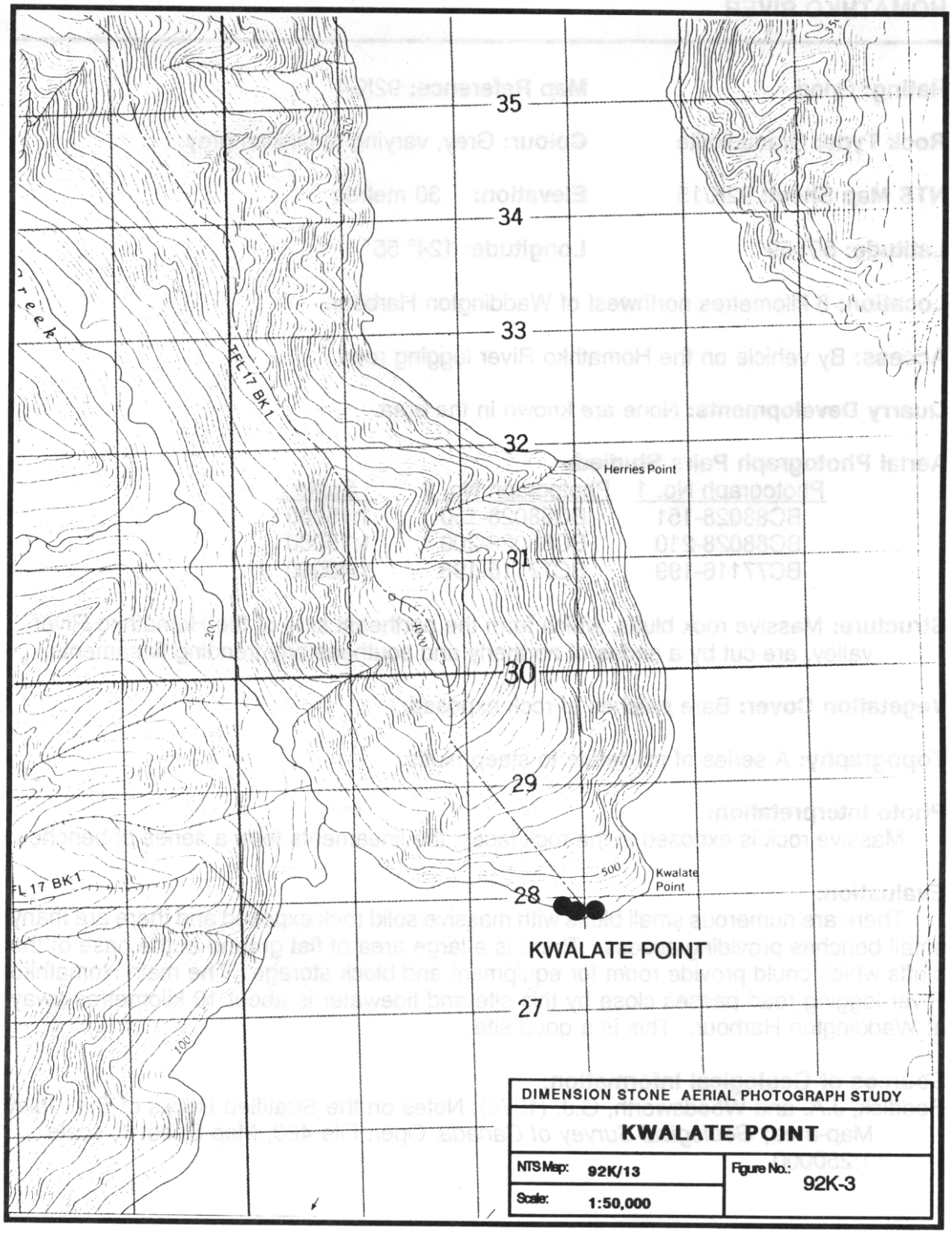
There is massive rock exposed in some of the bluffs. Wide-spaced fractures are indicated by the linear vegetation patterns.

Evaluation:

There appears to be solid rock on some of the more moderate slopes and access from the shore is good in several places. This is considered a fair prospect.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.


35
34
33
32
31
30
29
28
27
Herries Point
Kwalate Point
KWALATE POINT
TFL 17 BK1
TFL 17 BK1
500
400
200
100
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
KWALATE POINT
NTS Map: 92K/13
Scale: 1:50,000
Figure No.: 92K-3

HOMATHKO RIVER

Rating: Good

Map Reference: 92K-4

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/15

Elevation: 30 metres

Latitude: 50° 59′

Longitude: 124° 55′

Location: 8 kilometres northwest of Waddington Harbour.

Access: By vehicle on the Homathko River logging road.

Quarry Developments: None are known in the area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC88028-151	BC88028-150	1:15000
BC88028-210	BC88028-209	1:15000
BC77116-199	BC77116-198	1:40000

Structure: Massive rock bluffs, which form the northeast side of the Homathko River valley, are cut by a series of northerly and southeasterly trending lineaments.

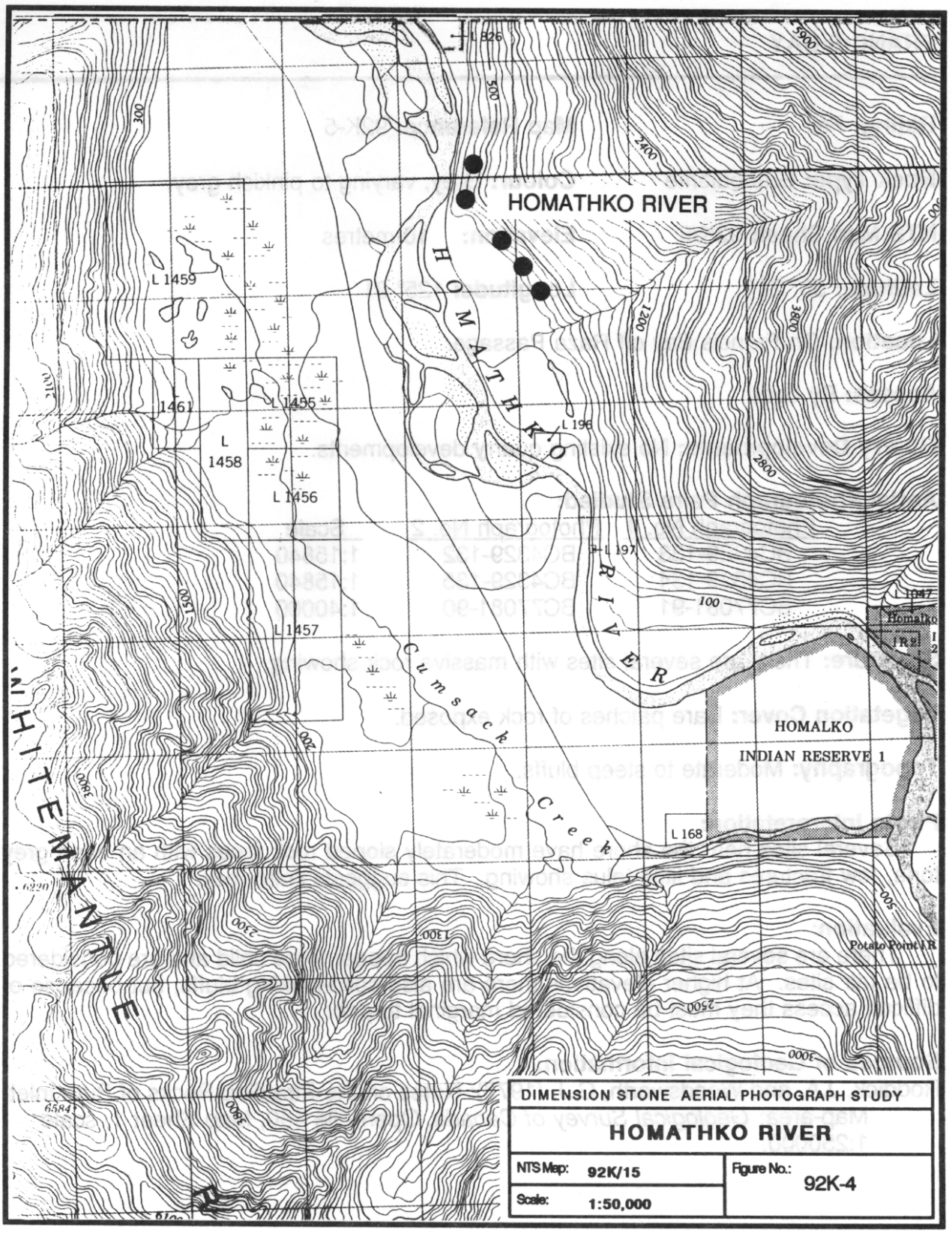
Vegetation Cover: Bare patches of rock exposed.

Topography: A series of moderate to steep bluffs.

Photo Interpretation:
Massive rock is exposed in the rock faces; the lineaments form a series of benches.

Evaluation:
There are numerous small bluffs with massive solid rock exposed and there are many small benches providing access. There is a large area of flat ground at the base of the bluffs which could provide room for equipment and block storage. The main Homathko River logging road passes close by this site and tidewater is about 10 kilometres away at Waddington Harbour. This is a good site.

Sources of Geological Information:
Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.


HOMATHKO RIVER
HOMATHKO RIVER
L 826
L 1459
1461
L 1455
L
1458
L 1456
L 196
L 197
L 1457
Cumsack Creek
L 168
HOMALKO
INDIAN RESERVE 1
Homalko IR 2
Potato Point I.R.
WHITEMANTLE
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
HOMATHKO RIVER
NTS Map: 92K/15
Scale: 1:50,000
Figure No.: 92K-4

FRANCIS BAY

Rating: Fair

Map Reference: 92K-5

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/6

Elevation: 10 metres

Latitude: 50° 21′

Longitude: 125° 01′

Location: On Francis Bay off Raza Passage.

Access: By boat.

Quarry Developments: No existing quarry developments.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC4329-133	BC4329-132	1:15840
BC4329-134	BC4329-135	1:15840
BC77081-91	BC77081-90	1:40000

Structure: There are several sites with massive rock showing.

Vegetation Cover: Bare patches of rock exposed.

Topography: Moderate to steep bluffs.

Photo Interpretation:

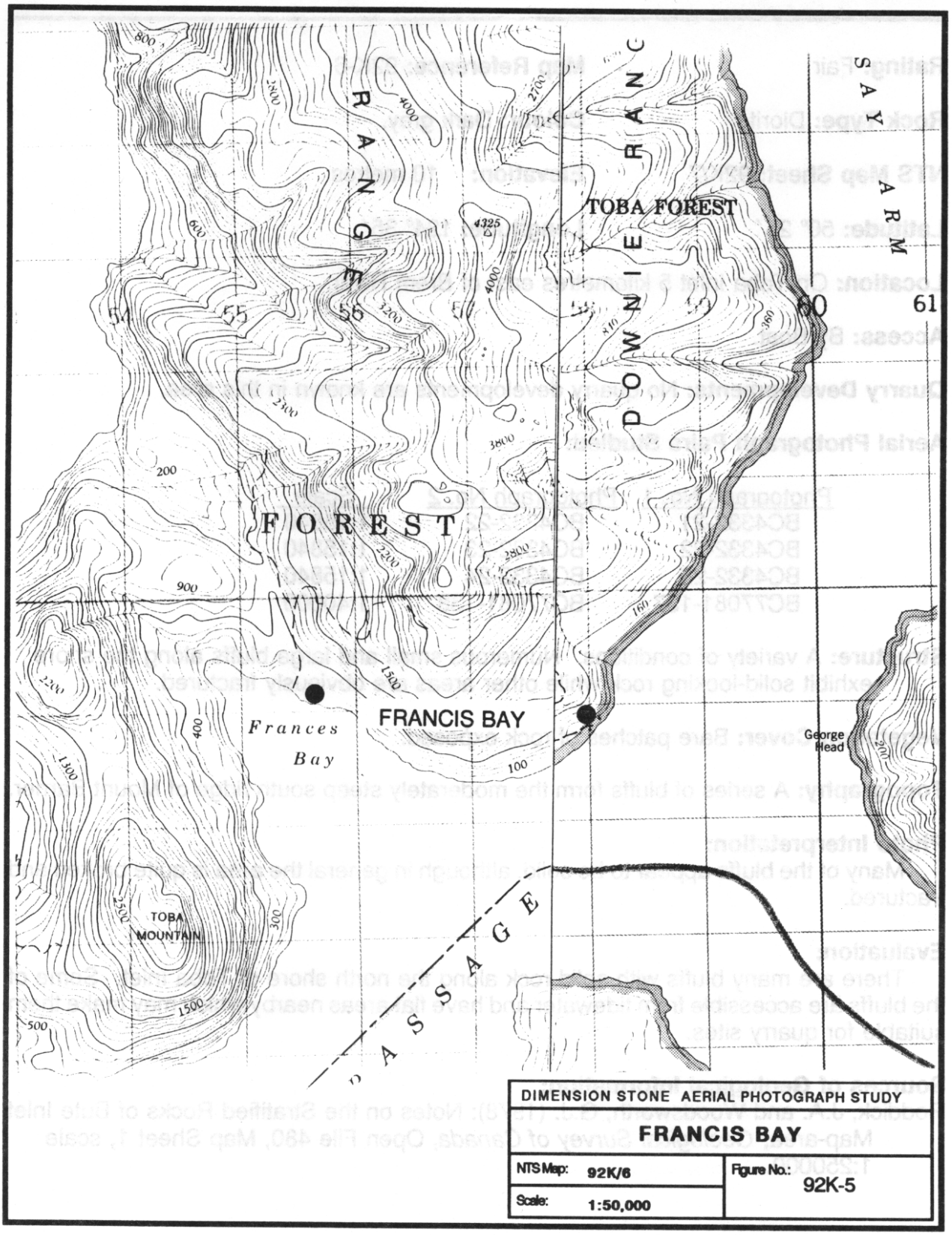
Several sites near the shore have moderately sloped rock faces with an even grey tone, few fractures and little talus showing. This suggests solid rock.

Evaluation:

There are several sites along the shore which appear to be solid and are considered to be fair sites. At higher elevations there are also solid-looking bluffs, but because of difficult access they must be considered marginal to poor.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.


RANGE
DOWNIE
SAY ARM
TOBA FOREST
FOREST
FRANCIS BAY
Frances
Bay
George
Head
TOBA
MOUNTAIN
PASSAGE
54
55
56
60
61
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
FRANCIS BAY
NTS Map: 92K/6
Scale: 1:50,000
Figure No.: 92K-5

MOUNT BARNER

Rating: Fair

Map Reference: 92K-6

Rock Type: Diorite

Colour: Dark grey.

NTS Map Sheet: 92K/7

Elevation: 10 metres

Latitude: 50° 25′

Longitude: 124° 35′

Location: On Toba Inlet 5 kilometres east of Brem River.

Access: By Boat.

Quarry Developments: No quarry developments are known in this area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC4332-21	BC4332-22	1:15840
BC4332-22	BC4332-23	1:15840
BC4332-23	BC4332-24	1:15840
BC77081-137	BC77081-138	1:40000

Structure: A variety of conditions. Numerous small and large bluffs along the shore exhibit solid-looking rock while other areas are obviously fractured.

Vegetation Cover: Bare patches of rock exposed.

Topography: A series of bluffs form the moderately steep south ridge of Mount Barner.

Photo Interpretation:

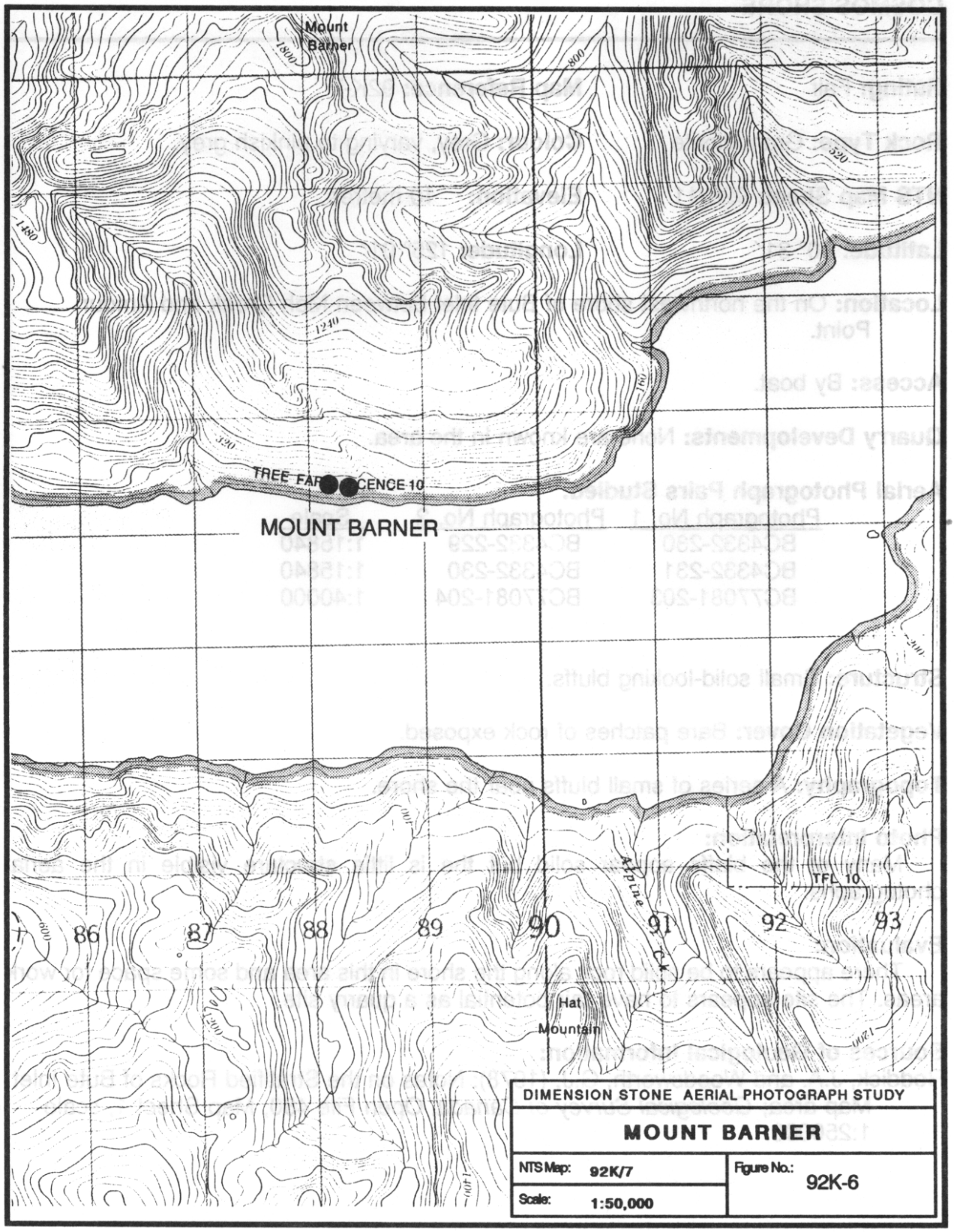
Many of the bluffs appear to be solid, although in general the area is quite broken and fractured.

Evaluation:

There are many bluffs with solid rock along the north shore of Toba Inlet. Some of the bluffs are accessible from tidewater and have flat areas nearby which may make them suitable for quarry sites.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.


Mount Barner
1800
800
520
1480
1240
1160
320
TREE FARM FENCE 10
MOUNT BARNER
1160
1000
Alpine Ck
TFL 10
86
87
88
89
90
91
92
93
Hat Mountain
1200
1000
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
MOUNT BARNER
NTS Map: 92K/7
Scale: 1:50,000
Figure No.: 92K-6

COSMOS SHORE

Rating: Fair

Map Reference: 92K-7

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/11

Elevation: 10 metres

Latitude: 50° 31′

Longitude: 125° 01′

Location: On the northwest shore of Bute Inlet between Moh Creek and Amour Point.

Access: By boat.

Quarry Developments: None are known in the area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC4332-230	BC4332-229	1:15840
BC4332-231	BC4332-230	1:15840
BC77081-203	BC77081-204	1:40000

Structure: Small solid-looking bluffs.

Vegetation Cover: Bare patches of rock exposed.

Topography: A series of small bluffs near the shore.

Photo Interpretation:

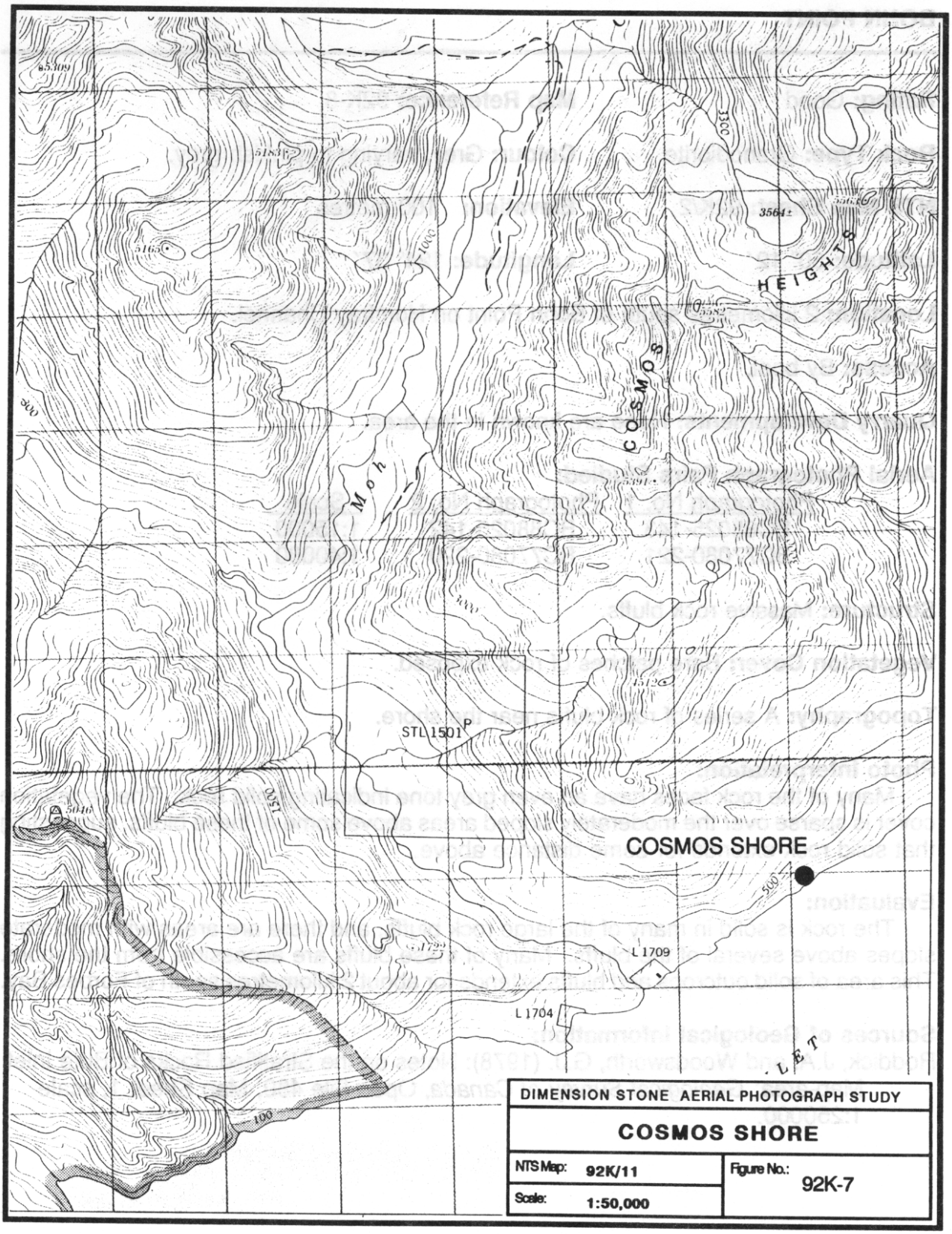
Many of the bluffs appear solid but the is little structure visible in the aerial photographs.

Evaluation:

There appears to be solid rock along the shore in this area and some space for work areas. The site appears to have fair potential as a quarry site.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.


COSMOS HEIGHTS
Moh
STL 1501 P
COSMOS SHORE
L 1709
L 1704
5046
5183
5165
3564±
3391
1512
1729
1000
1500
500
300
100
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
COSMOS SHORE
NTS Map: 92K/11
Scale: 1:50,000
Figure No.: 92K-7

BOHN POINT

Rating: Good

Map Reference: 92K-8

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/2

Elevation: 100 metres

Latitude: 50° 12′

Longitude: 124° 37′

Location: 2 kilometres south of Bohn Point on Homfray Channel.

Access: By boat.

Quarry Developments: None are known in the area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC88025-143	BC88025-142	1:15000
BC77080-221	BC77080-220	1:40000

Structure: Massive rock bluffs.

Vegetation Cover: Bare patches of rock exposed.

Topography: A series of rock bluffs near the shore.

Photo Interpretation:

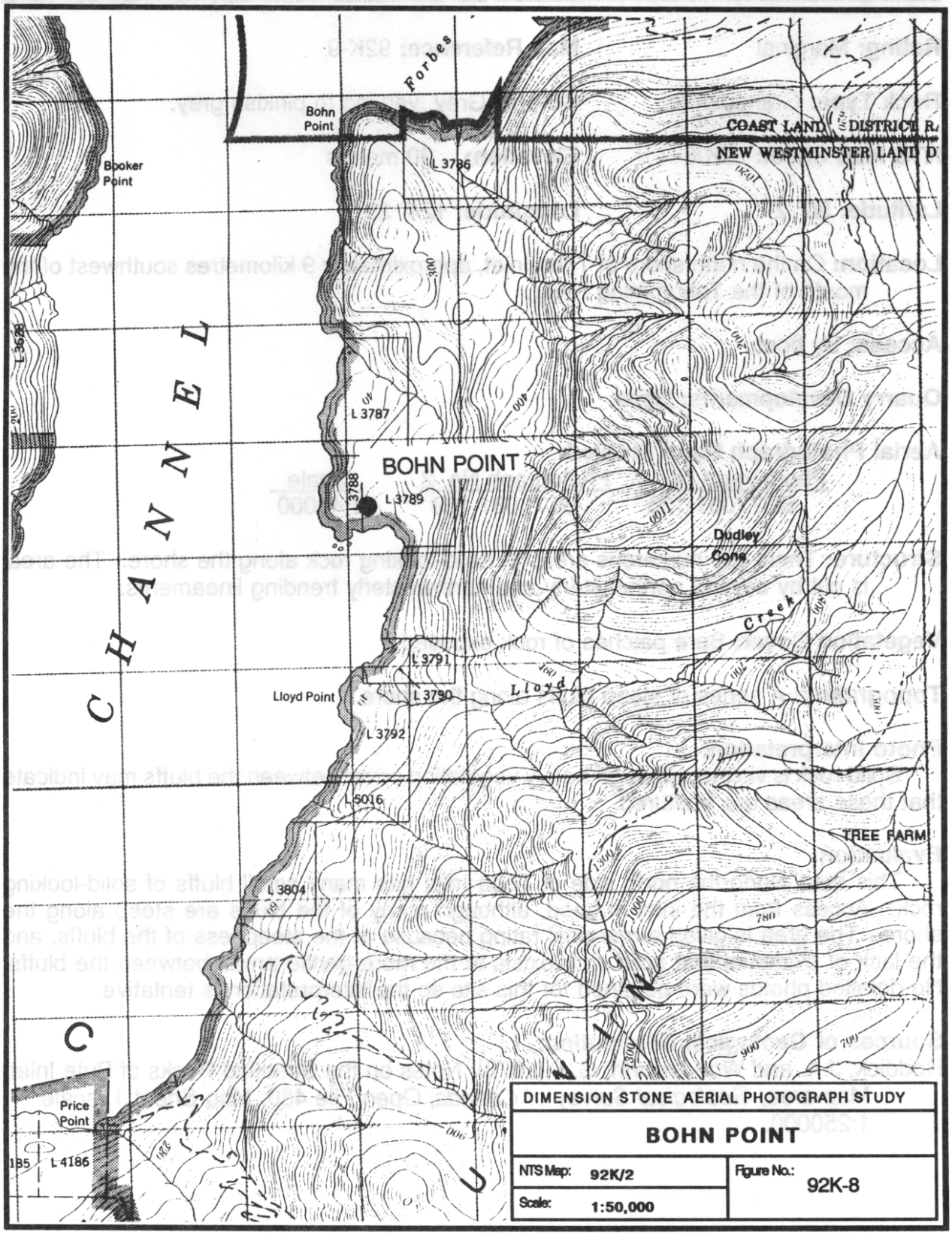
Many of the rock faces have an even grey tone indicating solid rock. The vegetation cover is sparse over the moderately sloped areas above some of these bluffs, suggesting that solid rock extends for some distance above.

Evaluation:

The rock is solid in many of the large rock bluffs, and there are areas with moderate slopes above several of the bluffs. Many of these bluffs are accessible from the shore. This area of solid outcrops and bluffs extends for about 2 kilometres south of Forbes Bay.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.


Forbes
Bohn Point
Booker Point
COAST LAND DISTRICT R
NEW WESTMINSTER LAND D
L 3786
L 3787
BOHN POINT
L 3788
L 3789
Dudley Cone
Creek
L 3791
L 3790
Lloyd
Lloyd Point
L 3792
L 5016
TREE FARM
L 3804
CHANNEL
Price Point
L 4186
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
BOHN POINT
NTS Map: 92K/2
Figure No.: 92K-8
Scale: 1:50,000

TOBA INLET

Rating: Marginal

Map Reference: 92K-9

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/8

Elevation: 20 metres

Latitude: 50° 27′

Longitude: 124° 29′

Location: On the north shore of Toba Inlet, approximately 9 kilometres southwest of the mouth of the Tahumming River.

Access: By boat.

Quarry Developments: None.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC77081-138	BC77081-139	1:40000

Structure: There are numerous areas of solid-looking rock along the shore. The area is cut by several northeasterly and northwesterly trending lineaments.

Vegetation Cover: Bare patches of rock exposed.

Topography: A series of steep bluffs along the shore.

Photo Interpretation:

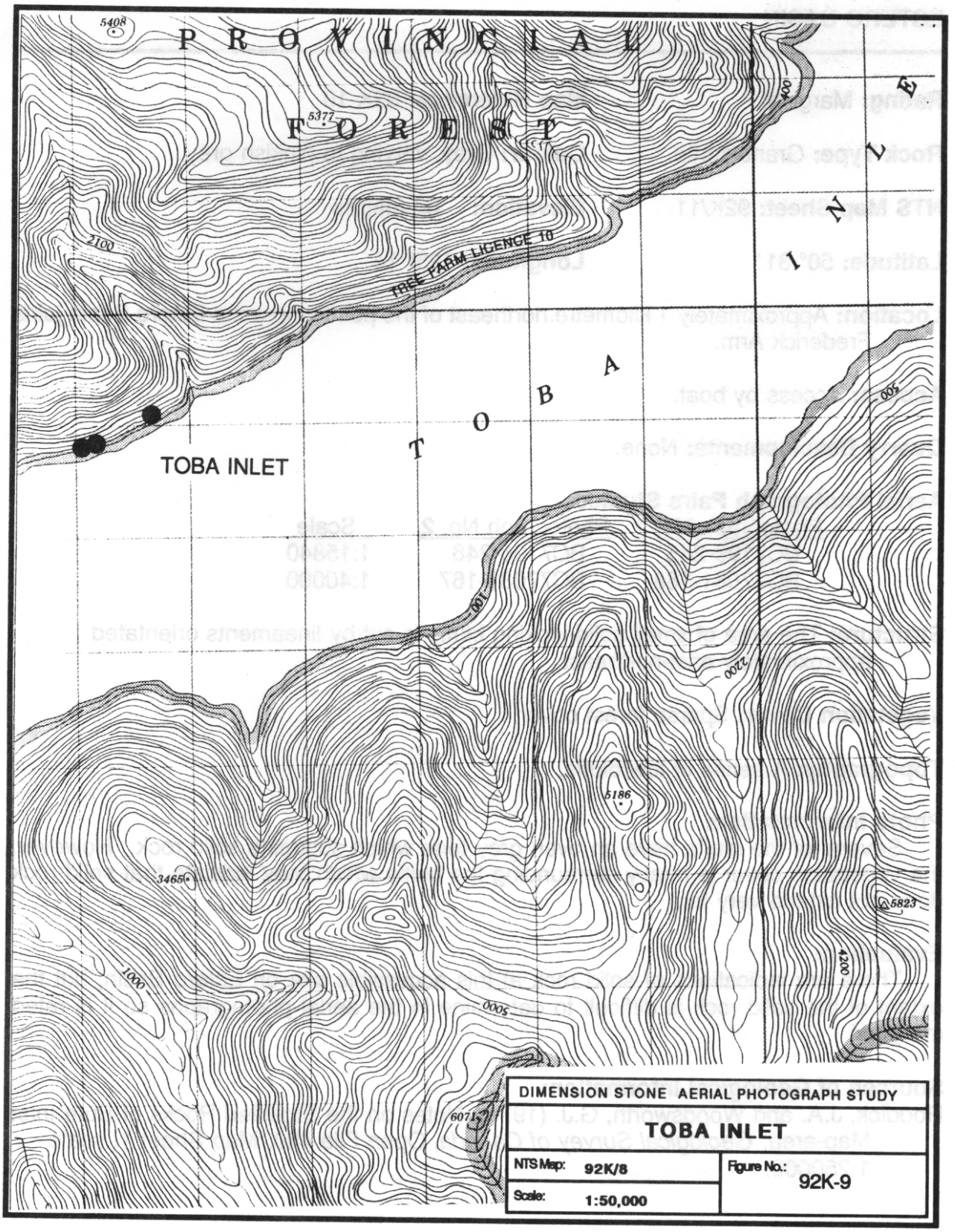
Solid rock is visible, although heavy vegetation cover between the bluffs may indicate that these areas are fractured.

Evaluation:

This area along the north side of Toba Inlet has many small bluffs of solid-looking rock. Access from the inlet is good, although many of the bluffs are steep along the shore. The area is given a marginal rating because of the steepness of the bluffs, and the lack of evidence that solid rock exists in the more gentle areas between the bluffs. No detailed photos were obtained for this site so the interpretation is tentative.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.


PROVINCIAL
FOREST
TREE FARM LICENCE 10
TOBA INLET
TOBA INLET
5408
5377
2100
400
500
100
2200
5186
3465
5823
4200
1000
5000
6071
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
TOBA INLET
NTS Map: 92K/8
Scale: 1:50,000
Figure No.: 92K-9

ESTERO BASIN

Rating: Marginal

Map Reference: 92K-10

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/11

Elevation: 60 metres

Latitude: 50° 31′

Longitude: 125° 14′

Location: Approximately 1 kilometre northeast of the point where the Estero Basin joins Frederick Arm.

Access: Access by boat.

Quarry Developments: None.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC7196-245	BC7196-246	1:15840
BC77081-168	BC77081-167	1:40000

Structure: The area of small solid-looking bluffs is cut by lineaments orientated approximately east-northeast.

Vegetation Cover: Sparse forest cover.

Topography: A series of low bluffs.

Photo Interpretation:

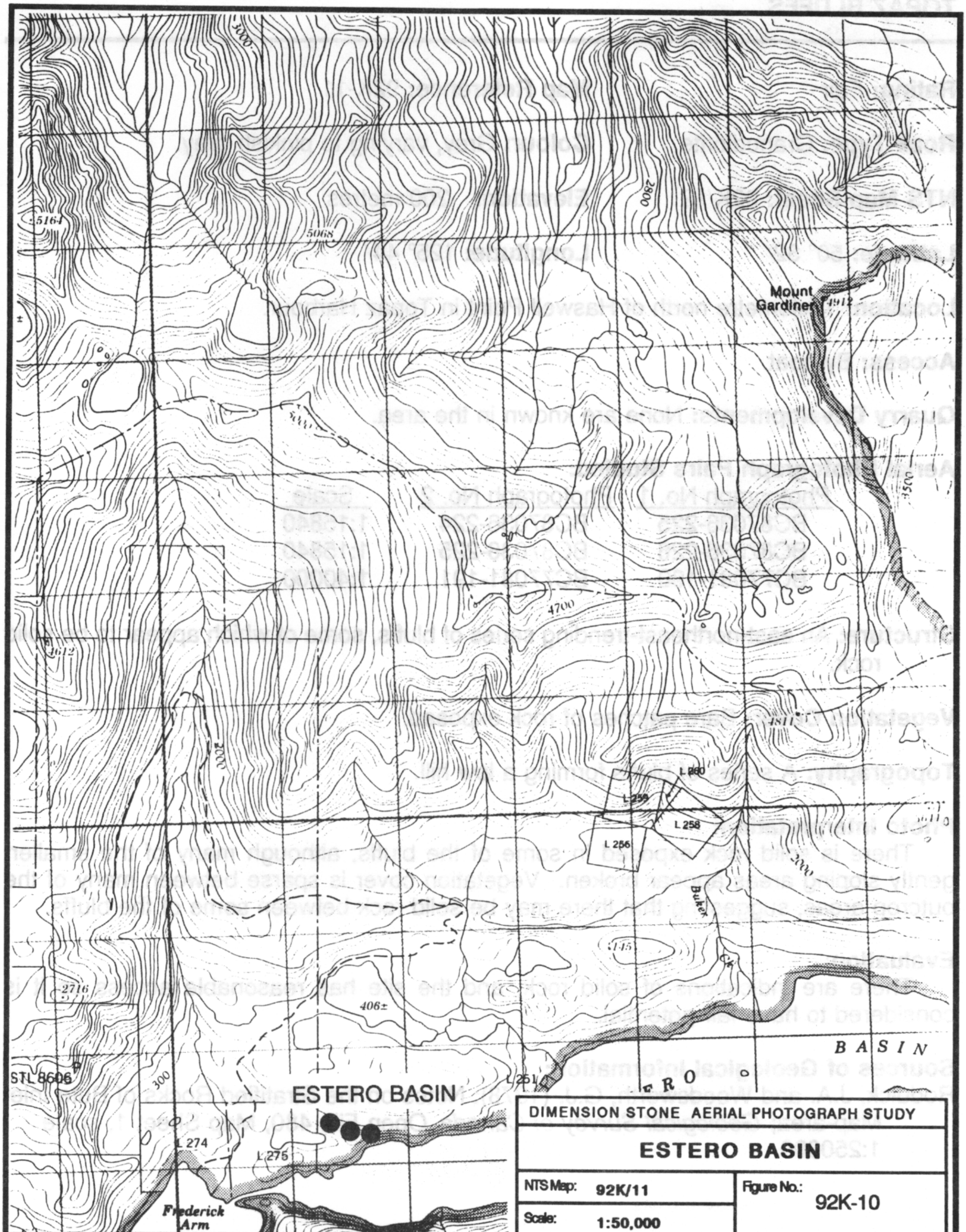
Several of the bluffs have an even grey tone which suggests solid rock. However, the vegetation cover is heavy surrounding the bluffs which may indicate that solid rock does not extend very far.

Evaluation:

There are indications of solid rock at this accessible site on Estero Basin, but the extent of the solid rock is difficult to determine in the aerial photographs so it is rated marginal.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.



DIMENSION STONE AERIAL PHOTOGRAPH STUDY	
ESTERO BASIN	
NTS Map: 92K/11	Figure No.: 92K-10
Scale: 1:50,000	

TOPAZ BLUFFS

Rating: Fair

Map Reference: 92K-11

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/12

Elevation: 200 metres

Latitude: 50° 32′

Longitude: 125° 44′

Location: 1 kilometre north of Haswell Point in Topaz Harbour.

Access: By boat.

Quarry Developments: None are known in the area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC87036-225	BC87036-224	1:15840
BC87036-226	BC87036-225	1:15840
BC77081-190	BC77081-191	1:40000

Structure: An east-northeast-trending series of bluffs, some of which appear to be solid rock.

Vegetation Cover: Bare patches of rock exposed.

Topography: A series of bluffs forming a low hill.

Photo Interpretation:

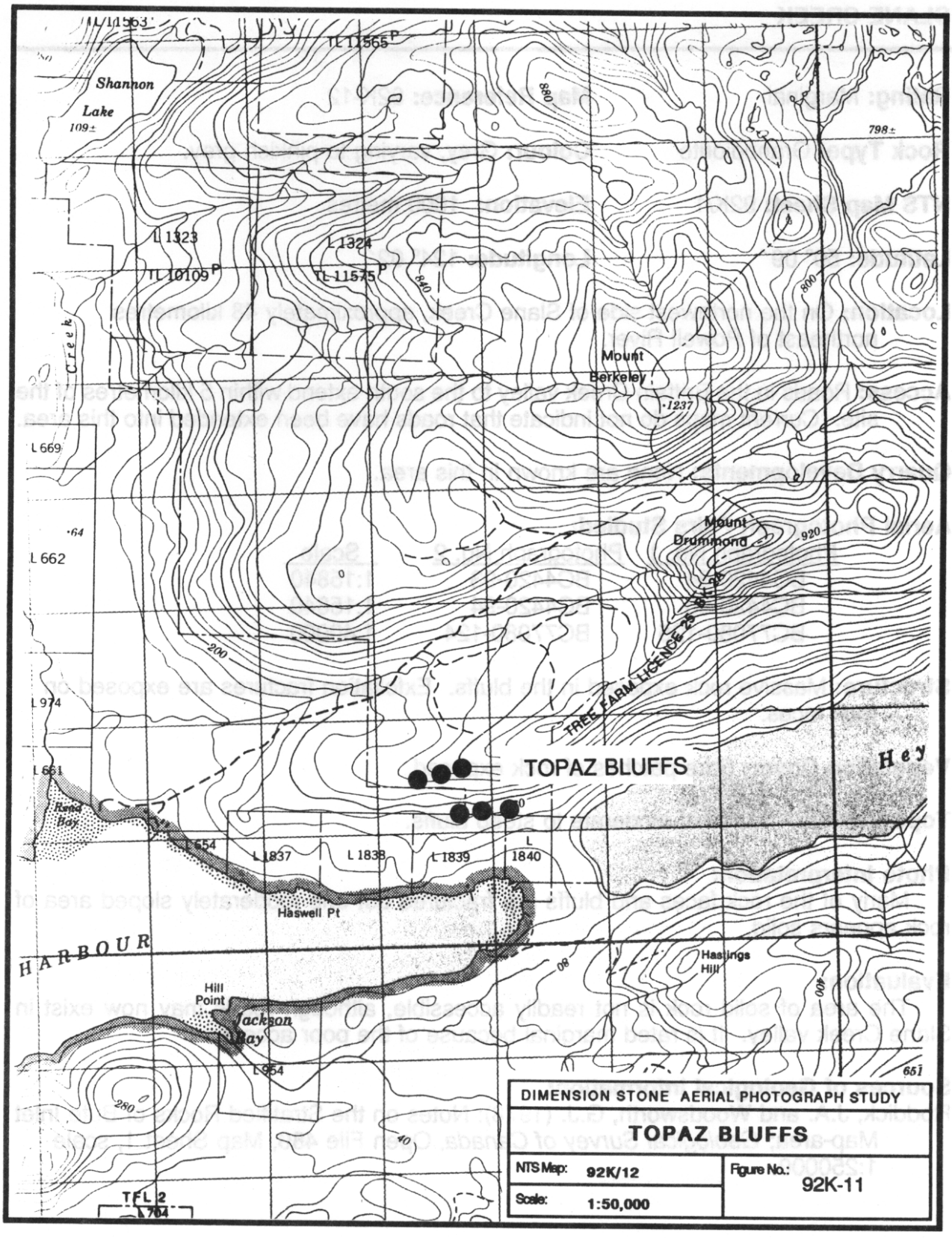
There is solid rock exposed in some of the bluffs, although many of the smaller, gently sloping areas appear broken. Vegetation cover is sparse between many of the outcrop areas, suggesting that there may be solid rock between some of the bluffs.

Evaluation:

There are indications of solid rock, and the site has reasonable access so it is considered to have fair potential.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.


TL 11563
TL 11565 P
Shannon Lake
109±
880
798±
L 1323
L 1324
TL 10109 P
TL 11575 P
840
800
Creek
Mount Berkeley
1237
L 669
64
L 662
Mount Drummond
920
200
L 974
TREE FARM LICENCE 25
TOPAZ BLUFFS
Hey
L 661
Rand Bay
L 654
L 1837
L 1838
L 1839
L 1840
Haswell Pt
HARBOUR
Hastings Hill
Hill Point
Jackson Bay
L 954
80
400
280
40
TFL 2
L 704
651
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
TOPAZ BLUFFS
NTS Map: 92K/12
Figure No.: 92K-11
Scale: 1:50,000

SLANE CREEK

Rating: Marginal

Map Reference: 92K-12

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/1

Elevation: 1000 metres

Latitude: 50° 09′

Longitude: 124° 02′

Location: On the northwest side of Slane Creek, approximately 48 kilometres northeast of Powell River.

Access: Roads in the Brittain Creek valley to the south extend within 5 kilometres of the site. Current maps do not indicate that roads have been extended into this area.

Quarry Developments: None are known in this area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC4420-94	BC4420-93	1:15840
BC4420-95	BC4420-94	1:15840
BC77080-125	BC77080-124	1:40000

Structure: Massive rock exposed in the bluffs. Exfoliation fractures are exposed on rock faces.

Vegetation Cover: Bare patches of rock exposed.

Topography: A series of moderate to steep bluffs.

Photo Interpretation:

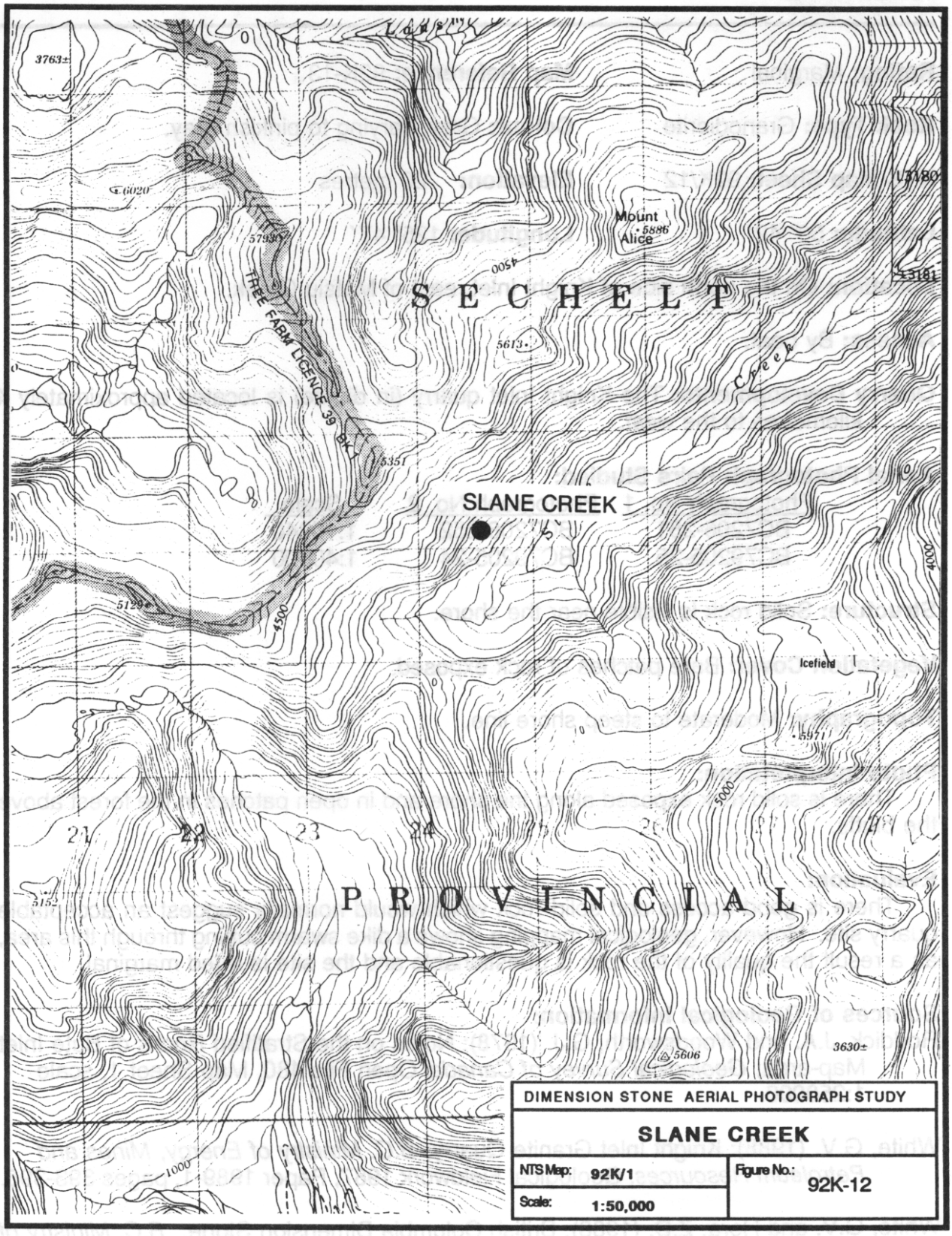
Many of the rock faces and bluffs are fractured but one moderately sloped area of rock appears solid.

Evaluation:

The area of solid rock is not readily accessible, although roads may now exist in Slane Creek valley. It is rated marginal because of the poor access.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.


3763±
6020
5793
TREE FARM LICENCE 39 BK 1
5351
SECHELT
5613
Mount Alice
5886
3180
3181
Creek
SLANE CREEK
5129
4500
4000
Icefield
5971
5000
21
22
23
24
PROVINCIAL
3152
5606
3630±
1000
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
SLANE CREEK
NTS Map: 92K/1
Figure No.: 92K-12
Scale: 1:50,000

KNIGHT INLET

Rating: Marginal

Map Reference: 92K-13

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/12

Elevation: 20 metres

Latitude: 50° 42′

Longitude: 125° 47′

Location: On the north side of Knight Inlet, east of Matsiu Creek.

Access: By boat.

Quarry Developments: The Knight Inlet quarry (in diorite) is located approximately 4 kilometres to the west.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC7206-251	BC7206-252	1:15840
BC79205-25	BC79205-24	1:40000

Structure: Solid rock is visible near the shore.

Vegetation Cover: Bare patches of rock exposed.

Topography: Moderate to steep shore line.

Photo Interpretation:

There is solid rock exposed along the shore and in open patches in the forest above the bluffs.

Evaluation:

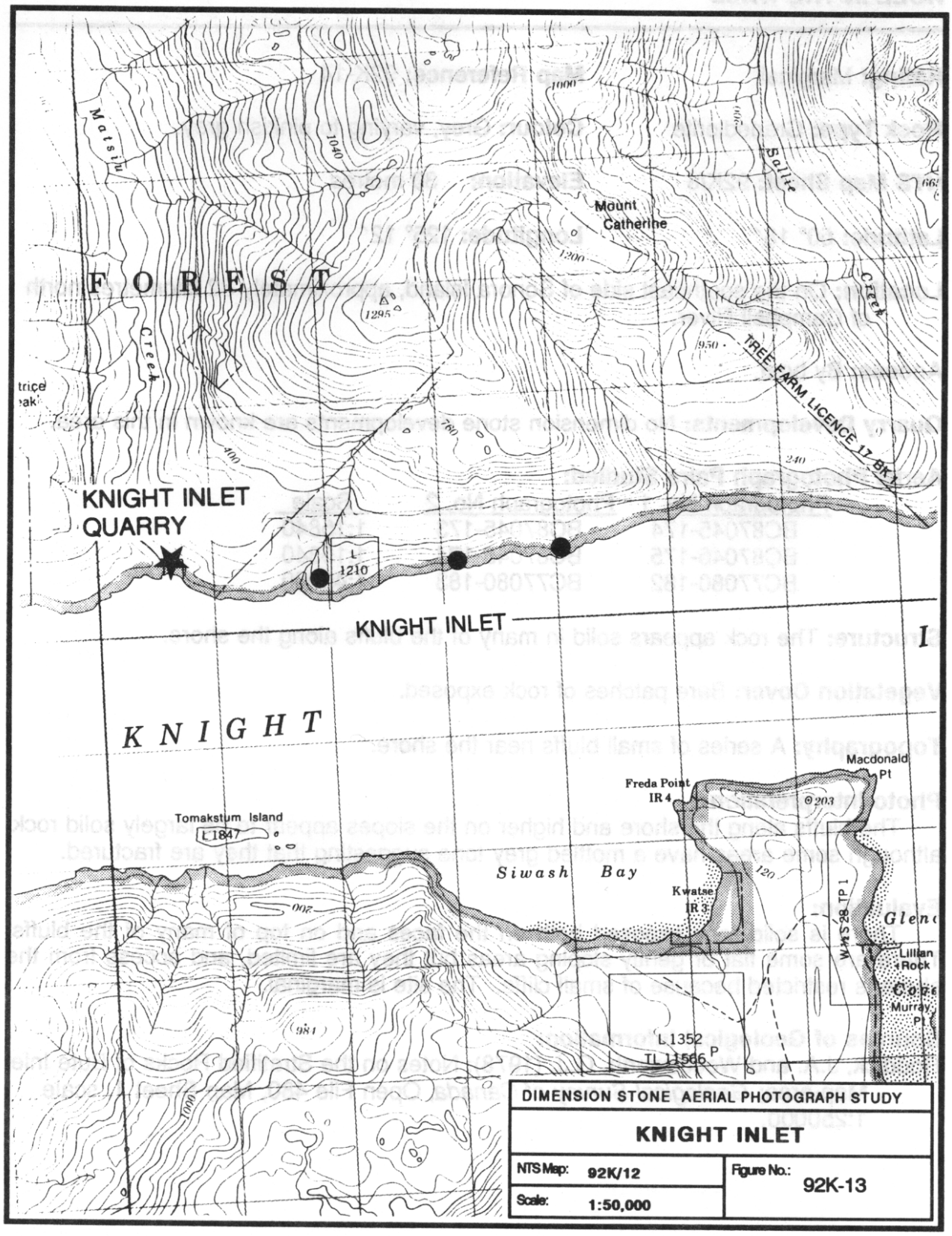
There is good access and solid rock which would normally suggest an acceptable quarry site. However, geological mapping shows a dike swarm cutting through this area, as a result the quality of the rock is questionable and the site is rated marginal.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.

White, G.V. (1988): Knight Inlet Granite Quarry; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Geological Fieldwork 1987, Paper 1989-1, pages 393-395.

White, G.V. and Hora, Z.D. (1988): British Columbia Dimension Stone; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Information Circular 1988-6, 32 pages.


FOREST
KNIGHT INLET
QUARRY
KNIGHT INLET
KNIGHT
Mount Catherine
TREE FARM LICENCE 17 BK 1
Tomakstum Island
L 1847
Siwash Bay
Freda Point IR 4
Macdonald Pt
Kwatse IR 3
Lillian Rock
Murray Pt
L 1352
TL 11566
1000
1040
1200
1295
950
760
400
240
203
120
002
981
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
KNIGHT INLET
NTS Map: 92K/12
Scale: 1:50,000
Figure No.: 92K-13

HOLE-IN-THE-WALL

Rating: Marginal

Map Reference: 92K-14

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92K/6

Elevation: 30 metres

Latitude: 50° 18′

Longitude: 125° 12′

Location: On the southeast side of Sonora Island, approximately 32 kilometres north of Campbell River.

Access: By boat.

Quarry Developments: No dimension stone developments are known in this area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC87045-174	BC87045-173	1:15840
BC87045-175	BC87045-174	1:15840
BC77080-182	BC77080-183	1:40000

Structure: The rock appears solid in many of the bluffs along the shore.

Vegetation Cover: Bare patches of rock exposed.

Topography: A series of small bluffs near the shore.

Photo Interpretation:

The bluffs along the shore and higher on the slopes appear to be largely solid rock, although some areas have a mottled grey tone suggesting that they are fractured.

Evaluation:

There is solid rock exposed both on the faces and on top of many of the bluffs. There are some flat or gently sloping areas but they are limited, and access from the shore is restricted because of small cliffs. The site is marginal.

Sources of Geological Information:

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.


HOLE-IN-THE-WALL
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
HOLE-IN-THE-WALL
NTS Map: 92K/6
Scale: 1:50,000
Figure No.: 92K-14
Stuart Island
Harbott Point
Mitchell L
St Aubyn Lake
TFL 2
Hyacinth Lake
Owen Bay
Dorr L
Walters Point
Grant Island
Cooper Point
Upper Rapids
Springer Point
Etta Point
Francisco Island
Bodega Anchorage
Chasina Island
Octopus Islands
Florence Cove
May Lake
Caroline Lake
Bernard P
HOLE IN THE WALL
M A U R E L
C H A
I N D I A N

NTS AREA 92L

WATSON COVE

Rating: Fair

Map Reference: 92L-1

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92L/16

Elevation: 10 metres

Latitude: 50° 51′

Longitude: 126° 19′

Location: On Tribune Channel approximately 60 kilometres northeast of Port McNeill.

Access: By water.

Quarry Developments: None are known in this area.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC7217-94	BC7217-93	1:15840
BC7217-95	BC7217-94	1:15840
BC1271-43	BC1271-44	1:31680

Structure: Massive rock is exposed near the shore and extends up to the treeline through a series of bluffs and faces. Several lineaments oriented northeast and southeast cross the area.

Vegetation Cover: Rock exposed.

Topography: Low bluffs near the shore which rise steeply to the treeline.

Photo Interpretation:

There are many patches of massive rock exposed near the shore and, it is probable that solid rock extends into the adjacent flat-lying forest-covered areas.

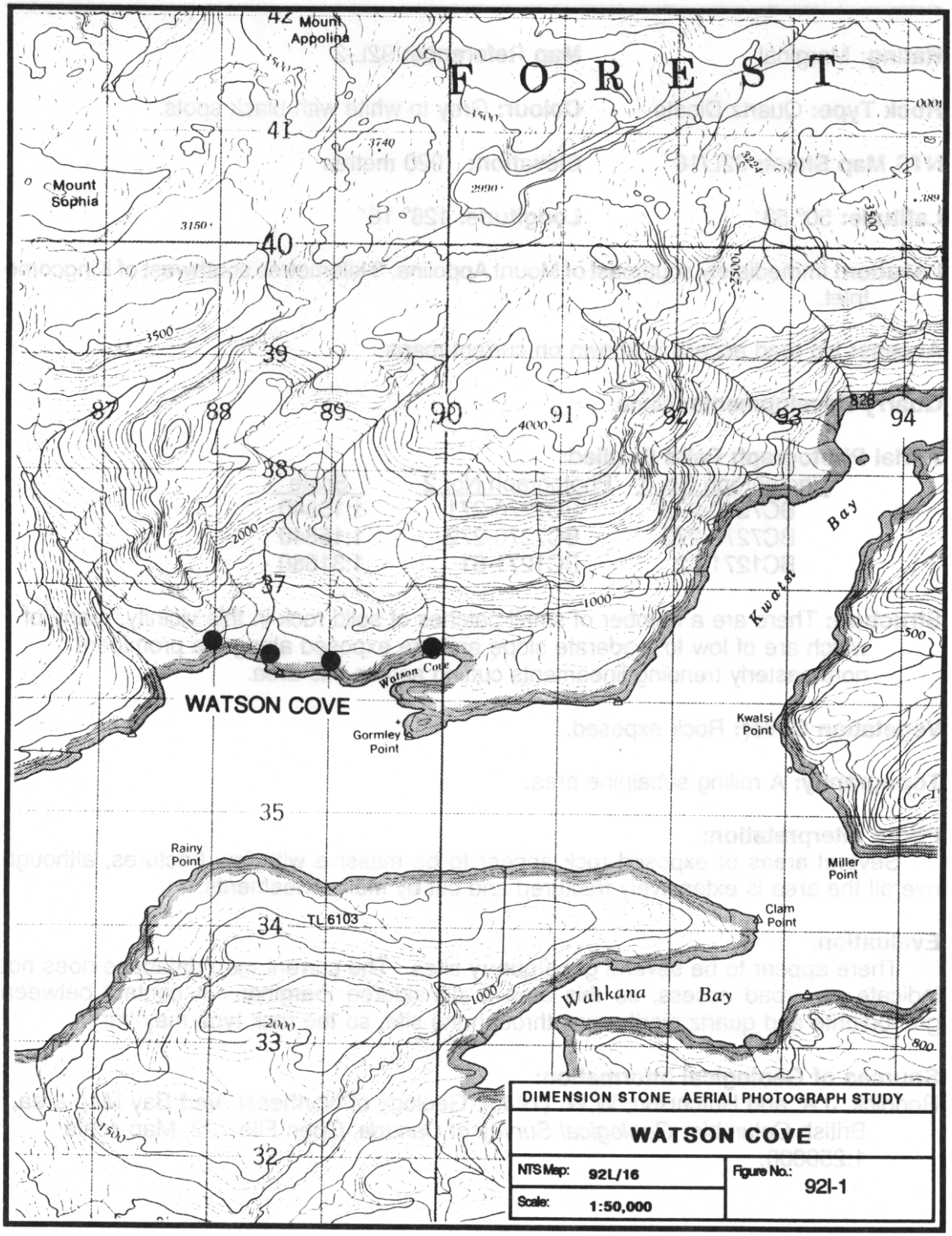
Evaluation:

There is ample evidence of solid rock, good access from the shore and some relatively flat areas for quarry sites. This appears to be a fair prospect.

Sources of Geological Information:

Parks, W.A. (1917): Report on the Building and Ornamental Stones of Canada; *Canadian Department of Mines*, Volume V, Report 452, 236 pages.

Roddick, J.A. and Hutchison, W.W. (1980): Geology of Northeast Alert Bay Map-area, British Columbia; *Geological Survey of Canada*, Open File 722, Map, scale 1:250000.


Mount Appolina
FOREST
Mount Sophia
WATSON COVE
Watson Cove
Gormley Point
Kwatsi Point
Bay
Kwatsi
Rainy Point
Miller Point
Clam Point
TL 6103
Wahkana Bay
42
41
40
39
38
37
35
34
33
32
87
88
89
90
91
92
93
94
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
WATSON COVE
NTS Map: 92L/16
Scale: 1:50,000
Figure No.: 92I-1

MOUNT APPOLINA

Rating: Marginal

Map Reference: 92L-2

Rock Type: Quartz Diorite

Colour: Grey to white with black spots.

NTS Map Sheet: 92L/16

Elevation: 920 metres

Latitude: 50° 53′

Longitude: 126° 16′

Location: Immediately southeast of Mount Appolina, 9 kilometres southwest of Kingcome Inlet.

Access: No road access is shown on current maps.

Quarry Developments: None.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC7270-272	BC7270-271	1:15840
BC7270-273	BC7270-272	1:15840
BC1271-52	BC1271-51	1:31680

Structure: There are a number of small patches of solid rock in this vicinity, many of which are of low to moderate slope and are exposed along the prominent northeasterly trending lineaments cutting across this area.

Vegetation Cover: Rock exposed.

Topography: A rolling subalpine area.

Photo Interpretation:

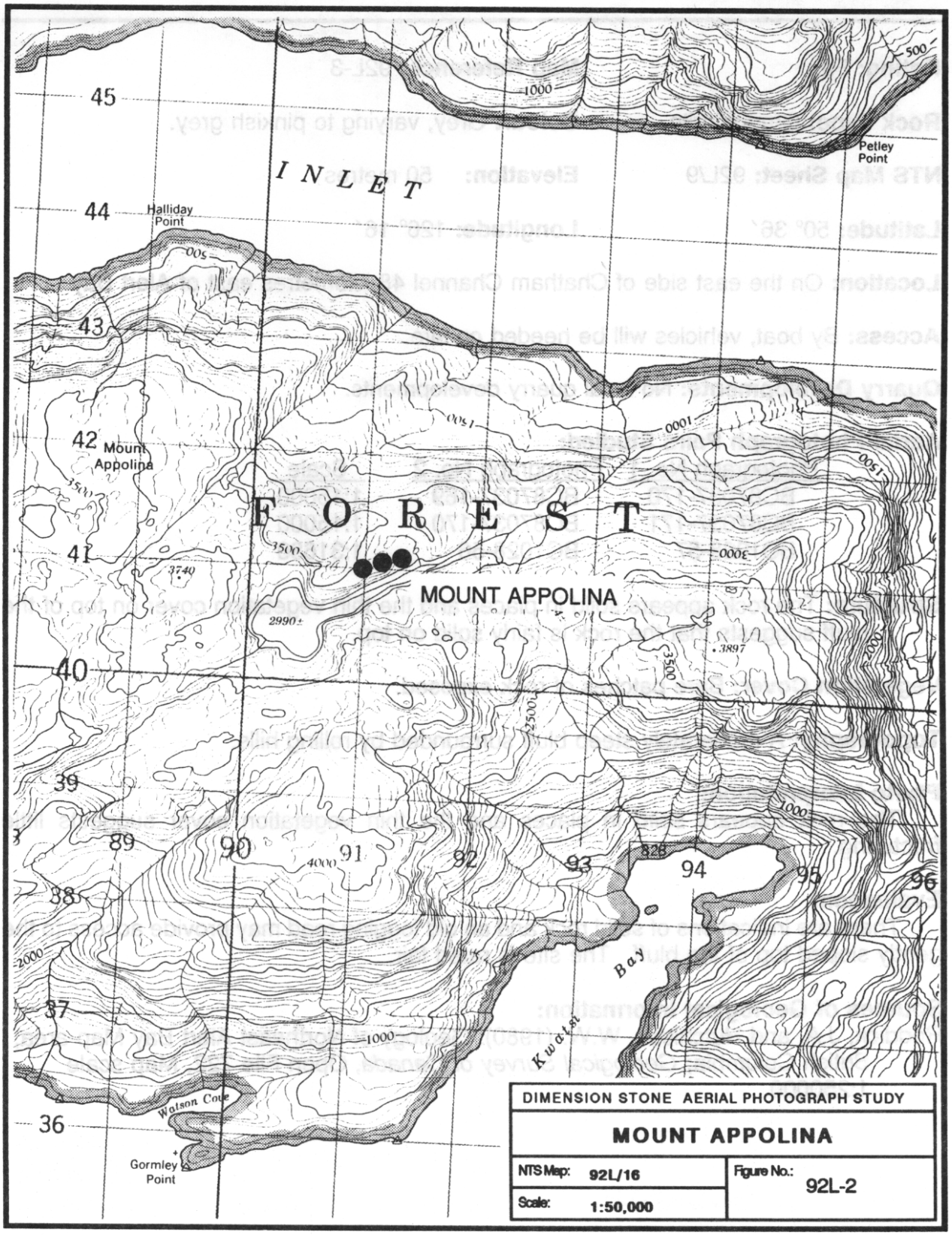
Several areas of exposed rock appear to be massive with few fractures, although overall the area is extensively fractured and cut by many lineaments.

Evaluation:

There appear to be several good quarry sites. The current map database does not indicate any road access, so this area is considered marginal. A contact between granodiorite and quartz diorite runs through the site, so the rock type may vary.

Sources of Geological Information:

Roddick, J.A. and Hutchison, W.W. (1980): Geology of Northeast Alert Bay Map-area, British Columbia; *Geological Survey of Canada*, Open File 722, Map scale 1:250000.


INLET
FOREST
MOUNT APPOLINA
Halliday Point
Petley Point
Mount Appolina
Gormley Point
Watson Cove
Kwatsi Bay
45
44
43
42
41
40
39
38
37
36
89
90
91
92
93
94
95
96
2990±
3740
3897
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
MOUNT APPOLINA
NTS Map: 92L/16
Scale: 1:50,000
Figure No.: 92L-2

CHATHAM CHANNEL

Rating: Fair

Map Reference: 92L-3

Rock Type: Granodiorite

Colour: Grey, varying to pinkish grey.

NTS Map Sheet: 92L/9

Elevation: 50 metres

Latitude: 50° 36′

Longitude: 126° 16′

Location: On the east side of Chatham Channel 48 kilometres east of Alert Bay.

Access: By boat, vehicles will be needed on site.

Quarry Developments: No local quarry developments.

Aerial Photograph Pairs Studied:

Photograph No. 1	Photograph No. 2	Scale
BC87037-170	BC87037-169	1:15000
BC87037-171	BC87037-170	1:15000
BC1028-57	BC1028-56	1:31680

Structure: The rock appears solid in places and the thin vegetation cover on top of the bluff suggests that the rock is fairly solid on top.

Vegetation Cover: Bare patches of rock exposed.

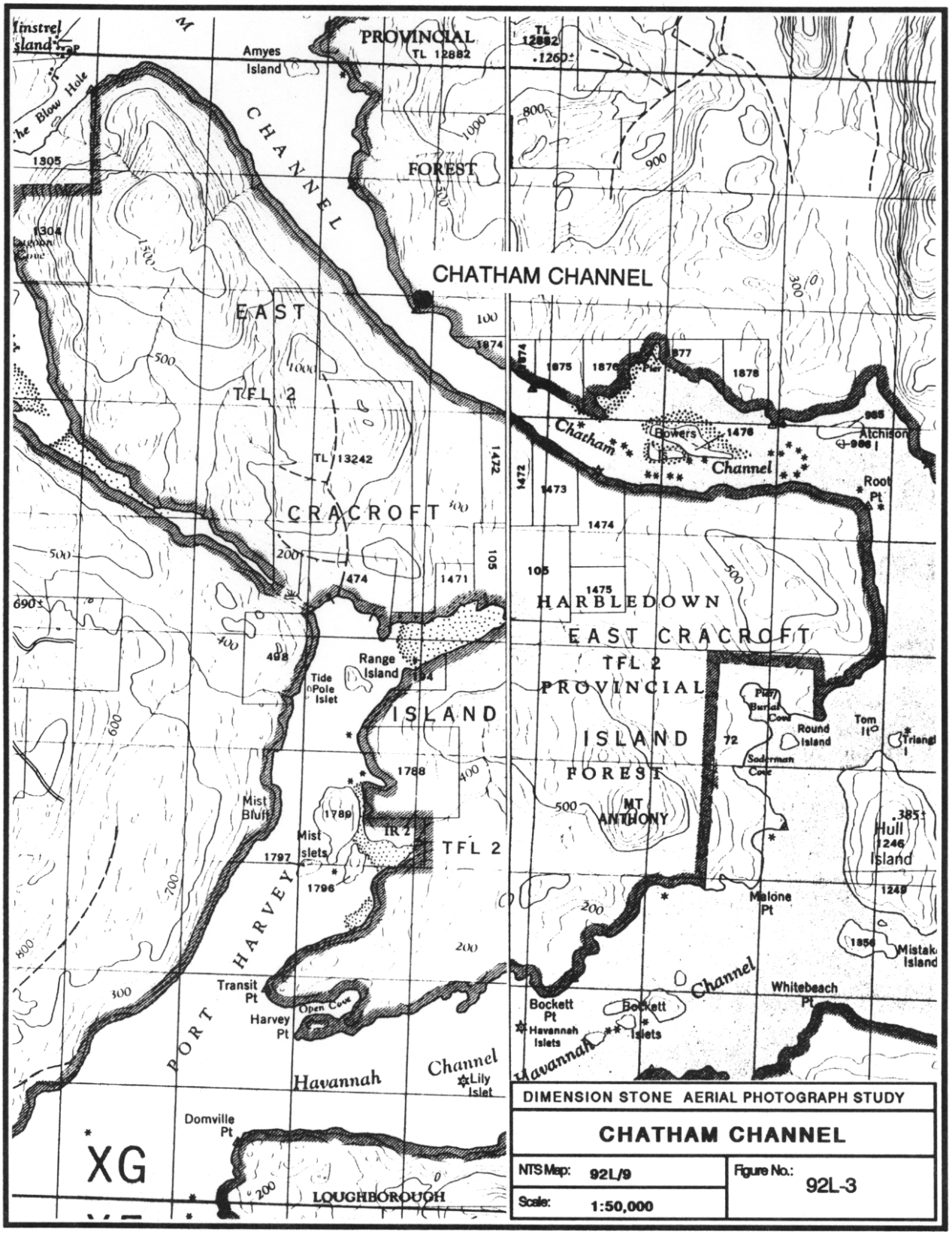
Topography: A moderately steep bluff surrounded by rolling hills.

Photo Interpretation:
The rock appears solid in places and the thin vegetation cover suggests little fracturing.

Evaluation:
There are indications of solid rock and an old logging road may provide access to the gently sloped top of the bluff. The site is rated fair.

Sources of Geological Information:

Roddick, J.A. and Hutchison, W.W. (1980): Geology of Northeast Alert Bay Map-area, British Columbia; *Geological Survey of Canada*, Open File 722, Map scale 1:250000.


Imstrel Island
Amyes Island
PROVINCIAL FOREST
TL 12882
CHANNEL
CHATHAM CHANNEL
EAST
TFL 2
CRACROFT
TL 13242
ISLAND
Range Island
Tide Pole Islet
Mist Bluff
Mist Islets
IR 2
TFL 2
PORT HARVEY
Transit Pt
Harvey Pt
Open Cove
Havannah Channel
Lily Islet
Domville Pt
LOUGHBOROUGH
XG
Chatham Channel
Bowers
Atchison
Root Pt
HARBLEDOWN
EAST CRACROFT
TFL 2
PROVINCIAL FOREST
ISLAND
MT ANTHONY
Round Island
Soderman Cove
Hull Island
Malone Pt
Whitebeach Pt
Bockett Pt
Havannah Islets
Bockett Islets
Havannah Channel
DIMENSION STONE AERIAL PHOTOGRAPH STUDY
CHATHAM CHANNEL
NTS Map: 92L/9
Scale: 1:50,000
Figure No.: 92L-3

REFERENCES

The following summary of references includes two references for the NTS 92J map sheet area. There are no detailed study reports for this area, and as a result the Pemberton geological map (Roddick, J.A. and Hutchison, W.W.,1973) and the Pemberton open file (Woodsworth, G.J.,1977) are not individually referenced.

Carr, G.F. (1955): The Granite Industry of Canada; *Department of Mines and Technical Surveys*, Ottawa, Number 846, pages 158 - 181.

Monger, J.W.H. (1989): Geology, Hope, British Columbia; *Geological Survey of Canada*, Map 41-1989, Sheet 1, scale 1:250000.

Page, J.W. (1989): British Columbia Dimension Stone Market Study; *B.C. Ministry of Energy, Mines and Petroleum Resources*, 49 pages.

Parks, W.A. (1917): Report on the Building and Ornamental Stones of Canada; *Canadian Department of Mines*, Volume V, Report 452, 236 pages.

Roddick, J.A. and Woodsworth, G.J. (1978): Notes on the Stratified Rocks of Bute Inlet Map-area; *Geological Survey of Canada*, Open File 480, Map Sheet 1, scale 1:250000.

Roddick, J.A. and Woodsworth, G.J. (1979): Geology of Vancouver West Half and Mainland part of Alberni; *Geological Survey of Canada*, Open File 611, scale 1:125000.

Roddick, J.A. and Hutchison, W.W. (1980): Geology of Northeast Alert Bay Map-area, British Columbia; *Geological Survey of Canada*, Open File 722, scale 1:250000.

Roddick, J.A. and Hutchison, W.W. (1973): Geology, Pemberton (East Half) British Columbia; *Geological Survey of Canada*, Map 13-1973, scale 1:250000.

White, G.V. (1988): Knight Inlet Granite Quarry; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Geological Fieldwork 1987, Paper 1989-1, pages 393-395.

White, G.V. (1986): Dimension Stone Quarries in British Columbia; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Geological Fieldwork, 1986; Paper 1987-1, pages 309-342.

White, G.V. and Hora, Z.D. (1988): British Columbia Dimension Stone; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Information Circular 1988-6, 32 pages.

Woodsworth, G.J. (1977): Geology Pemberton (92J) Map-area; *Geological Survey of Canada*, Open File 482, scale 1:250000.

APPENDIX I

REGIONAL STUDY SUMMARY

GEOGRAPHIC AREA	AERIAL PHOTOGRAPHS PHOTO(L)	PHOTO(R)	DETAIL STUDY	STUDY RATING	QUARRY SITE NAME	MAP REFERENCE
NTS AREA: 92F						
Fox Island	BC5102-59	BC5102-60	Y	Good	Fox Island	92F-3
Hardy Island	BC5102-59	BC5102-60	N			
Haslam Lake	BC5102-190	BC5102-189	N			
Haslam Lake	BC5102-125	BC5102-126	N			
Haslam Lake	BC5102-126	BC5102-127	N			
Haslam Lake	BC5102-188	BC5102-187	N			
Haslam Lake	BC5102-189	BC5102-188	N			
Horseshoe Lake	BC5102-186	BC5102-185	N			
Horseshoe Lake	BC5102-185	BC5102-184	N			
Hotham Sound	BC5102-181	BC5102-180	N			
Hotham Sound	BC5102-180	BC5102-179	N			
Hotham Sound	BC5102-222	BC5102-223	N			
Kelly Island	BC5102-59	BC5102-60	Y	Good	Kelly Island	92F-4
Lois Lake	BC5102-131	BC5102-132	N			
Lois Lake	BC5102-129	BC5102-130	N			
Lois Lake	BC5102-130	BC5102-131	N			
Lois Lake	BC5102-105	BC5102-104	N			
Nelson Island	BC5102-63	BC5102-64	N			
Nelson Island	BC5102-62	BC5102-63	N			
Nelson Island	BC5102-61	BC5102-62	N			
Nelson Island	BC5102-50	BC5102-49	N			
Nelson Island	BC5102-49	BC5102-48	Y	Fair	Nelson Island	92F-2
Nelson Island	BC5102-60	BC5102-61	N			
Okeover Inlet	BC5102-120	BC5102-121	N			
Okeover Inlet	BC5102-119	BC5102-120	N			
Powell Lake	BC5102-124	BC5102-125	N			
Powell Lake	BC5102-123	BC5102-124	N			
Powell River	BC5102-109	BC5102-108	N			
Saltery Bay	BC5102-101	BC5102-100	N			
Schmarge Bay	BC5102-111	BC5102-110	Y	Poor		
Smith Range	BC5102-127	BC5102-126	N			
Smith Range	BC5102-187	BC5102-186	N			
Smith Range	BC5102-128	BC5102-129	N			
Thunder Bay	BC5102-103	BC5102-102	N			
Thunder Bay	BC5102-104	BC5102-103	Y	Marginal	Jefferd Creek	92F-5
Thunder Bay	BC5102-102	BC5102-101	N			
Wildroot Heights	BC5102-110	BC5102-109	Y	Fair	Wildroot Heights	92F-1
NTS AREA: 92G						
Ashlu Creek	BC5105-220	BC5105-219	N			
Ashlu Creek	BC5105-222	BC5105-221	N			
Ashlu Creek	BC5105-223	BC5105-222	N			
Ashlu Creek	BC5105-224	BC5105-223	N			
Ashlu Creek	BC5105-221	BC5105-220	N			
Ashlu Creek	BC5106-68	BC5106-69	N			
Ashlu Creek	BC5105-219	BC5105-218	Y	Poor		
Ashlu Creek	BC5106-66	BC5106-67	N			
Ashlu Creek	BC5106-67	BC5106-68	N			
Ashlu Creek	BC5105-226	BC5105-225	N			
Ashlu Creek	BC5106-69	BC5106-70	N			
Ashlu Creek	BC5105-225	BC5105-224	N			
Brackendale	BC5342-31	BC5342-32	Y	Poor		
Brackendale	BC5342-32	BC5342-33	N			
Britannia Creek	BC5341-242	BC5341-243	N			
Buntzen Lake	BC5236-103	BC5236-104	N			
Buntzen Lake	BC5236-105	BC5236-106	N			
Buntzen Lake	BC5236-104	BC5236-105	N			
Chapman Creek	BC5102-73	BC5102-74	N			
Chapman Creek	BC5102-38	BC5102-37	N			
Chapman Creek	BC5102-39	BC5102-38	Y	Poor		
Chapman Creek	BC5102-72	BC5102-73	N			

GEOGRAPHIC AREA	AERIAL PHOTOGRAPHS PHOTO(L)	PHOTO(R)	DETAIL STUDY	STUDY RATING	QUARRY SITE NAME	MAP REFERENCE
Cheakamus River	BC5342-27	BC5342-28	N			
Cheakamus River	BC5341-247	BC5341-248	N			
Cheakamus River	BC5342-26	BC5342-27	N			
Cheakamus River	BC5341-251	BC5341-252	N			
Cheakamus River	BC5342-28	BC5342-29	N			
Cheakamus River	BC5341-248	BC5341-249	N			
Cheakamus River	BC5341-252	BC5341-253	Y	Poor		
Cheekye	BC5342-30	BC5342-31	N			
Cloudburst Creek	BC5106-72	BC5106-73	Y	Poor		
Clowhom Lake	BC5102-258	BC5102-257	Y	Poor		
Clowhom Lake	BC5102-257	BC5102-256	N			
Clowhom Lake	BC5102-259	BC5102-258	N			
Clowhom Lake	BC5105-75	BC5105-76	N			
Clowhom Lake	BC5105-73	BC5105-74	N			
Clowhom Lake	BC5105-76	BC5105-77	N			
Clowhom Lake	BC5105-74	BC5105-75	N			
Clowhom River	BC5105-196	BC5105-197	N			
Clowhom River	BC5102-239	BC5102-240	Y	Poor		
Coquitlam River	BC5236-97	BC5236-98	N			
Culliton Creek	BC5341-249	BC5341-250	N			
Culliton Creek	BC5341-250	BC5341-251	N			
Daisy Lake	BC5341-253	BC5341-254	N			
Daisy Lake	BC5342-25	BC5342-26	N			
Dickson Lake	BC5237-127	BC5237-128	N			
Dickson Lake	BC5237-126	BC5237-127	N			
Gambier Island	BC5102-78	BC5102-79	Y	Poor		
Gray Creek	BC5102-71	BC5102-72	Y	Poor		
Halfmoon Bay	BC5102-20	BC5102-21	N			
Highland Point	BC5102-140	BC5102-141	Y	Poor		
Howe Sound	BC5342-47	BC5342-48	N			
Indian Arm	BC5236-107	BC5236-108	N			
Indian Arm	BC5236-106	BC5236-107	N			
Indian River	BC5236-128	BC5236-129	N			
Indian River	BC5341-231	BC5341-230	N			
Indian River	BC5236-150	BC5236-151	N			
Norrish Creek	BC5237-125	BC5237-126	N			
Norrish Creek	BC5237-229	BC5237-230	N			
Norrish Creek	BC5237-227	BC5237-228	N			
Olesen Creek	BC5342-34	BC5342-35	Y	Good	Olsen Creek	92G-3
Panther Peak	BC5102-74	BC5102-75	N			
Pillchuck Creek	BC5106-73	BC5106-74	N			
Pitt River	BC5237-82	BC5237-83	N			
Port Mellon	BC5102-77	BC5102-78	N			
Port Moody	BC5236-102	BC5236-103	N			
Potlatch Creek	BC5102-244	BC5102-245	N			
Potlatch Creek	BC5102-161	BC5102-160	N			
Potlatch Creek	BC5102-159	BC5102-158	N			
Potlatch Creek	BC5102-158	BC5102-157	N			
Potlatch Creek	BC5102-245	BC5102-246	N			
Potlatch Creek	BC5102-160	BC5102-159	N			
Rainy River	BC5102-150	BC5102-151	N			
Salmon Inlet	BC5102-143	BC5102-144	N			
Salmon Inlet	BC5102-166	BC5102-165	N			
Salmon Inlet	BC5102-144	BC5102-145	Y	Poor		
Salmon Inlet	BC5102-164	BC5102-165	N			
Salmon Inlet	BC5102-142	BC5102-143	N			
Sayres Lake	BC5236-229	BC5236-228	N			
Sechelt	BC5102-22	BC5102-23	N			
Sechelt	BC5102-21	BC5102-22	Y	Poor		
Sechelt	BC5102-23	BC5102-24	N			
Sechelt	BC5102-22	BC5102-23	N			
Sechelt Creek	BC5102-240	BC5102-241	N			

GEOGRAPHIC AREA	AERIAL PHOTOGRAPHS PHOTO(L)	PHOTO(R)	DETAIL STUDY	STUDY RATING	QUARRY SITE NAME	MAP REFERENCE
Sechelt Creek	BC5102-242	BC5102-243	N			
Sechelt Creek	BC5102-241	BC5102-242	Y	Poor		
Sechelt Creek	BC5102-243	BC5102-244	N			
Sechelt Inlet	BC5102-40	BC5102-39	N			
Sechelt Inlet	BC5102-69	BC5102-70	N			
Sechelt Inlet	BC5102-41	BC5102-40	N			
Sechelt Inlet	BC5102-70	BC5102-71	Y	Poor		
Shannon Creek	BC5341-243	BC5341-244	N			
Shannon Creek	BC5342-34	BC5342-35	Y	Poor		
Skookumchuck Narrows	BC5102-139	BC5102-140	Y	Poor		
Squamish	BC5341-245	BC5341-246	N			
Squamish	BC5342-33	BC5342-34	Y	Marginal	Squamish	92G-1
Squamish	BC5342-33	BC5342-34	Y	Fair	Malamute Bluff	92G-2
Squamish River	BC5105-217	BC5105-216	N			
Squamish River	BC5342-56	BC5342-57	N			
Squamish River	BC5106-70	BC5106-71	N			
Squamish River	BC5341-157	BC5341-158	Y	Poor		
Squamish River	BC5342-55	BC5342-56	Y	Poor		
Squamish River	BC5106-71	BC5106-72	N			
Squamish River	BC5342-57	BC5342-58	N			
Squamish River	BC5342-50	BC5342-51	Y	Poor		
Squamish River	BC5342-72	BC5342-71	N			
Squamish River	BC5342-49	BC5342-50	N			
Squamish River	BC5105-216	BC5105-215	N			
Stave Lake	BC5237-233	BC5237-232	N			
Stave Lake	BC5237-234	BC5237-233	N			
Stave Lake	BC5236-230	BC5236-229	N			
Stawamus River	BC5341-244	BC5341-245	N			
Taquat Creek	BC5102-256	BC5102-255	N			
Taquat Creek	BC5102-255	BC5102-254	N			
Tatlow Creek	BC5105-100	BC5105-99	N			
Tatlow Creek	BC5105-194	BC5105-195	N			
Tzoonie River	BC5105-102	BC5105-101	N			
Tzoonie River	BC5105-101	BC5101-100	N			
Widgeon Creek	BC5237-83	BC5237-84	N			
Widgeon Creek	BC5237-84	BC5237-85	N			
Woodfibre Creek	BC5342-48	BC5342-49	N			
Woodfibre Creek	BC5102-253	BC5102-252	N			
NTS AREA: 92H						
Anderson River	BC78100-157	BC78100-158	Y	Fair	Gemse Col	92H-2
Anderson River	BC78100-157	BC78100-158	Y	Poor		
Anderson River	BC78100-157	BC78100-158	Y	Poor		
Anderson River	BC78100-157	BC78100-158	Y	Poor		
Anderson River	BC78100-157	BC78100-158	Y	Marginal	Bighorn Peak	92H-3
Anderson River	BC78100-168	BC78100-167	Y	Fair	South Anderson River	92H-5
Anderson River	BC78100-158	BC78100-159	N			
Anderson River	BC78100-156	BC78100-157	Y	Poor		
Anderson River	BC78100-168	BC78100-167	Y	Poor		
Anderson River	BC78100-156	BC78100-157	Y	Poor		
Anderson River	BC78100-169	BC78100-168	Y	Poor		
Anderson River	BC78100-168	BC78100-167	Y	Poor		
Anderson River	BC78100-156	BC78100-157	Y	Poor		
Boston Bar Creek	BC78100-199	BC78100-200	N			
Boston Bar Creek	BC78100-167	BC78100-166	Y	Poor		
Boston Bar Creek	BC78100-199	BC78100-198	N			
Cantelon Creek	BC78101-074	BC78101-075	Y	Poor		
Coldwater River	BC78100-167	BC78100-166	Y	Marginal	Llama Peak	92H-4
Coquihalla River	BC78100-166	BC78100-165	Y	Poor		
Coquihalla River	BC78100-207	BC78100-206	N			
Coquihalla River	BC78100-210	BC78100-209	N			
Coquihalla River	BC78100-165	BC78100-164	N			

GEOGRAPHIC AREA	AERIAL PHOTOGRAPHS PHOTO(L)	PHOTO(R)	DETAIL STUDY	STUDY RATING	QUARRY SITE NAME	MAP REFERENCE
Coquihalla River	BC78100-200	BC78100-201	N			
Coquihalla River	BC78100-209	BC78100-208	N			
Coquihalla River	BC78100-208	BC78100-207	Y	Poor		
Foley Creek	BC78101-094	BC78101-095	N			
Harrison Hot Springs	BC78101-026	BC78101-027	N			
Harrison Hot Springs	BC78101-025	BC78101-026	N			
Harrison River	BC78101-062	BC78101-061	N			
Hicks Lake	BC78101-027	BC78101-028	Y	Poor		
Hope	BC78101-011	BC78101-010	N			
Hope	BC78101-008	BC78101-007	N			
Hope	BC78101-030	BC78101-031	N			
Johnson Peak	BC78101-048	BC78101-047	Y	Poor		
Johnson Peak	BC78101-035	BC78101-036	N			
Jones Lake	BC78101-072	BC78101-073	Y	Poor		
Jones lake	BC78101-059	BC78101-058	N			
Jones lake	BC78101-055	BC78101-054	N			
Jones Lake	BC78101-073	BC78101-074	N			
Jones lake	BC78101-057	BC78101-056	N			
Jones lake	BC78101-058	BC78101-057	N			
Jones lake	BC78101-054	BC78101-053	N			
Jones lake	BC78101-056	BC78101-055	N			
Kawkawa Lake	BC78101-010	BC78101-009	Y	Poor		
Ladner Creek	BC78100-197	BC78100-198	Y	Poor		
Ladner Creek	BC78100-197	BC78100-198	Y	Poor		
Mount Agassiz	BC78101-061	BC78101-060	Y	Poor		
Mount Outram	BC78101-046	BC78101-045	N			
Mount Outram	BC78101-047	BC78101-046	N			
Nicolum Creek	BC78101-033	BC78101-034	N			
Nicolum Creek	BC78101-035	BC78101-034	N			
Nicolum Creek	BC78101-009	BC78101-008	Y	Fair	Nicolum Bluffs	92H-1
Nicolum Creek	BC78101-033	BC78101-032	N			
Silver Lake	BC78101-052	BC78101-051	Y	Poor		
Silverhope Creek	BC78101-031	BC78101-032	Y	Poor		
Siwash Creek	BC78100-196	BC78100-197	N			
Sowerby Creek	BC78101-053	BC78101-052	N			
NTS AREA: 92J						
Anderson Lake	BC5340-133	BC5340-134	N			
Anderson Lake	BC5340-44	BC5340-43	N			
Anderson Lake	BC5340-50	BC5340-51	N			
Anderson Lake	BC5340-134	BC5340-135	N			
Anderson Lake	BC5340-52	BC5340-53	N			
Anderson Lake	BC5340-55	BC5340-56	Y	Poor		
Anderson Lake	BC5340-56	BC5340-57	N			
Anderson Lake	BC5340-51	BC5340-52	N			
Birkenhead River	BC5149-28	BC5149-27	N			
Birkenhead River	BC5149-29	BC5149-28	N			
Birkenhead River	BC5149-227	BC5149-226	N			
Birkenhead River	BC5149-228	BC5149-227	N			
Birkenhead River	BC5149-221	BC5149-222	N			
Birkenhead River	BC5149-222	BC5149-223	N			
Blowdown Creek	BC5339-225	BC5339-224	N			
Blowdown Creek	BC5339-226	BC5339-225	N			
Cayoosh Creek	BC5339-152	BC5339-153	Y	Poor		
Cayoosh Creek	BC5339-154	BC5339-155	N			
Cayoosh Creek	BC5339-153	BC5339-154	N			
Cayoosh Creek	BC5339-56	BC5339-57	N			
Cayoosh Creek	BC53309-57	BC5339-58	N			
Cayoosh Creek	BC5339-54	BC5339-55	N			
Cayoosh Creek	BC5339-155	BC5339-156	N			
Cayoosh Creek	BC5339-52	BC5339-53	N			
Cayoosh Creek	BC5339-53	BC5339-54	N			

GEOGRAPHIC AREA	AERIAL PHOTOGRAPHS PHOTO(L)	PHOTO(R)	DETAIL STUDY	STUDY RATING	QUARRY SITE NAME	MAP REFERENCE
Cayoosh Creek	BC5339-55	BC5339-56	N			
Cayoosh Creek	BC5340-61	BC5340-62	N			
Cayoosh Creek	BC5340-62	BC5340-63	N			
Cayoosh Creek	BC5340-128	BC5340-127	N			
Cayoosh Creek	BC5340-127	BC5340-126	N			
Cerise Creek	BC5340-63	BC5340-64	Y	Poor		
D'arcy	BC5340-132	BC5340-133	N			
Downton Creek	BC5339-150	BC5339-151	N			
Downton Creek	BC5339-151	BC5339-152	N			
Duffy Lake	BC5340-34	BC5340-33	N			
Duffy Lake	BC5340-35	BC5340-34	N			
Duffy Lake	BC5339-227	BC5339-226	N			
Duffy Lake	BC5340-33	BC5340-32	N			
Duffy Lake	BC5339-255	BC5339-256	Y	Poor		
Fowl Creek	BC5149-220	BC5149-221	N			
Gott Creek	BC5339-156	BC5339-157	N			
Gott Creek	BC5339-157	BC5339-158	N			
Gravell Creek	BC5340-229	BC5340-228	N			
Halymore Creek	BC5340-60	BC5340-61	N			
Joffre Creek	BC5340-210	BC5340-211	N			
Joffre Creek	BC5340-208	BC5340-209	Y	Poor		
Joffre Creek	BC5340-209	BC5340-210	N			
Lillooet River	BC5141-16	BC5141-15	N			
Lillooet River	BC5149-44	BC5149-43	N			
Lillooet River	BC5149-207	BC5149-208	N			
Lillooet River	BC5104-240	BC5104-239	N			
Lillooet River	BC5141-23	BC5141-22	N			
Lillooet River	BC5149-208	BC5149-209	N			
Lillooet River	BC5141-17	BC5141-16	N			
Lillooet River	BC5141-18	BC5141-17	N			
Lillooet River	BC5149-43	BC5149-42	N			
Lillooet River	BC5141-20	BC5141-19	N			
Lillooet River	BC5149-209	BC5149-210	N			
Lillooet River	BC5141-22	BC5141-21	N			
Lillooet River	BC5149-39	BC5149-38	Y	Poor		
Lillooet River	BC5141-24	BC5141-23	N			
Lillooet River	BC5141-25	BC5141-24	N			
Lillooet River	BC5149-42	BC5149-41	N			
Lillooet River	BC5104-241	BC5104-240	N			
Lillooet River	BC5149-40	BC5149-39	N			
Lillooet River	BC5149-205	BC5149-206	N			
Lillooet River	BC5149-206	BC5149-207	N			
Lillooet River	BC5149-211	BC5149-212	N			
Lillooet River	BC5149-210	BC5149-211	N			
Lillooet River	BC5149-41	BC5149-40	N			
Lillooet River	BC5149-37	BC5149-36	N			
Lillooet River	BC5141-19	BC5141-18	N			
Lillooet River	BC5149-36	BC5149-35	Y	Poor		
Lillooet River	BC5141-21	BC5141-20	N			
Lost Valley Creek	BC5339-248	BC5339-249	N			
Lost Valley Creek	BC5340-41	BC5340-40	N			
Lost Valley Creek	BC5340-43	BC5340-42	N			
Lost Valley Creek	BC5340-40	BC5340-39	N			
Lost Valley Creek	BC5340-39	BC5340-38	N			
Lost Valley Creek	BC5339-247	BC5339-240	N			
Lost Valley Creek	BC5340-42	BC5340-41	N			
Lost Valley Creek	BC5339-249	BC5339-250	N			
Meager Creek	BC5104-261	BC5104-260	N			
Ryan River	BC5149-35	BC5149-34	Y	Poor		
Ryan River	BC5141-12	BC5141-11	N			
Ryan River	BC5141-15	BC5141-14	N			
Ryan River	BC5141-9	BC5141-8	N			

GEOGRAPHIC AREA	AERIAL PHOTOGRAPHS PHOTO(L)	PHOTO(R)	DETAIL STUDY	STUDY RATING	QUARRY SITE NAME	MAP REFERENCE
Ryan River	BC5141-10	BC5141-9	N			
Ryan River	BC5141-14	BC5141-13	N			
Ryan River	BC5141-13	BC5141-12	N			
Spetch Creek	BC5149-26	BC5149-25	N			
Spetch Creek	BC5149-25	BC5149-24	N			
Spetch Creek	BC5149-24	BC5149-23	N			
Spetch Creek	BC5149-27	BC5149-26	Y	Poor		
Tenas Creek	BC5149-218	BC5149-219	N			
Van Horlick Creek	BC5339-222	BC5339-221	N			
Van Horlick Creek	BC5339-224	BC5339-223	N			
Van Horlick Creek	BC5339-223	BC5339-222	N			
Van Horlick Creek	BC5339-256	BC5339-257	Y	Poor		
Van Horlick Creek	BC5339-257	BC5339-258	N			
Van Horlick Creek	BC5339-258	BC5339-259	N			
Van Horlick Creek	BC5339-259	BC5339-260	N			
NTS AREA: 92K						
Ahnuhati River	BC77114-21	BC77114-20	N			
Ahnuhati River	BC77114-22	BC77114-21	N			
Alpha Bluff	BC77117-53	BC77117-52	N			
Amour Point	BC77081-203	BC77081-204	Y	Fair	Cosmos Shore	92K-7
Apple River	BC77117-15	BC77117-14	N			
Apple River	BC77117-14	BC77117-13	Y	Fair	McBride Bay	92K-2
Apple River	BC77117-13	BC77117-12	N			
Arran Rapids	BC77081-126	BC77081-127	N			
Bold Point	BC77080-266	BC77080-267	Y	Poor		
Brem Bay	BC77081-135	BC77081-136	N			
Brem Bay	BC77081-136	BC77081-137	N			
Brem Bay	BC77081-134	BC77081-135	N			
Brem River	BC77081-209	BC77081-210	N			
Brem River	BC77081-157	BC77081-156	N			
Brem River	BC77081-212	BC77081-213	N			
Brem River	BC77081-211	BC77081-212	N			
Brem River	BC77081-156	BC77081-155	N			
Brem River	BC77081-210	BC77081-211	N			
Brittian River	BC77080-124	BC77080-123	N			
Brittian River	BC77080-95	BC77080-96	Y	Poor		
Bute Inlet	BC77081-162	BC77081-161	Y	Poor		
Bute Inlet	BC77081-164	BC77081-163	N			
Bute Inlet	BC77081-236	BC77081-235	Y	Poor		
Carrington Bay	BC77080-144	BC77080-143	Y	Poor		
Cascade Point	BC77114-20	BC77114-19	N			
Cascade Point	BC77114-19	BC77114-18	N			
Chippewa Bay	BC77080-27	BC77080-26	Y	Poor		
Clipper Point	BC77081-206	BC77081-207	N			
Clipper Point	BC77081-205	BC77081-206	N			
Cooper Reach	BC77117-30	BC77117-31	N			
Cooper Reach	BC77117-29	BC77117-30	N			
Cooper Reach	BC77117-28	BC77117-29	N			
Cooper Reach	BC77117-31	BC77117-32	N			
Cooper Reach	BC77117-33	BC77117-34	N			
Cooper Reach	BC77117-60	BC77117-59	N			
Cooper Reach	BC77117-62	BC77117-61	N			
Cooper Reach	BC77117-61	BC77117-60	N			
Cortez Island	BC77080-271	BC77080-272	N			
D'arcy Point	BC77081-117	BC77081-118	Y	Poor		
Daniels River	BC77081-143	BC77081-144	N			
Daniels River	BC77081-144	BC77081-145	N			
Daniels River	BC77081-78	BC77081-77	N			
Daniels River	BC77080-197	BC77080-198	Y	Poor		
Daniels River	BC77081-142	BC77081-143	Y	Poor		
Deceit Bay	BC77080-18	BC77080-188	Y	Poor		

GEOGRAPHIC AREA	AERIAL PHOTOGRAPHS PHOTO(L)	PHOTO(R)	DETAIL STUDY	STUDY RATING	QUARRY SITE NAME	MAP REFERENCE
Durham Point	BC77080-225	BC77080-224	Y	Poor		
East Redonda Island	BC77080-224	BC77080-223	Y	Poor		
East Redonda Island	BC77080-223	BC77080-222	N			
East Redonda Island	BC77080-275	BC77080-276	N			
East Thurlow Island	BC77081-120	BC77081-121	N			
East Thurlow Island	BC77081-121	BC77081-122	N			
Estero Basin	BC77081-167	BC77081-166	N			
Estero Basin	BC77081-201	BC77081-202	N			
Estero Basin	BC77081-199	BC77081-200	N			
Estero Basin	BC77081-168	BC77081-167	Y	Marginal	Estero Basin	92K-10
Estero Basin	BC77081-200	BC77081-201	N			
Evans Bay	BC77080-267	BC77080-268	N			
Evans Bay	BC77080-268	BC77080-269	Y	Poor		
Fanny Bay	BC77081-195	BC77081-196	N			
Fanny Bay	BC77081-196	BC77081-197	N			
Filer Creek	BC77117-132	BC77117-131	Y	Poor		
Filer Creek	BC77117-133	BC77117-132	N			
Forbes Bay	BC77080-222	BC77080-221	N			
Forbes Bay	BC77080-221	BC77080-220	Y	Good	Bohn Point	92K-8
Forbes Creek	BC77080-220	BC77080-219	Y	Poor		
Francis Bay	BC77081-91	BC77081-90	Y	Fair	Francis Bay	92K-5
Franklin Range	BC77081-176	BC77081-175	N			
Franklin Range	BC77081-175	BC77081-174	N			
Frederick Arm	BC77081-169	BC77081-168	Y	Poor		
Frederick Arm	BC77081-198	BC77081-199	N			
Fulmore Lake	BC77081-255	BC77081-254	N			
Fulmore Lake	BC77081-253	BC77081-252	N			
Fulmore Lake	BC77081-254	BC77081-253	N			
Fulmore Lake	BC77081-252	BC77081-251	N			
Glendale Cove	BC79205-54	BC79205-53	N			
Glendale Cove	BC79205-56	BC79205-55	N			
Glendale Cove	BC79205-53	BC79205-52	N			
Glendale Cove	BC79205-55	BC79205-54	N			
Glendale Lake	BC77117-65	BC77117-64	N			
Goat Island	BC77080-86	BC77080-87	N			
Goat Island	BC77080-85	BC77080-86	N			
Hat Mountain	BC77081-82	BC77081-81	Y	Poor		
Heydon Lake	BC77081-191	BC77081-192	N			
Hillis Creek	BC77081-207	BC77081-208	Y	Poor		
Hoeya Sound	BC79205-29	BC79205-28	N			
Hoeya Sound	BC79205-28	BC79205-29	N			
Hole-in-the-wall	BC77080-182	BC77080-183	Y	Marginal	Hole-In-The-Wall	92K-14
Homathko River	BC77116-154	BC77117-155	Y	Poor		
Homathko River	BC77116-199	BC77116-198	Y	Good	Homathko River	92K-4
Homathko River	BC77116-198	BC77116-197	N			
Homfray Channel	BC77080-193	BC77080-194	N			
Horn Bay	BC77081-125	BC77081-126	N			
Johnstone Bluff	BC77081-92	BC77081-91	N			
Kakweiken River	BC77114-25	BC77114-24	N			
Kakweiken River	BC77114-30	BC77114-31	N			
Kakweiken River	BC77114-24	BC77114-23	N			
Kakweiken River	BC77114-26	BC77114-25	N			
Kawalate Point	BC77114-36	BC77114-37	N			
Kawalate Point	BC77114-35	BC77114-36	N			
Knight Inlet	BC79205-23	BC79205-22	N			
Knight Inlet	BC79205-27	BC79205-26	N			
Knight Inlet	BC77117-18	BC77117-17	N			
Knight Inlet	BC77117-19	BC77117-18	Y	Poor		
Knight Inlet	BC79205-25	BC79205-24	Y	Marginal	Knight Inlet	92K-13
Knight Inlet	BC79205-26	BC79205-25	N			
Knight Inlet	BC78205-24	BC78205-23	N			
Knight Inlet	BC77117-23	BC77117-22	N			

GEOGRAPHIC AREA	AERIAL PHOTOGRAPHS PHOTO(L)	PHOTO(R)	DETAIL STUDY	STUDY RATING	QUARRY SITE NAME	MAP REFERENCE
Kwalate Point	BC77117-19	BC77117-18	Y	Fair	Kwalate Point	92K-3
Larson Creek	BC77081-230	BC77081-229	N			
Leask Lake	BC77081-163	BC77081-162	Y	Poor		
Little Toba River	BC77081-71	BC77081-70	N			
Loughborough Inlet	BC77081-247	BC77081-246	N			
Loughborough Inlet	BC77117-64	BC77117-63	N			
Loughborough Inlet	BC77081-246	BC77081-245	N			
Matsiu Creek	BC77117-26	BC77117-25	Y	Poor		
Matsiu Creek	BC77117-24	BC77117-23	N			
Matsiu Creek	BC77117-25	BC77117-24	Y	Poor		
Matsiu Creek	BC77117-27	BC77117-26	N			
Maurelle Island	BC77080-232	BC77080-231	Y	Poor		
Maurelle Island	BC77080-183	BC77080-184	N			
Maurelle Island	BC77080-233	BC77080-232	N			
Mellersh Creek	BC77117-7	BC77117-6	N			
Mellersh Creek	BC77117-8	BC77117-9	Y	Poor		
Mellersh Creek	BC77117-6	BC77117-5	Y	Poor		
Mink Creek	BC77117-34	BC77117-35	N			
Mink Creek	BC77117-32	BC77117-33	N			
Moh Creek	BC77081-237	BC77081-236	N			
Moh Creek	BC77081-239	BC77081-238	N			
Moh Creek	BC77081-240	BC77081-239	N			
Moh Creek	BC77081-202	BC77081-203	N			
Moh Creek	BC77081-238	BC77081-237	N			
Mount Edith	BC79205-57	BC79205-56	Y	Poor		
Mt Powell	BC77081-161	BC77081-160	N			
Mt Powell	BC77081-160	BC77081-159	N			
Mt. Barner	BC77081-137	BC77081-138	Y	Fair	Mount Barner	92K-6
Mt. Francis	BC77114-32	BC77114-33	Y	Poor		
Mt. Francis	BC77114-31	BC77114-32	N			
Mt. Kennedy	BC77114-38	BC77114-39	Y	Poor		
Mt. Kennedy	BC77114-37	BC77114-38	N			
Mt. Wakefield	BC77117-17	BC77117-16	N			
Okeover Inlet	BC77080-28	BC77080-27	N			
Okeover Inlet	BC77080-29	BC77080-28	Y	Poor		
Oxford Bay	BC77081-235	BC77081-234	N			
Oxford Bay	BC77081-234	BC77081-233	N			
Oxford River	BC77081-233	BC77081-232	N			
Oxford River	BC77117-68	BC77117-69	N			
Oxford River	BC77117-61	BC77117-62	N			
Oxford River	BC77081-231	BC77081-230	N			
Oxford River	BC77081-232	BC77081-231	N			
Oxford River	BC77117-69	BC77117-70	N			
Oxford River	BC77117-67	BC77117-68	N			
Oxford River	BC77116-60	BC77116-61	N			
Phillips Arm	BC77081-197	BC77081-198	N			
Phillips Lake	BC77081-245	BC77081-244	N			
Phillips Lake	BC77081-244	BC77081-243	N			
Phillips River	BC77117-38	BC77117-39	N			
Phillips River	BC77117-55	BC77117-54	N			
Phillips River	BC77117-59	BC77117-58	Y	Poor		
Phillips River	BC77117-54	BC77117-53	N			
Phillips River	BC77117-36	BC77117-37	N			
Phillips River	BC77117-37	BC77117-38	Y	Poor		
Phillips River	BC77117-9	BC77117-8	Y	Poor		
Phillips River	BC77117-35	BC77117-36	N			
Phillips River	BC77117-57	BC77117-56	N			
Phillips River	BC77117-58	BC77117-57	N			
Phillips River	BC77177-39	BC77117-40	Y	Poor		
Phillips River	BC77117-56	BC77117-55	N			
Phillips River	BC77081-241	BC77081-240	N			
Phillips River	BC77081-243	BC77081-242	N			

GEOGRAPHIC AREA	AERIAL PHOTOGRAPHS PHOTO(L)	PHOTO(R)	DETAIL STUDY	STUDY RATING	QUARRY SITE NAME	MAP REFERENCE
Phillips River	BC77081-242	BC77081-241	Y	Poor		
Port Neville	BC79205-119	BC79205-118	Y	Fair	Baresides Mountain	92K-1
Port Neville	BC79205-121	BC79205-120	N			
Port Neville	BC7905-120	BC79205-119	N			
Port Neville	BC77081-186	BC77081-187	N			
Port Neville	BC77081-185	BC77081-186	Y	Poor		
Powell Lake	BC77080-26	BC77080-25	Y	Poor		
Powell Lake	BC77080-84	BC77080-85	N			
Powell lake	BC77080-132	BC77080-131	N			
Powell Lake	BC77080-24	BC77080-23	N			
Powell Lake	BC77080-25	BC77080-24	N			
Powell Lake	BC77080-133	BC77080-132	Y	Poor		
Powell Lake	BC77080-23	BC77080-22	Y	Poor		
Powell River	BC77080-200	BC77080-201	N			
Powell River	BC77081-77	BC77081-76	Y	Poor		
Powell River	BC77081-73	BC77081-72	N			
Powell River	BC77080-203	BC77080-204	N			
Powell River	BC77080-199	BC77080-200	Y	Poor		
Powell River	BC77081-72	BC77081-71	Y	Poor		
Powell River	BC77081-75	BC77081-74	Y	Poor		
Powell River	BC77081-76	BC77081-75	Y	Poor		
Powell River	BC77081-74	BC77081-73	Y	Poor		
Powell River	BC77080-201	BC77080-202	N			
Pryce Channel	BC77080-190	BC77080-191	N			
Pryce Channel	BC77080-191	BC77080-192	N			
Pryce Channel	BC77080-189	BC77080-190	N			
Quadra Island	BC77080-181	BC77080-182	N			
Quadra Island	BC77080-234	BC77080-234	Y	Poor		
Quadra Island	BC77080-180	BC77080-181	N			
Quantam River	BC77081-159	BC77081-158	N			
Quantam River	BC77081-131	BC77081-132	N			
Quantam River	BC77081-158	BC77081-157	N			
Quatam River	BC77081-133	BC77081-134	N			
Quatam River	BC77081-132	BC77081-133	N			
Ramsay Arm	BC77081-130	BC77081-131	N			
Raza Island	BC77080-186	BC77080-187	N			
Redonda Bay	BC77080-229	BC77080-228	N			
Shannon Lake	BC77081-251	BC77081-250	Y	Poor		
Shannon Lake	BC77081-250	BC77081-249	N			
Skwawka River	BC77080-205	BC77080-206	N			
Slane Creek	BC77080-125	BC77080-124	Y	Marginal	Slane Creek	92K-12
Southgate River	BC77116-149	BC77116-148	Y	Poor		
Southgate River	BC77116-156	BC77116-157	N			
Southgate River	BC77116-150	BC77116-149	Y	Poor		
Southgate River	BC77116-148	BC77116-147	N			
Squirrel Cove	BC77080-143	BC77080-142	Y	Poor		
Squirrel Cove	BC77080-142	BC77080-141	N			
Stafford River	BC77117-16	BC77117-15	Y	Poor		
Stafford River	BC77114-42	BC77114-43	N			
Stafford River	BC77114-40	BC77114-41	N			
Stafford River	BC77114-39	BC77114-40	N			
Stafford River	BC77114-41	BC77114-42	N			
Stuart Island	BC77081-127	BC77081-128	N			
Stuart Island	BC77081-94	BC77081-93	N			
Stuart Island	BC77081-93	BC77081-92	N			
Sunderland Channel	BC79205-103	BC79205-102	N			
Sunderland Channel	BC79205-101	BC79205-102	Y	Poor		
Tahumming River	BC77081-213	BC77081-214	N			
Tahumming River	BC77081-151	BC77081-150	Y	Poor		
Teakerne Arm	BC77080-272	BC77080-273	N			
Teakerne Arm	BC77080-273	BC77080-274	N			
Theodosia River	BC77080-134	BC77080-133	Y	Poor		

GEOGRAPHIC AREA	AERIAL PHOTOGRAPHS PHOTO(L)	PHOTO(R)	DETAIL STUDY	STUDY RATING	QUARRY SITE NAME	MAP REFERENCE
Theodosia River	BC77080-135	BC77080-134	Y	Poor		
Theodosia River	BC77080-279	BC77080-280	N			
Theodosia River	BC77080-278	BC77080-279	N			
Thompson Sound	BC79205-12	BC79205-13	N			
Thompson Sound	BC79205-13	BC79205-14	N			
Toba Inlet	BC77081-86	BC77081-85	Y	Poor		
Toba Inlet	BC77081-141	BC77081-142	N			
Toba Inlet	BC77081-79	BC77081-78	Y	Poor		
Toba Inlet	BC77081-152	BC77081-151	N			
Toba Inlet	BC77081-139	BC77081-140	N			
Toba Inlet	BC77081-151	BC77081-150	Y	Poor		
Toba Inlet	BC77081-81	BC77081-80	N			
Toba Inlet	BC77081-138	BC77081-139	Y	Marginal	Toba Inlet	92K-9
Toba Inlet	BC77081-80	BC77081-79	N			
Toba Inlet	BC77081-140	BC77081-141	N			
Toba River	BC77081-147	BC77081-146	N			
Toba River	BC77117-130	BC77117-129	Y	Poor		
Toba River	BC77117-134	BC77117-135	N			
Toba River	BC77081-70	BC77081-69	N			
Toba River	BC77081-148	BC77081-147	N			
Toba River	BC77117-131	BC77117-130	Y	Poor		
Topaz Harbour	BC77081-190	BC77081-191	Y	Fair	Topaz Bluffs	92K-11
Topaz Harbour	BC77081-190	BC77081-189	N			
Unwin Range	BC77080-136	BC77080-135	N			
Unwin Range	BC77080-277	BC77080-278	N			
Waddington Harbour	BC77116-155	BC77116-156	Y	Poor		
Walsh Cove	BC77080-226	BC77080-225	Y	Poor		
West Redonda Island	BC77080-228	BC77080-227	N			
West Redonda Island	BC77080-227	BC77080-226	N			
Whale Town	BC77080-145	BC77080-144	Y	Poor		
NTS AREA: 92L						
Bond Sound	BC677-37	BC677-38	N			
Bond Sound	BC1271-45	BC1271-46	Y	Poor		
Bond Sound	BC1271-46	BC1271-47	N			
Bond Sound	BC1271-50	BC1271-49	N			
Bond Sound	BC677-39	BC677-40	N			
Bond Sound	BC677-38	BC677-39	N			
Bond Sound	BC677-40	BC677-41	N			
Booker Lagoon	BC1271-27	BC1271-26	N			
Booker Lagoon	BC1268-36	BC1268-35	N			
Booker Lagoon	BC1271-26	BC1271-25	Y	Poor		
Booker Lagoon	BC1268-37	BC1268-36	N			
Call Inlet	BC1268-98	BC1268-99	N			
Chatham channel	BC1028-58	BC1028-57	N			
Chatham channel	BC1028-57	BC1028-56	Y	Poor		
Chatham channel	BC1028-59	BC1028-58	Y	Poor		
Chatham channel	BC1028-57	BC1028-56	Y	Fair	Chatham Channel	92L-3
Clio Channel	BC1272-34	BC1272-35	N			
Clio Channel	BC1028-60	BC1028-59	N			
Clio Channel	BC1028-61	BC1028-60	N			
Clio Channel	BC1272-35	BC1272-36	N			
Clio Channel	BC1272-33	BC1272-34	N			
Drury Inlet	BC1272-20	BC1272-19	N			
Drury Inlet	BC1272-12	BC1272-11	N			
Drury Inlet	BC1271-76	BC1271-77	N			
Drury Inlet	BC1222-115	BC1222-114	Y	Poor		
Drury Inlet	BC1222-111	BC1222-110	N			
Drury Inlet	BC1222-112	BC1222-111	N			
Drury Inlet	BC1272-13	BC1272-12	N			
Drury Inlet	BC1222-110	BC1222-109	Y	Poor		
Drury Inlet	BC1272-23	BC1272-22	N			

GEOGRAPHIC AREA	AERIAL PHOTOGRAPHS PHOTO(L)	PHOTO(R)	DETAIL STUDY	STUDY RATING	QUARRY SITE NAME	MAP REFERENCE
Drury Inlet	BC1272-24	BC1272-23	N			
Drury Inlet	BC1222-109	BC1222-108	N			
Drury Inlet	BC1272-22	BC1272-21	N			
Drury Inlet	BC1271-75	BC1271-76	N			
Drury Inlet	BC1271-74	BC1271-73	N			
Drury Inlet	BC1272-21	BC1272-20	N			
Drury Inlet	BC1271-77	BC1271-78	N			
Drury Inlet	BC1271-73	BC1271-72	N			
Drury Inlet	BC1222-114	BC1222-113	N			
Gilford Bay	BC1268-66	BC1268-65	N			
Harbledown Island	BC1224-106	BC1224-105	Y	Poor		
Harbledown Island	BC1224-105	BC1224-104	N			
Helen Bay	BC1222-108	BC1222-107	Y	Poor		
Huaskin Lake	BC1271-81	BC1271-82	N			
Huaskin Lake	BC1271-82	BC1271-83	N			
Johnstone Strait	BC1271-2	BC1271-1	Y	Poor		
Kingcome Inlet	BC1222-89	BC1222-90	N			
Kingcome Inlet	BC1222-92	BC1222-91	N			
Kwatsi Bay	BC1271-52	BC1271-51	Y	Marginal	Mount Appolina	92L-2
Kwatsi Bay	BC1271-51	BC1271-50	N			
Maple Cove	BC1268-67	BC1268-66	N			
Maple Cove	BC1268-69	BC1268-68	N			
Maple Cove	BC1268-68	BC1268-67	N			
Midsummer Island	BC1268-82	BC1268-83	N			
Midsummer Island	BC1268-81	BC1268-82	N			
Mount Sophia	BC1222-91	BC1222-90	Y	Poor		
Root Point	BC1028-64	BC1028-65	N			
Root Point	BC1028-65	BC1028-66	N			
Simpson Sound	BC1268-51	BC1268-52	N			
Simpson Sound	BC1268-31	BC1268-30	N			
Simpson Sound	BC1268-28	BC1268-27	N			
Simpson Sound	BC1268-29	BC1268-28	N			
Simpson Sound	BC1268-52	BC1268-53	Y	Poor		
Simpson Sound	BC1268-53	BC1268-54	N			
Simpson Sound	BC1268-50	BC1268-51	N			
Simpson Sound	BC1268-30	BC1268-29	N			
Spring Passage	BC1268-84	BC1268-85	N			
Spring Passage	BC1268-83	BC1268-84	N			
Sullivan Bay	BC1222-107	BC1222-106	N			
Sutlej Channel	BC1271-35	BC1271-36	Y	Poor		
Sutlej Channel	BC1271-37	BC1271-38	N			
Thompson Sound	BC677-3	BC677-4	N			
Thompson Sound	BC677-33	BC677-32	N			
Thompson Sound	BC677-34	BC677-33	Y	Poor		
Turnour Island	BC1224-106	BC1224-105	Y	Poor		
Village Channel	BC1224-107	BC1224-106	N			
Village Channel	BC1224-109	BC1224-108	N			
Village Channel	BC1224-110	BC1224-109	N			
Village Channel	BC1224-108	BC1224-107	N			
Watson Cove	BC1271-53	BC1271-52	N			
Watson Cove	BC1271-44	BC1271-45	N			
Watson Cove	BC1271-54	BC1271-53	N			
Watson Cove	BC1271-55	BC1271-54	N			
Watson Cove	BC1271-43	BC1271-44	Y	Fair	Watson Cove	92L-1
Wells Passage	BC1271-72	BC1271-71	N			
Wells Passage	BC1271-71	BC1271-70	N			
Wells Passage	BC1225-14	BC1225-13	N			
Wells Passage	BC1225-13	BC1225-14	N			
NTS AREA: 92N						
Dutchman Harbour	BC79093-105	BC79093-104	N			
Dutchman Harbour	BC79093-106	BC79093-105	N			

GEOGRAPHIC AREA	AERIAL PHOTOGRAPHS PHOTO(L)	PHOTO(R)	DETAIL STUDY	STUDY RATING	QUARRY SITE NAME	MAP REFERENCE
Dutchman Harbour	BC79093-104	BC79093-103	N			
Franklin River	BC79093-103	BC79093-102	N			
Hatchet Point	BC79093-87	BC79093-88	Y	Poor		
Knight Inlet	BC79093-121	BC79093-120	N			
Knight Inlet	BC79093-88	BC79093-89	N			
Knight Inlet	BC79093-89	BC79093-90	N			
McMyn Creek	BC79093-109	BC79093-108	N			
McMyn Creek	BC79093-110	BC79093-109	N			
McMyn Creek	BC79093-80	BC79093-81	N			
McMyn Creek	BC79093-81	BC79093-82	N			
McMyn Creek	BC79093-82	BC79093-83	N			
McMyn Creek	BC79093-83	BC79093-84	N			
Rodell Creek	BC79093-90	BC79093-91	N			
Rodell Creek	BC79093-91	BC79093-92	N			
Sim Creek	BC79093-107	BC79093-106	N			
Sim Creek	BC79093-108	BC79093-107	Y	Poor		
Sim Creek	BC79093-84	BC79093-85	N			
Sim Creek	BC79093-85	BC79093-86	N			
Sim Creek	BC79093-125	BC79093-124	N			
Sim Creek	BC79093-124	BC79093-123	N			
Smythe Creek	BC79093-92	BC79093-93	N			
Smythe Creek	BC79093-93	BC79093-94	N			
Smythe Creek	BC79093-101	BC79093-100	N			
Smythe Creek	BC79093-102	BC79093-101	N			
Wahshihlas Bay	BC79093-123	BC79093-122	N			
Wahshihlas Bay	BC79093-86	BC79093-87	N			
Wahshihlas Bluff	BC79093-122	BC79093-121	Y	Poor		
Walkash Creek	BC79093-120	BC79093-119	Y	Poor		
Walkash Creek	BC79093-119	BC79093-118	N			
Walkash Creek	BC79093-118	BC79093-117	N			
Walkash Creek	BC79093-117	BC79093-116	N			
Walkash Creek	BC79093-116	BC79093-115	N			
Walkash Creek	BC79093-115	BC79093-114	N			

SOUTH WESTERN
BRITISH COLUMBIA
Scale - 1:600 000
(1 cm = 6 km)
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INSET MAP
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PACIFIC
OCEAN
PACIFIC RIM NATIONAL PARK
INTERNATIONAL BOUNDARY
VANCOUVER
VICTORIA
PORT ANGELES
POWELL RIVER
92L
92N
92K
92F
92G
92J
92H
92L-1
92L-2
92L-3
92K-1
92K-2
92K-4
92K-5
92K-6
92K-7
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92K-13
92K-14
92F-1
92F-2
92F-3
92F-4
92F-5
92G-1
92G-2
92G-3
92H-1
92H-2
92H-3
92H-5
KNIGHT INLET QUARRY
CAYOOSH CREEK QUARRY
SQUAMISH QUARRY
HARDY ISLAND
FOX ISLAND
KELLY ISLAND
QUARRY BAY (NELSON ISLAND)
Legend
92G-1 - Potential quarry site & reference number
- Detailed study site with poor rating
- Existing quarry site (past and present producers)
- Boundary of aerial photograph study
Ministry of Energy, Mines & Petroleum Resources
Dimension Stone Aerial Photo Study
Detailed Study Areas
Location Map
Map Sheet: 1K
Date: July, 1991
Figure No.: 3
Scale: 1:600,000
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