# A SUMMARY REVIEW REPORT

# ON THE

# CAHILL CLAIM GROUP

# HEDLEY, B.C.

92HSE/8E

for

CONSOLIDATED SEA GOLD CORP.

Suite 1140 - 625 Howe St.

Vancouver, B.C., V6E 2S1

by

R.D. Westervelt, M.Sc, P.Eng.

March 5, 1986

Westervelt Engineering Ltd.
401-1112 West Pender Street
Vancouver, B.C., V6E 2S1

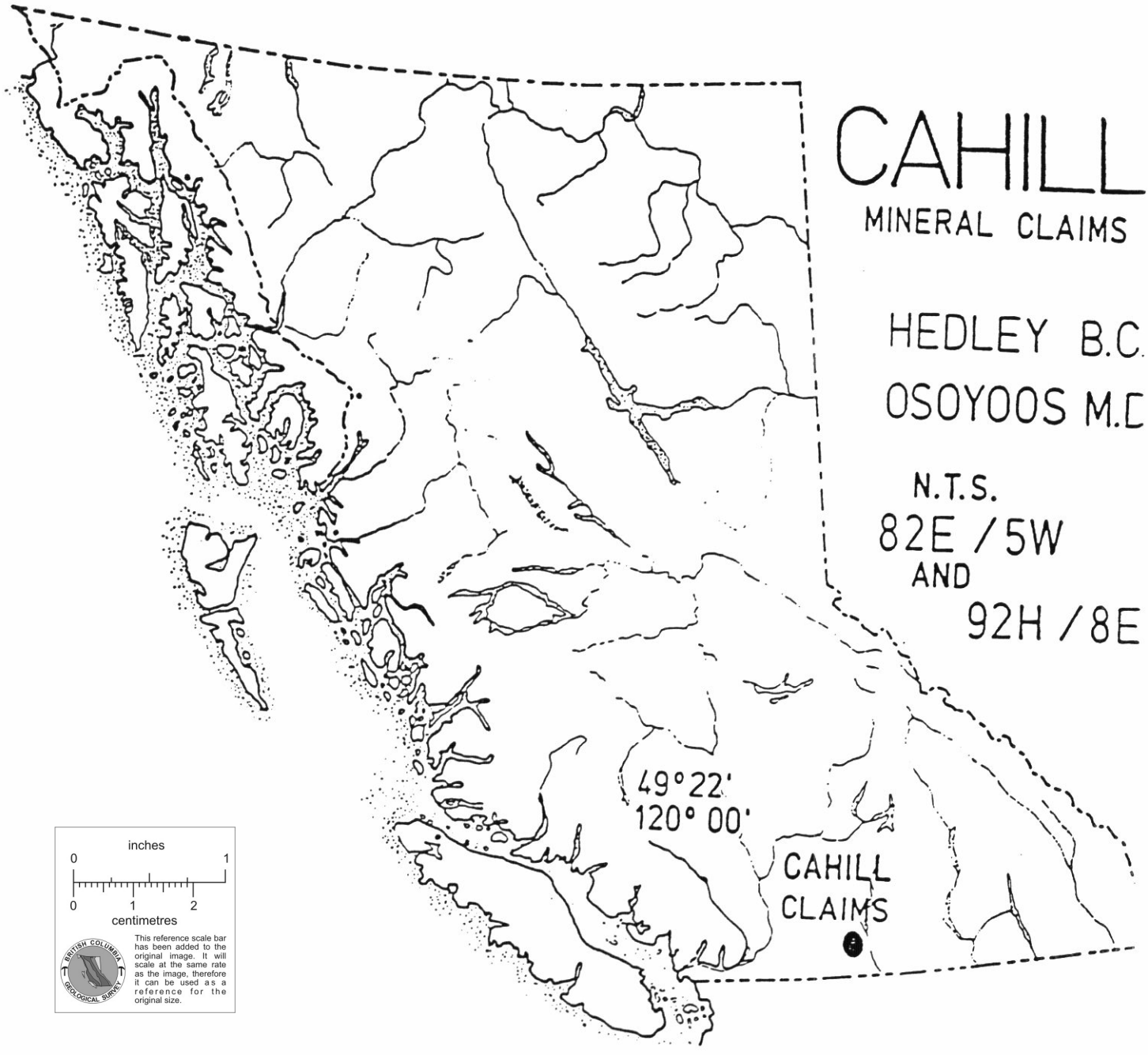
## CONTENTS



## APPENDIX

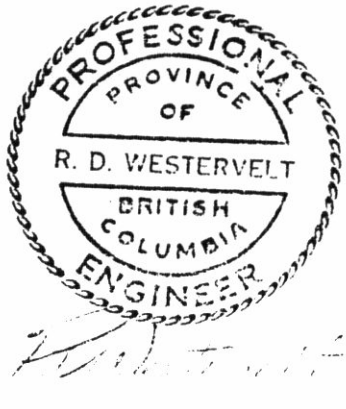


## FIGURES










| WESTERVELT ENGINEERING LTD. | |
|---|---|
| CONSOLIDATED SEA GOLD CORP<br>CAHILL CLAIM GROUP<br>HEDLEY, B.C.<br>GENERAL LOCATION MAP<br>Scale: 1"= 135 miles | |
| March 1986 | Fig. No. 1 |

WESTERVELT ENGINEERING LTD.
401-1112 West Pender Street
Vancouver, B. C., V6E 2S1

March 5, 1986

The President and Directors,
Consolidated Sea Gold Corp.,
Suite 1140 - 625 Howe Street,
Vancouver, B. C., V6C 2T6

Gentlemen:

Re: The Cahill Claim Group,
Hedley, B. C.

In company with L.B. Goldsmith, P.Eng., I made a one day field examination of the Cahill Claim Group in September 1983 and have recently reviewed all the available exploration data including the results of the surveys completed over the past two years.

As you are aware, the Cahill Claim Group is quite strategically located in the historic Hedley gold mining camp in Southern British Columbia. The claims are situated midway between the old Good Hope and Canty deposits and lie within a mile of the major new gold discovery currently being developed by Mascot Gold Mines.

Although no significant mineralized zones have yet been reported on the Cahill claims, overburden is widespread and only preliminary exploratory surveys have been completed to date. The initial field results have indicated a complex geophysical pattern with some scattered anomalous gold-arsenic-copper soil geochem values within a favourable geological environment. In view of these initial results and close proximity to the Mascot Gold deposit, additional exploratory work on the property is well warranted at the present time.

My summary review report recommending further mapping, geophysics, and soil geochemistry with follow-up trenching and drilling at an estimated cost of $155,000 is herewith submitted for your consideration.

## PROPERTY, LOCATION, AND ACCESS:

The property, straddling the boundary of N.T.S. sheets 92 H/8 and 82 E/5, lies within the Osoyoos Mining Division and consists of two located mineral claims totaling 15 units as follows:

| Claim Name | Number of Units | Record No. | Date of Record |
|---|---|---|---|
| Cahill 1 | 5 | 1194 (8) | August 11, 1980 |
| Cahill 2 | 10 | 1195 (8) | August 11, 1980 |

The field surveys completed over the past five years have been filed for assessment credit with the next assessment filing being required for both claims by August 11th, 1986.

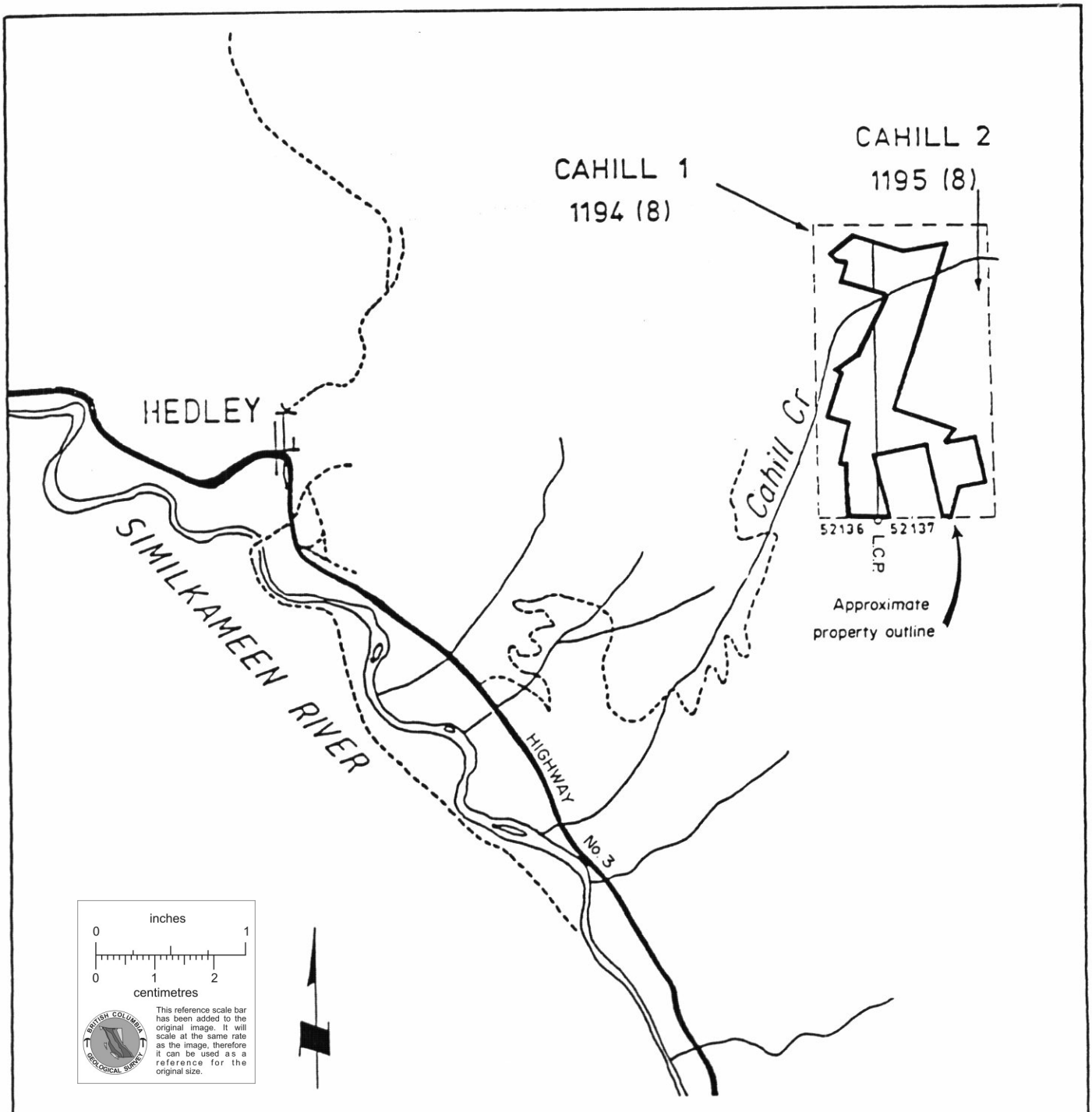
As shown on the accompanying maps, the two Cahill claims were staked to cover an irregular shaped block of open ground between some prior existing located claims and several old Crown Grants. The Cahill claims were purposely staked to overlap the earlier claims to avoid any open fractions but the prior claims do retain the mineral rights within the peripheral overlap areas.

The property boundary as shown is a close approximation based on the available field data but has yet to be confirmed by a detailed boundary survey.

The Cahill claim group is located immediately east of Cahill Creek approximately 5 kilometers due east of the town of Hedley, B.C.. The property is readily accessible by way of the well maintained Nickle Plate Lake Road which leaves Highway No. 3 about 3 kilometers south of Hedley. Portions of this 15 kilometer gravel road to the property may require use of a 4 wheel-drive vehicle during periods of adverse weather conditions.

## HISTORY:

The Hedley area was originally prospected in the 1890's with the initial claims being staked on Nickle Plate Mountain as early as 1894. The main Nickle Plate orebody, located 1½ miles west of the Cahill property, was discovered in 1898 and was operated by the Hedley Gold Mining Company until the 1930's. After a short shut-down, Kelowna Exploration Ltd. operated the mine until the 1950's. Total production from the Nickle Plate Mine is reported at 1,600,000 ounces of gold, 200,000 ounces of silver and 4,000,000 pounds of copper.




PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
R. D. WESTERVELT

| WESTERVELT ENGINEERING LTD. | |
|---|---|
| CONSOLIDATED SEA GOLD CORP | |
| CAHILL CLAIM GROUP | |
| HEDLEY, B.C. | |
| CLAIM MAP | |
| Scale: 1:50000 | |
| March 1986 | Fig. No. 2 |

In 1943, a gold telluride deposit was discovered on the Good Hope Group immediately south of the Cahill claims and this subsequently yielded some 5,000 tons of ore averaging 0.65 oz. Au per ton from a shallow open pit.

In 1941 about 1,600 tons of ore averaging 0.31 ounces of gold per ton were shipped from the Canty property immediately north of the Cahill claims.

During the period 1950 - 1961, the Kelowna Exploration Company and then the Cariboo Quartz Gold Mining Company operated the French Mine 1½ miles south of the Cahill group. Total recorded production was 84,926 tons averaging 0.62 oz. Au per ton.

Although the available literature makes no mention of any mineral discoveries or development on the ground now covered by the Cahill claims, several old trenches and pits on the property attest to an earlier prospecting interest.

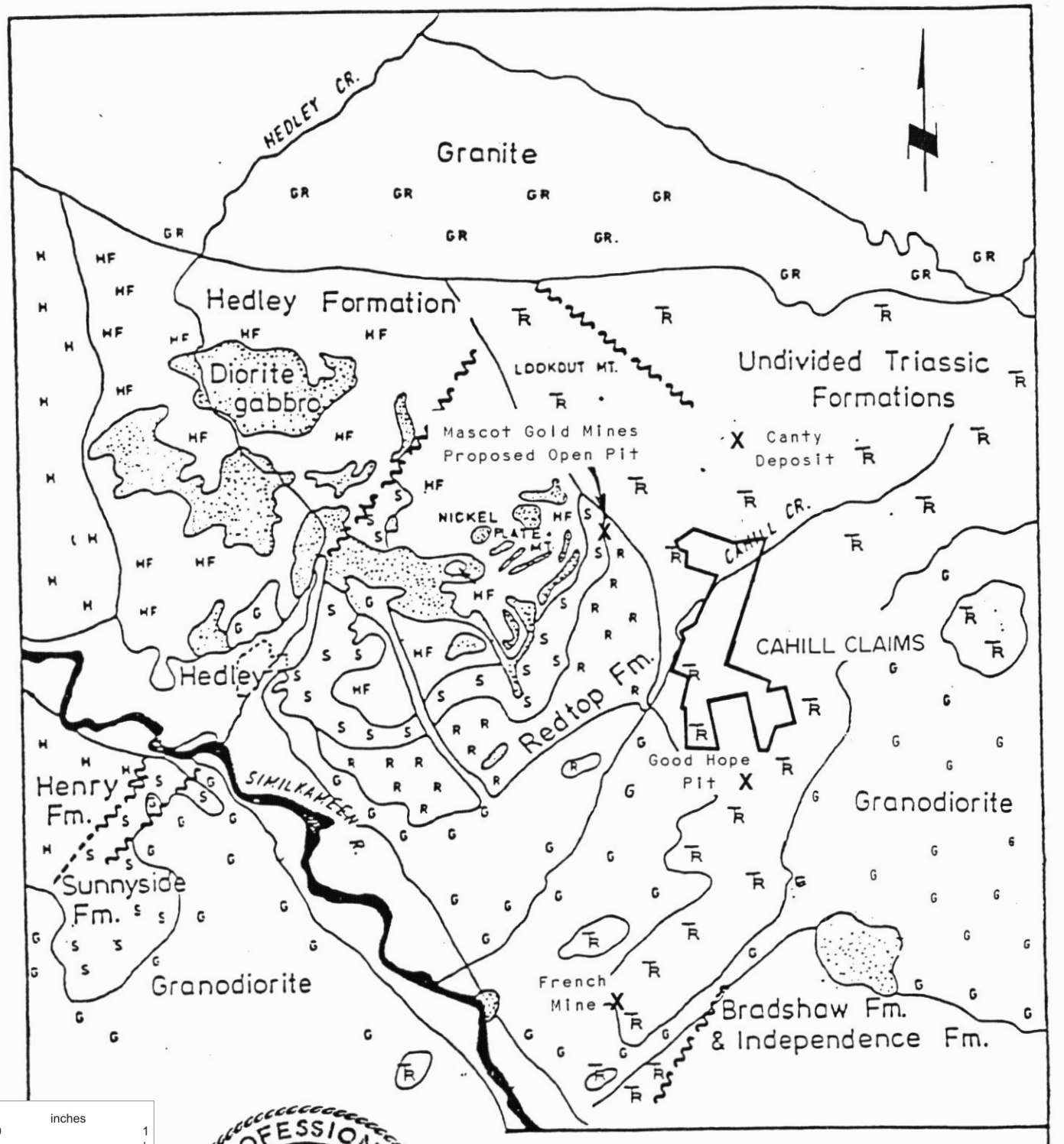
Over the past several years, an aggressive exploration program has been carried out by Mascot Gold Mines on their extensive land holdings in the Hedley camp. This work has resulted in the discovery of a major new gold deposit located approximately one mile northwesterly from the Cahill claims. As recently reported (Northern Miner, Feb. 17, 1986), an open pit reserve of 4.1 million tons has been delineated with an average grade of 0.15 ounces gold per ton. Financing negotiations are currently underway to bring this deposit into production in 1987 at a milling rate of 1800 tons per day with an annual output of approximately 100,000 ounces of gold.

## REGIONAL GEOLOGY AND MINERALIZATION:

The geology and ore deposits of the Hedley area are extensively described in numerous publications, the most noteworthy of which are listed within the references in the appendix. Published geology maps covering the property are limited to GSC Maps 568A (Hedley sheet) and 628A (Olalla sheet) at a scale of 1 inch = 4 miles.

The Hedley area is underlain by a thick series of highly folded and faulted sedimentary and volcanic rocks. The oldest rocks, situated east of the Cahill property, are of Permian or younger age and consist of a sequence of cherts, argillites, quartzites, greenstones, limestones, and breccias known as the Bradshaw, Independence, Shoemaker, and Old Tom formations.

To the west, in the main Hedley area, these older rocks are overlain by presumably Triassic or younger rocks of the Redtop, Sunnyside, Hedley, Henry, and Wolfe Creek formations. These




inches
0 1
0 1 2
centimetres

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

BRITISH COLUMBIA GEOLOGICAL SURVEY

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
R. D. WESTERVELT

Data modified from D.D. Campbell, 1960

WESTERVELT ENGINEERING LTD.

CONSOLIDATED SEA GOLD CORP

CAHILL CLAIM GROUP

HEDLEY, B.C.

# REGIONAL GEOLOGY

Scale: 1" = 1mile

| March 1986 | Fig. No. 3 |
|---|---|

formations are dominatly argillaceous and tuffaceous and, with the exception of the Wolfe Creek formation all contain some variable calcareous beds.

Both the Permian and Triassic sequences have been highly folded and faulted. While the Bradshaw and Independence formations dip mainly east, the younger Triassic rocks dip mainly west. The northeast trending line separating the two ages of rocks extends along Winters Creek and seemingly follows the axis of a large broken anticline, the eastern side having been lifted up relative to the west.

Acidic to basic dykes, sills, and small stocks of Jurassic and/or younger age have intruded the sedimentary and volcanic rocks underlying the area. Major bodies of granodiorite and granite are exposed both north and south of Hedley.

Significant gold mineralization known to date in the area occurs mainly in the calcareous and limestone units and is controlled by numerous small faults and northwest - plunging fold axis. The ore zones frequently follow the crests or troughs of the folds, are occasionally localized in the quadrants of cross-cutting dykes, and are most often found proximal to one or more igneous contacts.

The main gold production has come from heavy arsenopyrite zones but the mineralization is variable -- at the French Mine, sulphide content was extremely low and arsenopyrite was completely absent. The host rocks are variably silicified and skarnified with garnet, pyroxene, and calc-silicate minerals being widespread and locally prominent. A second, later stage of mineralization consisting of pyrrhotite and chalcopyrite is widespread throughout the area and is frequently concentrated and superimposed on the gold bearing zones.

## PRIOR PROPERTY WORK:

Although no record exists of any prior exploratory work on the Cahill property, several shallow trenches, pits, and diggings are evidence of an earlier prospecting interest.

Subsequent to the staking of the Cahill claims in 1980, preliminary exploratory work has been carried out by Arctex Engineering Services and filed for assessment credit. The initial program in 1981 consisted of reconnaissance mapping and soil geochemical sampling on a grid covering the northern half of the property with widespread lines at 200 meter intervals and with samples taken at 100 meter stations.

The majority of the grid was found to be well timbered and overburden covered with outcrops being limited to a prominent south plunging ridge in the northwestern portion of the property. The sparse outcrops are mainly northerly-trending argillaceous sediments, quartzites, and cherts of the Redtop formation with some medium to fine grained dioritic intrusives. Moderately coarse grained granodiorite outcrops immediately east of the claim group.

Observed mineralization is limited to occasional fine pyrrhotite veinlets with traces of chalcopyrite along tight fractures within the cherty sediments. One sub-angular float boulder of massive pyrrhotite about the size of a football was found in the central grid area grading 0.22% Cu with traces of gold and silver.

A total of 107 soil samples were collected from the reconnaissance grid on the northern half of the property in 1981 and were geochemically analysed by Chemex Labs in Vancouver for gold, arsenic, and copper.

The soil samples are too widely spaced to be definitive but do indicate some general trends:

(a) the gold values moderately increase immediately east of Cahill Creek and appear to follow a northeasterly trend;

(b) anomalous copper values (eg: greater than 150ppm) more or less trend northeasterly and also appear to support the gold trend noted east of Cahill Creek;

(c) anomalous arsenic more often accompanies the higher copper and less frequently is associated with the higher gold values;

(d) anomalous gold, copper and aresnic values are widespread but scattered throughout the property and peripheral areas.

In 1984 and 1985, the reconnaissance grid was extended southward to cover the entire property with lines at 100 meter intervals and magnetic and VLF-EM surveys were completed on the grid.

The most prominent magnetic feature is a steep gradient with considerable relief in the northernmost part of the property.

This feature terminates southward along a northeasterly trending creek gully and probably reflects a major diorite intrusive along the northern property boundary. Southward from the creek gully, the magnetic relief is relatively flat suggesting a contact or fault along this lineament with tuffaceous sediments trending N 35° E lying to the south.

Anomalous features requiring further investigation have been defined as follows:

(a) a broad magnetic low trending northeasterly between 6+00S 2+50W and 3+00s 1+00E may reflect a major alteration zone wherein the magnetic minerals have been destroyed. Silicification with minor green copper staining and finely disseminated pyrite is present in several old trenches at 3+75S 1+10W immediately west of this magnetic low

(b) a similar but less well defined magnetic low trending northeasterly from 21+00S 3+00W to 17+00S 3+50E. A large piece of float with silicification, arsenopyrite and pyrite in skarn was found in the immediate vicinity

(c) a discrete magnetic high with a peak of some 1000 gammas above background extending from 24+00S 3+00E to 25+00S 3+50E

(d) a linear 200 gamma anomaly trending northerly at 5+00E on lines 19+00S through 21+00S

The contoured VLF-EM data indicate a complex of conductors associated with the high magnetic relief and steep gradient area in the northern part of the property. As with the magnetic pattern, there is a definite change in the EM pattern south of the northeast trending creek gully. South of the creek gully, the contours are quite regular for some distance suggesting an average trend of rock units at 035° without marked anomalous features.

In the vicinity of the arsenopyrite-pyrite skarn float, a second major northeasterly trending structure is implied by a disruption of the EM contours extending from 23+00S 5+00W to 17+00S 3+50E.

The contours in the vicinity of the discrete magnetic anomaly at 24+00S 3+00E suggest a northeasterly trending structure cross-cutting the north trending magnetic feature.

## CONCLUSIONS:

The Cahill Claim Group is strategically located in close proximity to known mineralization in the Hedley area. Whether any favourable calcareous horizons or significant mineralized zones are present remains unknown due to the extensive overburden cover.

The initial exploratory work has confirmed a favourable geological environment with some anomalous geophysical features and some scattered anomalous gold, arsenic, and copper values in the soils.

Follow-up exploration is warranted on the property to further define and delineate potential target areas for trenching and drilling.

## RECOMMENDATIONS:

A comprehensive three phase exploration program is recommended to further evaluate the Cahill property.

### Phase I

1. Geological mapping and soil geochemistry should be extended southward from line 12+00S to cover the entire property with soil sampling being filled in on lines at 100 meter intervals.

2. The entire property should be prospected in detail with particular attention being made to any areas of mineralized float or calcareous and skarnified boulders.

3. The known old trenches and pits should be cleaned out, mapped, and sampled.

4. Detailed magnetic and VLF-EM surveys should be completed between lines 18+00S and 26+00S on the east side of the base line.

### Phase II

1. Induced polarization surveys on lines 1+00S to 6+00S inclusive.

2. Additional induced polarization profiling as warranted by the results of the Phase I program.

3. Backhoe-dozer trenching of anomalies.

Phase III

1. Contingent on the results of the Phase I and II programs, an initial diamond drilling program totaling 400 meters to further evaluate specific targets of interest.

Results of each Phase should be compiled in an engineering report with continuance to the subsequent Phase being contingent upon receiving a favourable recommendation from a qualified Engineer.

PROGRAM COST ESTIMATE:

Phase I

| | | |
|---|---|---|
| Geological mapping | $ 3,000 | |
| Soil geochemistry | 2,000 | |
| Magnetic & VLF-EM surveys | 2,000 | |
| Trenching, including sampling & mapping | 7,500 | |
| Supervision, engineering | 3,500 | |
| Assaying & geochem analyses | 3,000 | |
| Vehicle | 1,800 | |
| Supplies, room, board | 2,500 | |
| Report preparation | 2,000 | |
| | $27,300 | |
| Contingencies-approximately 10% | 2,700 | |
| | $30,000 | $30,000 |

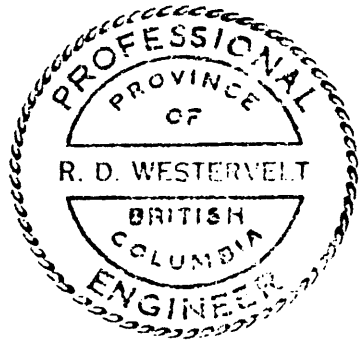
Phase II

| | | |
|---|---|---|
| IP surveys including supervision & report | $30,000 | |
| Backhoe-dozer trenching | 6,000 | |
| Supervision, engineering | 3,000 | |
| Vehicle | 1,500 | |
| Supplies, room, board | 1,000 | |
| Report preparation | 2,000 | |
| | $43,500 | |
| Contingencies-approximately 15% | 6,500 | |
| | $50,000 | $50,000 |

Phase III

| | | |
|---|---|---|
| Diamond drilling | | |
| 400 meters @ $100/m | $40,000 | |
| Drill site preparation & roads | 9,000 | |
| Assays | 2,000 | |
| Supervision, engineering | 7,500 | |
| Vehicle | 2,000 | |
| Supplies, room, board | 3,000 | |
| Report preparation | 2,000 | |
| | $65,500 | |
| Contingencies-approximately 15% | 9,500 | |
| | $75,000 | $ 75,000 |

Total-Phases I, II, III $155,000




Respectfully submitted,
WESTERVELT ENGINEERING LTD.

R. D. Westervelt, P.Eng.

Vancouver, B.C.
March 5, 1986

## KEY REFERENCES


Allen, A.R.
1979: Report on the Hedley Property of Hedley Pacific Mining Corp. Ltd. (N.P.L.) for Hedley Pacific Mining Corp. Ltd.

Allen, A.R.
1979 Report on the Holding of Good Hope Resources Ltd. at Hedley, B.C. for Good Hope Resources Ltd.

Billingsley, P. and Hume, C.B.
1941: Ore Deposits of Nickle Plate Mountain, Hedley,B.C., C.I.M.M. Trans. Vol. XLIV.

Dolmage, V. and Brown, C.E.G.
1945: Contact Metamorphism at Nickle Plate Mountain,Hedley, B.C., C.I.M.M. Trans. Vol. XLVII.

Goldsmith, L.B.
1984: Magnetic and VLF-EM Surveys, Cahill 1 and 2 Mineral Claims, Osoyoos Mining Division, Hedley, B.C.(Assessment Report).

Goldsmith, L,B.
1985: Completion of Magnetic and VLF-EM Surveys, Cahill 1 and 2 Mineral Claims, Osoyoos Mining Division, Hedley, B.C. (Assessment Report).

Logan, J.M. and Goldsmith, L.B.
1981: Geology and Soil Geochemistry of the Cahill Group and Adjoining Areas Osoyoos Mining Division, Hedley, B.C. for Arctex Engineering Services.

Rice, H.M.A.
1946: Geology and Mineral Deposits of the Princeton Map Area, B.C., G.S.C. Memoir 243.

Stacey, N.W. and Goldsmith, L.B.
1980: Report on Geological Investigations of the French Mine Property for Grove Exploration Ltd. (N.P.L.).


MAPS

Department of Mines and Resources, Mines and Geology Branch Canada:

| | | | |
|---|---|---|---|
| Hedley | 568A | 1:63,360 | (1940) |
| Olalla | 628A | 1:63,360 | (1940) |