

2808

## FINAL Report

Report on

Geological Investigation &amp; Trenching Program

at the

CENTRAL ZEBALLOS-SONNY CLAIMS GROUPS,

ZEBALLOS AREA, B.C.

for

Silver Standard Mines Ltd.,

Vancouver, B.C.

July, 1964.

$$\begin{array}{r} 2434 \\ \underline{70} \\ 2364 \\ \underline{77} \\ 2287 \end{array}$$

$$\begin{array}{r} 2808 \\ \underline{2280} \\ 528 \end{array}$$

1 1/2 sp.  
1 + 4

— Letterhead —

(a)

July 18, 1964

Silver Standard Mines Ltd.  
808-602 W. Hastings St.  
Vancouver, B.C.

Attention: Messrs. H.B. Giddeland,  
A.C. Pettske, P. Eng.

Dear Sirs:

This report will summarize the initial phase of exploration on your Central Teballos - Sonny Claim groups near Teballos, B.C., which was completed on July 4, 1964.

Details of the stripping and trenching operations, additional geological mapping, and sampling conducted are described and discussed in the text and accompanying maps.

The very helpful assistance and kind cooperation of the Silver Standard staff and crew are hereby thankfully acknowledged.

Respectfully Submitted

W.M. SHARP, P. ENG.

1 + 4

SEAL

INDEX.

Maps In Pocket:



SUMMARY & RECOMMENDATIONS

Mineralization throughout the mapped extent of the East zone follows a rather simple and uniform structural pattern and wall rock association. Eastward extensions towards the Nomash River may be similar and should be prospected by similar mapping and stripping. The base for this work might be located near the river. Within the mapped extent of the East zone there are probably other unexposed short lenses of possible ore-grade mineralization. Within the upper East zone area possible occurrences within wider sections of the skarn-silicate sections south of the lime-skarn contact should be further investigated - possibly by employing University of Alaska geochemical techniques.

The West zone - particularly the strong crumple structures at the East fork slide and secondarily, the interfingering lime-skarn zones westward to Brunton sta. 12 should be investigated at depth by a series of diamond drill holes to provide <sup>an</sup> adequate vertical range of 400' - 500' below the higher mineralized exposures. A heliport + base camp for this work would be best located at the

fluvial zone  
may be  
in the  
main

currently-selected site on the east part of the saddle. ✓ The prospectors report that good quantities of water were available here until late August of last year.

Drill exploration of the West zone could be done from (a pair of) set-ups below the main exposures. These would be situated within an estimated distance of 150'-250' below the outcrop zone, giving an opportunity for testing over a considerable strike length and vertical range. (INSERT\*)

For purpose of depth evaluations of the upper East zone diamond drilling should be done from set-ups on the south flat and/or slope of the saddle. Drilling here normal to the strike, at collar elevations of from 20'-100' below the outcrops, would adequately cross section the zone at the -200 foot and -300 foot horizons ~~below the outcrop~~ with 200 foot and 400 foot drill holes. Drilling of this section should logically precede that of the West zone as ~~some~~ definite extensions are more expectable.

(INSERT\*) There is a fair possibility that ore occurrences within this contorted structural zone would be relatively 'fatter' but more localized than those typifying the East Zone; hence the recommendation for drill exploration rather than additional surface work.

The original intention to prospect the north contact of the 'south' lime band and to generally prospect the wider north lime band was not carried out due to time limitations and, <sup>required</sup> concentration of effort within the current exploration zone. However, for an overall evaluation of the property the original plan should be followed, as well as that of extending exploration eastward and westward from the presently-defined limits of the current zone.

Calculations of sampling results indicate that three closely situated 'shoots' within the upper East Zone give a combined figure of 760' x 6.0' @ 2.24% Copper

The lower East Zone computes at:  
225' x 7.1 @ 2.44% Copper.

Tot. E. Zone to date = 985' x 6.2' @ 2.3% Cu.

The West zone mineralization has not, by reason of its irregular mode of occurrence within mixed-contorted rock structures, been adequately tested to arrive at an estimate of its potential, but is specifically recommended as a major exploration target.



GENERAL REMARKS

Progress on stripping and trenching during the final period of this initial program was highly satisfactory. The "Cobra" drill operated without any appreciable down-time. Excavation of some of the later trenches, where overburden was fairly deep, required more than the usual amount of handwork due to a shortage of "Ames" explosive and the lower efficiency of 70% Forcite on this particular duty.

The three-man field crew continued to operate from the camp at the south heliport. At the completion of this program the drills, drill-steel, sharpener, and chain-saw were packed out. The more valuable items of equipment and camp supplies, including the cook-tent, were put aside for eventual helicopter pick-up. The less valuable hand-tools, gas and oil, provisions, extra powder, and two old crew tents were left on the site for possible future use. The writer has a fairly complete list of the latter material.

Mapping accomplished during the final week has allowed some expansion and clarification of the geological plans - particularly within the Saddle-west zone areas.

PROGRESS DETAILS

June 13-29 Field crew complete excavation of fill-in trenches + stripping on East zone below saddle.

June 30 Field crew on West zone trench excavation. W. Sharp flies to Zeballos and walks to field camp.

July 1 Sharp and Tiekner sample trenching and stripping on lower East zone and fill-in cuts from #7 westward to #1-A, including checks on H. Gilleland-K. Fahrni's sampling.

M. Zueps and E. Eadie continue west zone trenching.

July 2 Zueps and Eadie complete west zone trenching.

Sharp and Tiekner complete sampling and additional geological mapping of west zone.

July 3 Zueps and Eadie complete 'saddle' trenching; Sharp and Tiekner complete sampling and geological mapping in general vicinity of saddle and make brief reconnaissance of north contact of the south 'lime band'.

July 4 Operations completed; W. Sharp completes geological + sampling notes and returns to Vancouver.

July 5-6 M. Zueps, J. Tiekner, and E. Eadie return to Vancouver with truck and certain equipment.



GEOLOGICAL DETAILS

(a) Lower East Zone

The general limits of this are the strike interval of the altered-mineralized zone between Brunton stations 9G and 9R - the latter being the present easterly limit of geological mapping. The section of particular interest at present occurs through 9L to 9N in which the indicated extent of possible ore-grade mineralization, as exposed at the surface, is approximately 7 ft by 225 feet. Structurally the zone is characterized by a more easterly trend and a slight northerly warp in dip. Bunchy to disseminated chalcopyrite and lesser bornite occur within finely cross-fractured garnetite with irregular cherty to limy banding. Mineralization is typically better close to the lime-skarn contact and decreases rather rapidly southward into the dense interbanded chert-lime silicate wall rocks. Mineralization within the latter rock types is comprised of sparse fine-grained pyrite and magnetite with minor copper minerals - particularly favouring certain thin dark tuffaceous bands throughout the cross-section. There is a suggestion that the rather weak extension of the zone - or a split of it - swings southeasterly in general conformity to ~~the~~ local

structural trends. However, more exploratory (3)  
work in this heavily-overburdened area  
would be required to establish this.

Through 9L westward the zone swings  
northwesterly across the creek - conforming to  
a local jog in the lime band and then  
follows the general WNW trend, with only  
weak local undulations, to the upper  
East zone station 9C. Mineralization within  
this 9K-9C interval appears generally  
weak and largely concentrated within a  
narrow dark tuffaceous(?) band closely  
paralleling the lime contact. Also, throughout  
the greater part of this section the quartz diorite  
(sheet) converges and closely parallels the  
lime contact and markedly reduces the  
width of the general favourable skarn zone.  
It is possible that one or more short lenses  
of worthwhile mineralization may occur  
under the locally-heavy cover of overburden  
and trash - particularly where the intrusive  
may locally diverge from the limestone  
contact. (Geochem here)

### (b) Upper East Zone

In general extent this zone occurs  
between Brunton stations 9D and 24(b) - the  
latter at the west end of the structure within  
the 'saddle' area. The principal section of



(6)  
interest is within the interval sta. 9+00 to  
sta. 24 k or as generally delimited by the  
series of trenches within the No. 9-22 trench  
interval.

Throughout most of the upper east zone the  
limestone contact is noticeably undulating  
and characterized by a northerly- to southerly  
dip warp, the reversal being close to sta.  
6+00 - which is also the focus of considerable  
strike flexuring and crumpling within the  
adjacent lime band (and skarn zone?). It  
should be noted that this warp may be  
apparent only by reason of mapping over a  
considerable vertical range, and may not  
actually express a warp as much as a general  
reversal of dip situated about a rather flatly  
plunging (E-W) axis. It also appears  
that mineralization is structurally controlled  
by this apparent dip roll (or warp) associated with  
pronounced strike-flexuring. Also, within  
this zone, the more distant quartz-diorite  
contact provides room for a wider zone  
of skarn-lime silicate development.  
Coincident with this there are also significant  
indications of other copper replacement zones  
within the mixed lime silicates and altered  
tuffs considerably to the south of the  
optimum contact zone.



(7)  
mineralization is typically disseminated -  
to-punchy chalcopyrite - bornite within fractured  
garnetite skarns and lime silicates. As on  
the other zones the dark (tuffaceous) band  
at the lime contact is preferentially  
mineralized - usually by chalcopyrite. Bornite  
appears more conspicuous within the upper  
trenches and exposures along this section.

To the west of No. 1 cut a strong  
northerly-trending, steeply-dipping fault  
displaces the mineralized zone roughly 30-40  
feet. West of this fault and across the  
saddle into the West zone the limestones  
and associated skarns pass through an  
area of strong shearing and folding with the  
result that ~~the identity of~~ specific lime  
and skarn bands are not directly  
identifiable with those of the East zone.

### (c) West zone

Recent additions to the geological  
mapping add considerable detail concerning  
the distinctive patterns of structure and  
mineralization along this zone from the  
saddle to the west fork of Bill creek.  
A major buckle or 'bulge', with associated  
shearing and fracturing, occurs within the  
upper East fork area. Associated with this is  
a splitting up of lime bands and the develop-  
ment of chamber, more localized patches of

(8)

skarn-silicate alteration and mineralization. To the west of the main crumple separate skarn zones are separated by bands or 'fingers' of highly-crystalline limestone and, further westward, prongs from the main quartz-diorite body. Flexuring persists, in a gentler pattern through to the west fork.

It should be noted at this point that the combined obstacles of overburden, rough topography, and time prevented more detailed examinations and trenching-and-sampling of ~~the~~ saddle-E. fork slide area of the zone.

The type and pattern of mineralization is distinctive. Bornite and/or chalcopyrite occurs as patchy disseminations or 'gobs' within fractured garnetites, lime silicates and, frequently, relatively unsilicated crystalline limestone. The latter occurrences were often completely removed during

trenching - indicating a local patchy or pod-like occurrence. <sup>pyrrhotite forms a</sup> distinctive constituent and has probably been mistaken for bornite on occasions.

In summary, it is doubtful that this zone could be adequately exposed by surface stripping and mapping and, that as certain lower horizons may show varying degrees of mineralization, exploration should be done by diamond drill.

TRENCHING AND SAMPLING

Thirty four trenches, through various thicknesses of overburden and into fresh rock were excavated. Overburden was removed by blasting with 'ames' and cleaned up by hand. The Atlas 'Cobra' gasoline percussion drill, <sup>and 3/4" chisel steel</sup> were employed on rock work. Forcite 70% was used for breaking rock and clean-ups were by pick and shovel. Two to three men formed the crew - the number depending on the assistance required on the various drilling locations. Four 4-foot holes, at 3'-4' spacing on these side hill rock cuts, in 1 1/2 hours was a fair drilling average.

An estimated total of 279 cu of rock (note 59 c. y. from No. 1 trench) were excavated. Probably an equivalent amount of overburden was removed. The appended drawing "Stripping and Trenching" details the rock excavation. The writer does not have records of the amount of explosives used.

Sampling was by the 'random-chip' or 'chip-channel' method, by prospect pick or hammer-and-moil, depending on the physical character of individual exposures.



MINERAL ESTIMATES

(a) Detailed sampling results are shown on the appended drawing "Final Surface Sampling plan":

(a) Upper East Zone

Block E-1 : 310' x 5.6' @ 2.39% Copper

Block E-2 : 285' x 5.7' @ 2.45% Copper

Block E-3 : 165' x 6.9' @ 1.71% Copper

Tot. Excluding "pillars" 760' x 6.1' @ 2.19% Copper

or, with dilution 760' x 6.5' @ 2% Copper

(b) Lower East Zone

225' x 7.1' @ 2.44% Copper

(Note lowest ore section is highest grade, also somewhat wider.)

(c) West Zone

No possible ore sections were delimited, however the assay results in this highly leached & oxidized mineralization were much lower than expected. This oxidation-leaching is thought to be due to the relatively high pyrrhotite content of this zone and that fresh material would assay considerably better.

W. M. Sharp, P. ENG  
Consulting Geologist

July 18, 1964.

Accompanying maps:

1. Geological Plan Central Tobillos -  
Soviny Groups, 1" = 50'
2. Sample Plan, East & West zones; 1" = 50'
3. Plan Stripping & Trenching - 1964; 1" = 50'

\*6 - add.

24.57  
Ked