

RECORDS OF THE GEOLOGICAL SURVEY OF WESTERN AUSTRALIA

No. 1962/4

TITLE: REPORT ON A GOLD PROSPECT ON
P.A. 7077, LAKE CRONIN AREA,
YILGARN GOLDFIELD, W.A.

AUTHOR: John Sofoulis, B. Sc.

DATE: 12th May, 1962.



NO PART OF THIS REPORT MAY BE PUBLISHED OR ISSUED IN ANY FORM
WITHOUT THE PERMISSION OF THE GOVERNMENT GEOLOGIST

REPORT ON A GOLD PROSPECT ON P.A. 7077,
LAKE CRONIN AREA, YILGARN GOLDFIELD, W.A.

by

John Sofoulis, B.Sc., Geologist.

Record No. 1962/4.

<u>CONTENTS</u>	Page
INTRODUCTION	1
LOCATION AND ACCESS	1
HISTORY	1
GEOLOGY	
General	2
Development	2
Ore Body	3
Structure	3
Production	4
OTHER PROSPECTS	4
CONCLUSIONS AND RECOMMENDATIONS	5
REFERENCE	6
PLATE	

INTRODUCTION

Some rich parcels of gold ore recently treated at the Marvel Loch State Battery were extracted from a newly discovered 'find' held as P.A. 7077 in the Lake Cronin Area.

The 'find' was subsequently visited and reported upon by the District Inspector of Mines. (Mines Dept. File). Recent publicity given to the find has largely been responsible for a number of adjoining and additional P.A.'s. taken out 'on speck' in the same locality.

The present report is a result of a geological inspection made on 8th and 9th of May 1962, and is accompanied by a geological sketch map at a scale of 20 feet to one inch.

LOCATION AND ACCESS.

P.A. 7077 lies $\frac{1}{2}$ mile east of the Southern Cross - Hatter's Hill road, approximately 66 miles by vehicle, south of the Marvel Loch State Battery. The turn-off to this prospect lies 3.6 miles north of the junction of this road with the Norseman-Hyden road (see locality map). A dry lake pan 1 mile north of the prospect has recently been utilised as a landing strip for light aircraft.

HISTORY.

The present find was registered as P.A. 7077 by Messrs. Mephram and McLean on 29th September, 1961. Other P.A.'s now registered in the area are shown on the accompanying sketch map.

Shallow holes, small dumps, and old costeans are scattered about the area covered by the P.A.'s and also exist near the northern boundary of P.A. 7077.

Deeper workings exist on P.A. 7076 and on P.A. 7086 (ex. 7015) but no past records are available.

The locality lies approximately 14 miles north of the old mining centre of Forrestonia, and it is likely that

earlier productions were included with the statistics for that centre.

GEOLOGY.

General.

The area covered by the P.A.'s is generally hilly with small salt lake pans and leached grey-white sands occupying the valley sectors.

P.A. 7077 lies on the western edge of a small lake valley with rising ground towards the western boundary of the prospect. Weathered ultrabasic and metasedimentary schists occur at the 'find' site and probably occupy the valley sector.

Altered basaltic and doleritic lavas locally crop out in the hilly areas and along the valley flanks. In general, these upland areas are deeply weathered and extensively covered by superficial red and grey loamy or calcareous soils.

Ellis (1939) mapped the area as 'whitestones' with nearby hills of 'greenstones'. The regional strike of the country is north-north-west.

Development.

The ore body located on P.A. 7077 has been worked by open-cut methods over a length of 40 feet and across a width of 6 to 18 feet. The open cut is roughly stepped from the surface at the southern end to a maximum depth of 18 feet at the northern end.

A bulldozer has been used to remove the shallow overburden north of the open cut. Minor holes, pits, and costeans are as shown in the sketch map. Gold mineralisation is reputed to continue along this northern extension for a further 100 feet, but this has not been fully tested.

The area to the south of the open cut is soil covered, but some gold mineralisation is reputed to have been

obtained in a sample hole 15 feet from the southern face of the open cut.

Ore Body.

Examination of the open cut shows the ore to be in lode form and to consist of quartz veins (locally up to 12 inches thick) and numerous thin quartz stringers intermixed with decomposed schists. The ratio by volume of schists to quartz would be in the vicinity of 90 to 10.

The quartz is fine-grained and cherty, and ranges in colour from white and grey to heavily ferruginised brown, siliceous and black ironstone veins.

Richer patches showing free gold are generally associated with the ferruginous veins and are interpreted as a form of surface enrichment. The interbedded schistose material is brown-black-red and kaolinitic, with iron stainings and locally with thin iron coatings. All material so far extracted from the open cut has been included with the ore submitted for treatment.

Both the hanging-wall and footwall of the ore-bearing zone have well-defined, steep, westerly-dipping walls of oxidised schists. Some of the schists show strong banding and are obviously of metasedimentary origin. Quartz veinlets are rare outside the ore zone.

The width of the ore zone ranges from 6 to 10 feet but the central section of the open cut has been worked over a maximum width of 18 feet.

Structure.

The ore zone dips steeply west at 70° to 80° and strikes $N.5^{\circ} W.$ in conformity with the regional trend of the country. Some dip reversals were noted within the P.A. north of the open cut.

Thin quartz veins and stringers arranged in a tight

anticlinorial flexure appear on the northern face of the open cut and apparently follow the bedding planes of the associated metasediments. Minor folds plunge at 45° to 50° to the north.

A six inch wide quartz vein on the west wall contained pyritic mineralisation on the hanging-wall zone and free gold on the footwall zone. Dragfolding on this vein also plunged north but at a flatter angle (30°).

The southern end of the open cut shows thicker quartz veins (up to 12 inches thick) which rapidly flatten in plunge and reverse in plunge near the south face.

The mineralisation thus appears to be controlled by anticlinorial flexuring along regional lines, further localised by anticlinal cross-flexuring.

Absence of free gold at the northern and southern lode extensions also suggests that the rich portion of the lode formation is restricted to the 'domal crest'.

Production.

During September, 1961 a trial parcel of $9\frac{1}{2}$ tons of ore treated at the Marvel Loch Battery yielded $9\frac{1}{2}$ fine ounces of gold. A second parcel of 49 tons of selected ore yielded 49 dwts. of gold per ton.

Approximately 100 tons of ore at present being treated at the Marvel Loch Battery is expected to yield about 15 dwts. of gold per ton.

OTHER PROSPECTS.

Quartz veins reputed to carry gold exist on P.A.7086 (Bartlett and Honnissett). During 1961 an 8 ton parcel of selected ore from this P.A. yielded 16.07 fine ounces of gold.

This area is deeply soil covered but at the time of inspection was in the process of being tested by a trenching machine capable of excavating to a depth of 12 feet. Several quartz reefs up to 4 feet in width have so far been located.

These are reputed to be gold-bearing but await further testing.

As far as can be ascertained from the old workings on P.A. 7086 and on P.A. 7076 (Minigutti) the ore bodies previously worked in this area were quartz reefs, veins, or lodes of limited dimension.

P.A's. 7079 and 7096 adjoining the 'find' on P.A. 7077 are held by Graham and Hards respectively. These areas have been tested for extensions of the P.A. 7077 lode but results proved unsuccessful.

CONCLUSIONS AND RECOMMENDATIONS.

Small ore bodies have previously been worked in the Lake Cronin area.

The new 'find' on P.A. 7077 appears to have reasonable possibilities, but as yet, insufficient work has been completed to give a true indication of the size and potentialities of the prospect.

On present indications, the ore body is a lode formation localised in a 'domal crest' by folding in the manner suggested. Further domal structures could exist along the strike extension of the same lode formation.

It is recommended that the northern and southern extensions of the lode formation be costeamed and sampled to establish the economic length and width of ore available.

Repetition of ore shoots in 'domal crests' of lower horizons at the open-cut site is also a possibility and this warrants testing. Should the economic limits of the ore be restricted to the 'domal crests' only, the present method of open cut exploitation would have to be abandoned in favour of shaft sinking.

6.

REFERENCE .

Ellis, H.A., 1939, The Geology of the Yilgarn Goldfield,
South of the Great Eastern Railway: West.Aust.Geol.
Survey Bull.97.

John Sofoulis.
GEOLOGIST.

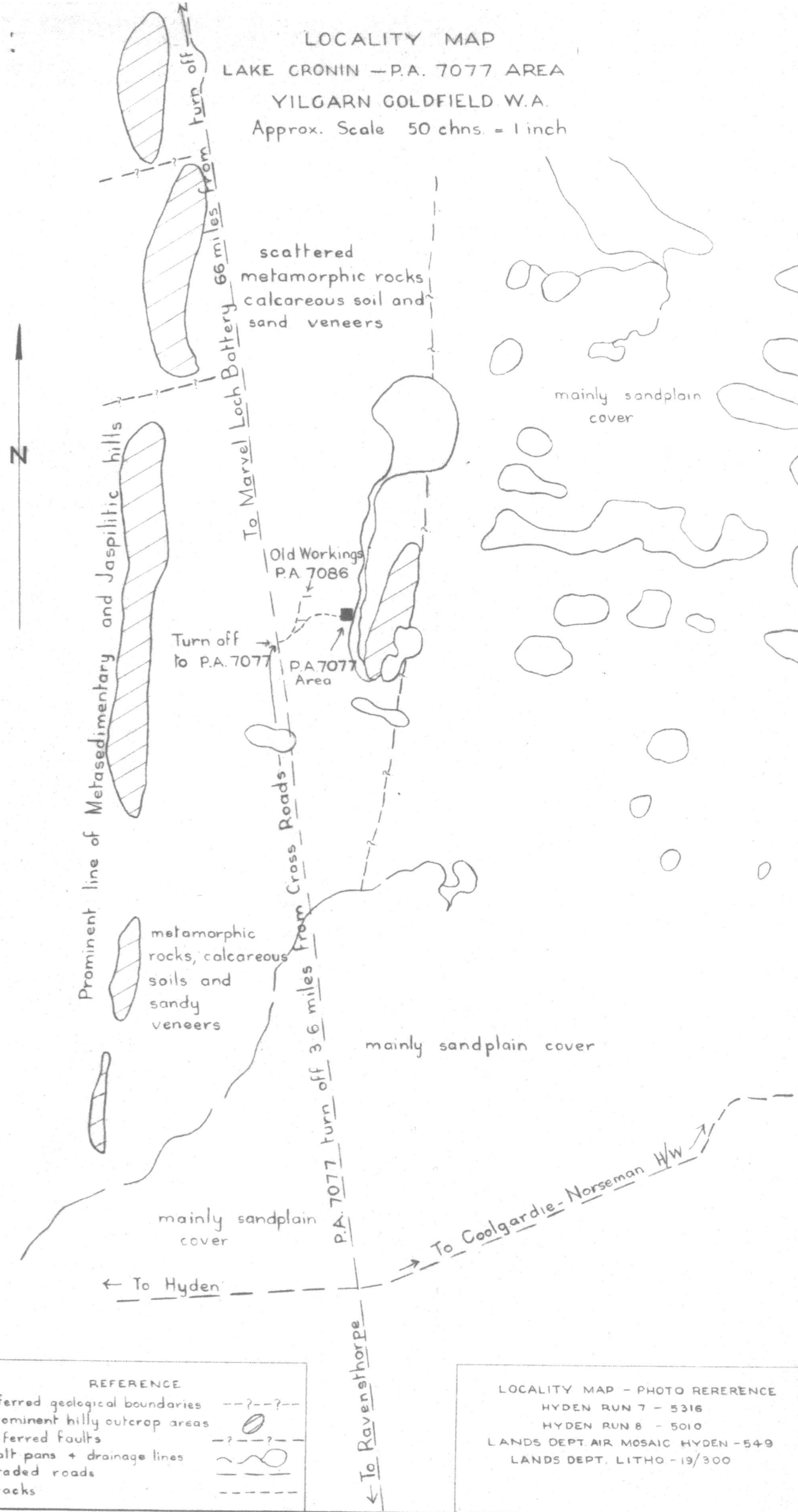
12th May, 1962.

LOCALITY MAP

LAKE CRONIN - P.A. 7077 AREA

YILGARN GOLDFIELD W.A.

Approx. Scale 50 chns = 1 inch



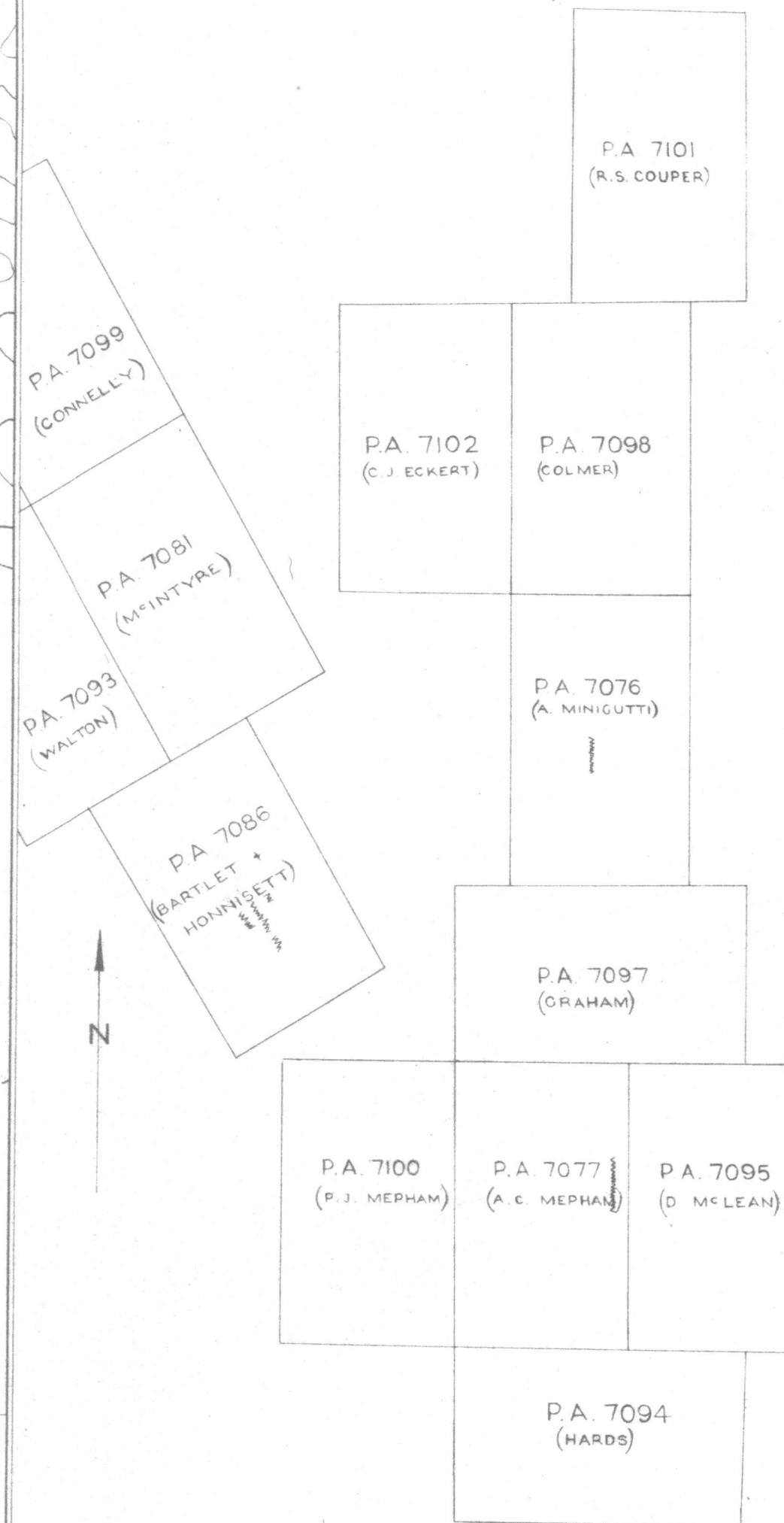
EXISTING P.A.'S

LAKE CRONIN AREA

YILGARN GOLDFIELD

Approx. Scale 10 chns = 1 inch

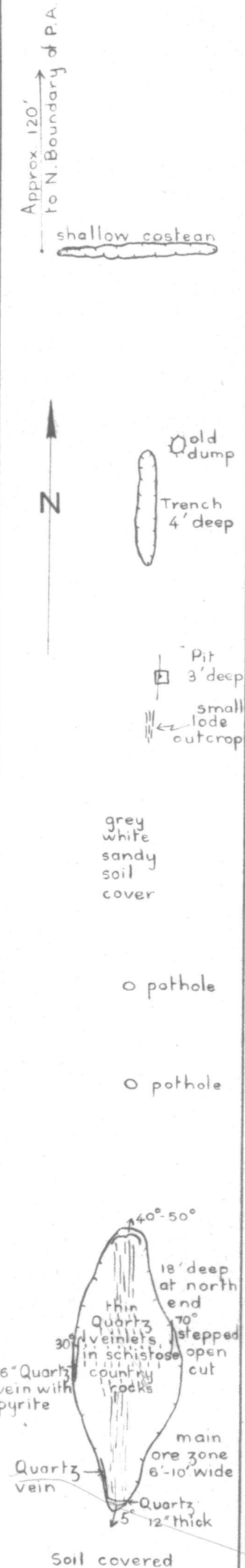
REFERENCE
P.A. --- Prospecting Area
--- Areas of present workings



Extent of Workings

P.A. 7077

Approx. Scale 20' = 1 inch



REFERENCE

Inferred geological boundaries ---?---?
Prominent hilly outcrop areas ---?---?
Inferred faults ---?---?
Salt pans + drainage lines ---?---?
Graded roads ---?---?
Tracks ---?---?

LOCALITY MAP - PHOTO REFERENCE

HYDEN RUN 7 - 5316
HYDEN RUN 8 - 5010
LANDS DEPT. AIR MOSAIC HYDEN - 549
LANDS DEPT. LITHO - 19/300