JAMESONITE PROSPECT
DUNDAS + NORTH DUNDAS
TASMANIA.

Jamesonite Prospects, Dundas + NW Dundas (The Line Copper Hill)
by
B.P. Thomson 9/11/51
(1 MAPS ATTACHED)

51-110

9

000

523002 Q-50 File M.263.

C/- THE ZINC CORPORATION LIMITED
BROKEN HILL, N.S.W., AUSTRALIA

9 November, 1951. Memo. No. 210.

51-110

MICROFILMED

Memorandum to : M. Mawby.

JAMESONITE PROSPECTS, DUNDAS & NORTH DUNDAS, TAS.

SUMMARY

As part of a rapid appraisal of the jamesonite complex ore possibilities of the West Coast, Mr. W.H. Williams, Director of Mines Tasmania, arranged that K.J. Murray and I should inspect the three leases held by W.E. Higgins of Zeehan, over jamesonite prospects in the North Dundas area.

The three prospects were mapped and sampled between 7th and 9th September. All three prospects have the short narrow ore shoots typical of the other mines in the Dundas field. The shoots are of high grade lead antimony ore which can be easily mined, but are so small that only a small syndicate could operate them at a profit. Only one of the leases could be made accessible to motor transport without large capital outlay.

CONCLUSION

It appears, from the brief visit to North Dundas district and a rapid perusal of publications, that in the area covered by the attached map, there are no single known bodies of complex ore large enough to support a large scale mining operation. The number and wide distribution of small showings is impressive but absence of roads and the rugged topography would introduce many engineering difficulties in the way of a group system of mining with a central concentrating plant. In any case the area is at present covered by a Special Prospecting Licence held by V.M. Cottle, of Electrolytic Zinc Company (excluding Higgins' leases), therefore it is recommended that no further investigation be done in the area until Electrolytic Zinc Company's policy is better known.

AMG REFERENCE POINTS ADDED

(5)

0' 001

GEOLOGY & MINERALIZATION IN THE DUNDAS MINERAL DISTRICT

Publications. The Tasmanian Geological Survey Bulletin No. 36, 1925, on "The Dundas Mineral Field" by A. McIntosh Reid, appears to be the only publication available which gives details of the district mines. Since 1946, field investigations by North Broken Hill Limited and Broken Hill South Limited have included part of the Dundas area in their Zeehan exploration programme. It is believed that Mr. B. Elliston, who was attached to these companies as a field geologist and is now with the Tasmanian Geological Survey, has written a thesis (as yet unpublished) for the University of Tasmania, on the geology of the Dundas field. This work considerably modifies Reid's mapping.

C. Loftus Hills and W.S. Carey broadly outline current ideas on mineralization and stratigraphy in this part of the West Coast in "Geology and Mineral Industry" from Handbook of Tasmania (A. & N.Z. A.A.S., 1949 Meeting).

General Geology

The "Dundas Series" of slate quartzite schist, conglomerate, tuffs and breccias, as shown in the attached map modified from A.M. Reid, are considerably crushed, tightly folded and faulted. The Dundas Group sediments are probably lower middle Cambrian in age and their relation to other sedimentary groups is not clear. According to K.J. Finucane[x] they conformably overlie the Read-Rosebery volcanics which W.S. Carey puts near the top of the Pieman Group (Upper Proterozoic to Cambrian).

Mr. B. Elliston (verbal communication) considers that a large part of the area shown as Dundas Series on Reid's map is probably occupied by PreCambrian rocks and in fact that the Proterozoic Davey Group may extend as a complex anticline almost as far north as Higgins' prospects, where the rocks are dynamically metamorphosed to a marked degree. - Possibly the more highly metamorphosed rocks favour the deposition of the complex ores.

Serpentine and gabbro dykes are common in the district and are associated with nickel and chromite, as well as small amounts of osmiridium and gold. Hills and Carey consider them to be of Late Cambrian age but Reid thought they were co-magmatic with the quartz felspar porphyry intrusives of Middle Devonian age

[x] Chemical Engineering Mining Review, Oct. 5th and Nov. 5th, 1932.

which with granodiorites and porphyrites were responsible for the copper-zinc-lead-silver-antimony-bismuth mineralization of the West Coast. Hills and Carey postulate a Carboniferous age for the Heemskirk and other granites which are associated with the Tasmanian tin and wolfram deposits.

The Lodes. In part of the Dundas and North Dundas district covered by the attached map, the sulphide mineralization, apart from local replacement in dolomitised serpentine, is confined to fissure fillings in narrow lode channels. At Renison Bell and Rosebery, ore forms by contrast large replacement bodies.

A.M. Reid[x] described ore shoots in the Dundas district as follows:-

> "The veins and lodes are not uniformly metalliferous, comparatively short shoots of ore alternating with longer barren sections. As a rule the shoots pitch northerly at angles of 40 to 60 degrees and dip easterly at angles of equal magnitude. Rich shoots are found at the intersection of transverse fault fissures and lode fissures. The dip of the fault giving the pitch to the shoots. In some of the large ore bodies the richest shoots lie across the lode.....".

Jamesonite is a common sulphide in the ore bodies of the central and south Dundas area, but generally galena is the most important economic mineral in these groups of mines. In the North Dundas area small jamesonite ore bodies occur (Higgins' and other prospects) but production has been small, as has been that from the complex bismuthinite-tetrahedrite-chalcopyrite-galena lodes in the same area.

Finucane (1932) reports only 0.25% to 0.40% of tetrahedrite and bournonite and no jamesonite in the Rosebery ore. He reports small galena-jamesonite-fluorite veins with tourmaline carbonates and variable sulphide on the Mt. Black, Chamberlan, Salisbury and Rosebery Lodes mines. They are mainly simple fissure veins and are of no economic value.

THE MINES

The following notes are from A.M. Reid's Bulletin and deal mainly with those mines containing jamesonite or similar complex sulphides in the ore. No production figures are available.

x Bulletin No. 36, p.18.

The Central Dundas Group

The Comet and Maestries Mines. Shoots of galena 5 to 6 feet in width, 40 to 100 feet long, worked to 335 feet level. Ore body may be replacement of dolomitised serpentine. No jamesonite mentioned, but is probably present.

Platt Prospect. Replacement type as in Comet-Maestries - short shoots of galena and jamesonite 4 feet wide on hanging wall of an iron manganese body 80 feet wide and 200 feet long.

Adelaide Mine. Replacement of dolomitised serpentine. Primary ore, galena, sphalerite, pyrite, jamesonite in manganosiderite gangue. Lodes 20 to 40 feet wide, length 400 feet. Size of shoots not mentioned.

The Great South Comet. Lode traced for 30 chains on the surface. Primary sulphides are galena, sphalerite and jamesonite with variable pyrite and chalcopyrite in siderite gangue. The sulphides are intergrown or in bands. The vein pinches and swells and the ore shoots vary in composition but sphalerite tends to predominate - one sphalerite-rich shoot is said to be 200 feet long but width is probably only about 3 feet.

Kosminsky Prospect. Lode, similar to Great South Comet, traced for 20 chains. Rich shoots short and erratic. Width 18 inches.

Banner Cross Mine. Veins of "considerable" length - galena sphalerite and jamesonite intergrowth and in bands in siderite gangue. Width varies from 1 to 3 feet.

The North Dundas Group

Assays up to 3,000 ounces of silver per ton are recorded from samples of argentiferous tetrahedrite in this group.

Hecla. Chalcopyrite, bismuthinite, pyrrhotite, pyrite in siderite gangue, in sharply defined vein - small shoots up to 4 feet wide.

Fraser Creek Mine. Pyrrhotite-cassiterite lodes with abundant arsenopyrite, variable chalcopyrite and marcasite - largest ore shoot 134 feet, average width 18 inches.

Curtin-Davis. Nine feet adits extend from 180 feet to 1430 feet level below summit of Range. Chalcopyrite and tetrahedrite are principal ore minerals in siderite gangue with variable galena, bismuthinite and pyrite. The veins occur in strongly folded, slate quartzite, conglomerate and tuff. Lodes became poorer and narrower in depth. Lode exposed up to 456 feet length; maximum width 2 feet, ore shoots erratic.

HIGGINS' PROSPECTS

Mr. W. E. Higgins of Zeehan has three leases in the North Dundas area covering three lead antimony prospects. They are 134M/47 (10 acres); 49M/48 (20 acres); 48M/48 (80 acres). At present 134M/47 (possibly described by A.M. Reid as Wallace's prospect) is the only lease being worked by Higgins. The reason being that it is the only lease showing high grade ore, also the Carbine track is the only route accessible by horse drawn sledge. Distance from Dundas is 2½ miles. Zeehan to Dundas is 6½ miles by road. The other prospects can only be reached by circuitous pack tracks although they are conveniently situated with respect to the old N.E. Dundas Tramway.

Prospect 134M/47 is situated ¼ mile east-south-east of the old Sawmill at the Terminus of the old wooden rail tramway from Confidence Saddle. The tramway is at present overgrown with light brush, but Higgins plans to clear it and make it trafficable for a motor vehicle. The country in the vicinity of the three prospects is rugged and 134M/47, the highest lease, is approximately 2,000 feet above sea level.

The average annual rainfall at the Rosebery township, some 5 miles north east, is 82.7 inches. The rainfall in the Dundas area is probably of the same order. A result of the wet climate is the dense forest growth which covers the greater part of the Dundas area, where fine stands of King William pine have been obtained above the 2,000 feet contour.

Following is a brief description of the three prospects:-

Lease 134M/47. Higgins' activities have been confined to open cutting a lode which is not shown on Reid's Dundas District Map in Bulletin No. 36. Reid's map shows a lode described as Wallace's prospect, ¼ mile or more south east of the Tramway terminus, whereas Higgins' lode is ¼ mile east of the terminus. It may be possible that the two prospects are the same, because of inaccurate location on Reid's map.

Production. 134M/47 is Higgins' only working lease and covers 10 acres. At present Higgins has two working tributors as partners, and production to date has been approximately 20 tons at the rate of 1¼ tons per week. A parcel of 12.4 tons of hand picked ore was recently shipped to England through British Metal Corporation (Australia) Pty.Ltd. This parcel assayed 41.7% Pb and 21.7% Sb, and at the rate of 22.5 shillings Sterling per unit of lead and 45 shillings Sterling per unit for antimony, the ore has a value of A£118.5 per ton. Sea freight, agents' fees, assaying, etc. amount to £10.25 per ton and rail freight Zeehan-Burnie £2.8 per ton.

Ore Handling. The tributors are handicapped by lack of roads and the following arduous procedure is adopted for ore handling. The ore is broken in the small open cut and after hand picking, is carried in packs for a quarter of a mile to the old sawmill site where it is bagged and then dragged by horse sledge a further 2½ miles over the range to Dundas, via the Carbine track. As mentioned above, Higgins' plans to clear the old timber Tramway to Confidence Saddle, then follow the old North East Dundas Railway formation to Kapi Siding, from where a road connects with Renison Bell, a total distance of approximately 10 miles. A road is also required from the terminus to the workings.

The Lodes. The sawmill pyrite lodes which are associated with chalcopyrite, galena and sphalerite do not appear to be of any interest. A grab sample from an old heap of bagged picked ore in the adit drive assayed 10% Pb, 33 oz. Ag, 9.9% Zn, 2.9% Sb, but the oreshoots appear to be very small and a sample of the face showed only 6 inches of low grade ore.

Higgins' open cut is in the centre of a lens of massive jamesonite, 40 feet long and up to 32 inches wide. The lode channel dips east at 65 to 70° and the ore shoot pitches steeply north.

Assays indicate the presence of about 1% Zn, 1.3 to 7.8% Arsenic, up to 2.0% Cu and 5 to 30 oz. Ag per ton, suggesting that some sphalerite, arsenopyrite and probably tetrahedrite are also present. Bismuth is present up to 0.006%. Lead and antimony vary in individual samples but as stated above a bulk sample of hand picked ore averaged 41.7% Pb and 21.7% Sb. The small lens south of the open cut is 7 feet long and 15 inches maximum width. This ore is almost pure jamesonite and a picked specimen assayed 49.6% Pb and 22.3% Sb.

Pyrite and quartz stringers encase the jamesonite lenses, particularly on the western (footwall side) and are generally free from jamesonite. In the hanging wall a few small irregular lenses of jamesonite occur in crushed slate. The old adit 20 feet below the floor of the open cut intersected only low grade jamesonite lode over a width of 9 inches. It is presumed that the main shoot pitches north of the adit.

Heavy undergrowth foiled attempts to trace the lode north and south of the workings.

Lease 49M/48. The main lode on this lease occupies a fault zone up to 5 feet wide in slate and quartzite. The lode has been prospected over a length of 320 feet. The strike is north-south and the dip is vertical. A smaller parallel low grade lode 200 feet to the north east has been trenched without revealing worthwhile mineralization.

Several short shoots are probably present in the main lode but all the surface ore has been removed. Splashes of jamesonite occur with pyrite in the eastern wall and massive pyrite up to 2 feet in width is present in the lode channel but it dwindles to a thread in places. No interesting assays were obtained except from the dump where a grab sample of sulphide ore assayed 12.7% Pb, 3.3% Sb and 33 oz. Ag per ton. A Mines Department assay of a dump specimen selected by W.E. Higgins assayed 13.5% Pb and 276 oz. Ag, suggesting that argentiferous tetrahedrite may be present.

Lease 48M/48. This prospect is about one-third of a mile north west of 49M/48 in rugged country near the Montezuma Falls.

Shallow surface workings examined by us indicate that the lode extends for at least 300 feet along the ridge on the eastern side of the Falls. The lode strikes north west and dip west at 70°-80°. The rocks are tuffaceous slate and sandstone.

In the north face of a small open cut 7 feet of massive pyrite is exposed and assays 1.4% Pb, 4.8 oz. Ag per ton. A 9 inch seam of jamesonite on the western side of the pyrite lode assayed 21.8% Pb, 31.9 oz. Ag and 11.1% Sb. A dump sample 40 feet north of the open cut assayed 21.9% Pb, 37 oz.Ag and 5.8% Sb.

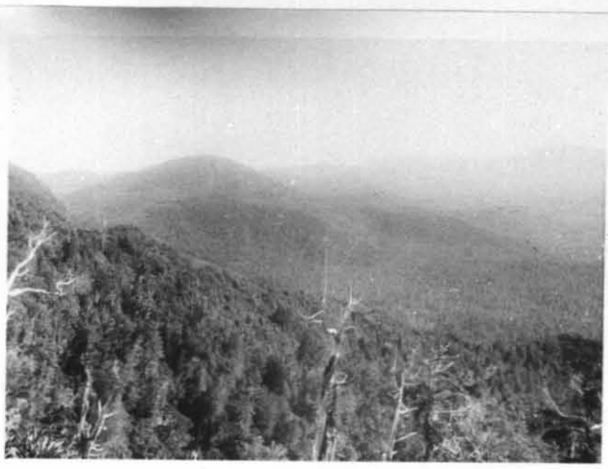
An adit intersects the lode at 110 feet below the open cut. In a short drive a small pyrite lens is exposed with a width of 38 inches and assays 7.5% Pb, 11.7 oz. Ag per ton and 1.2% Sb. A 4 inch galena seam in a calcite-siderite gangue runs along the eastern wall and merges into a 3 inch jamesonite vein.

Conclusion. Interesting values and a considerable quantity of readily mineable pyrite are present, but small size of shoots and inaccessibility of this prospect, as well as 49M/48, condemn them.

B Thomson

(B. P. Thomson).

Tributors & Camp at
134M/47



View N.W. from 49M/48
Pine Hill & Renison Bell
in middle distance.

Recumbent folds in slate
and quartzite at
134M/47.

Small Jamesonite lens at 134/47 showing smooth quartzite hanging wall

Jamesonite and pyrite in north face of workings at 134/47.

Typical adit portal

The Carbine Track

011

AMG REFERENCE POINTS ADDED

5 cm

Ring River

Town Site of Ringville

Montezuma

Old N.E. Dundas Tramway (Formation only)

Williamsford 3miles

Hydro Transmission Line

Creek

Ck.

bridge

48M/48 80 acres

Fraser Mine

Montezuma Falls

49M/48 20acres

M. N.

Confidence Saddle

Curtin Davis Mine

1800'

Kapi Ck.

Old timber tramway

Great Northern

Curtin Davis Ra.

2200'

2000'

Hecla Mine

bridge

134M/47. 10acres

Camp

Great lode of Wallaces Prospects

2200'

2000'

2600'

2800'

2400'

Moore Pimple

Carbine Hill

AMG 370679mE 5365088mN

2400'

2200'

2000'

1800'

1600'

1400'

1200'

1000'

Carbine Hill Track

Razorback Mine

Dundas Rivulet

Railway Formation

Zeehan trough

Old Zeehan DUNDAS Road

Maestries Mine

West Comet Mine

Kosminsky Prospect

Anderson Prospect

Great S. Comet

Adelaide Mine

LEGEND (After Bull. 36) Subject to Revision

Cambro-Ordovician ? (probably Cambrian) — Dundas Series. Tuffs, slate, ss., schist, quartzite.

Pre-Cambrian — Quartz and mica schists

IGNEOUS

Mesozoic — Diabase

Devonian — Quartz felspar porphyry, serpentine and gabbro. (ultrabasics may be Cambrian in age)

Lodes

Oldmines • 134M/47 Higgins Lease

1500' Contours above M.S.L.

The Zinc Corporation Limited

GEOLOGICAL PLAN NORTH DUNDAS SHOWING LOCATION OF LEASES HELD BY W.E. HIGGINS.

Detail from McIntosh Reid. Bull. 36, 1925, Geol. Survey Tasmania. Higgins prospects located on air photos.

523012

Scale	Date.	Plan No.
1 Inch = 20 Chs.	Nov. 1951	X27/148

012

M. N.

Iron stained tuffaceous slate and ss.

adit portal

Dump

Probable

pit on lode

lode

outline

104

much py. on dump

70

grab dump sample
- /21·9/37·0/0·6/0·0225/2·4/5·8

110'

water filled

7' massive py. in N. face of Open Cut

9" jamesonite

Open Cut

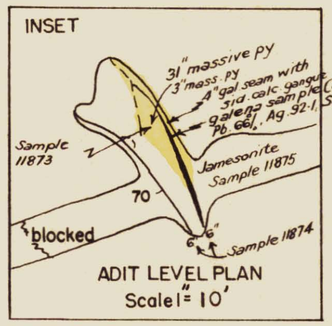
-/1·4/4·8/0·3/0·0075/0·1/0·3.

See Inset

9"/21·8/31·9/0·4/0·00135/1·5/11·1

py. in 3' pit

INSET

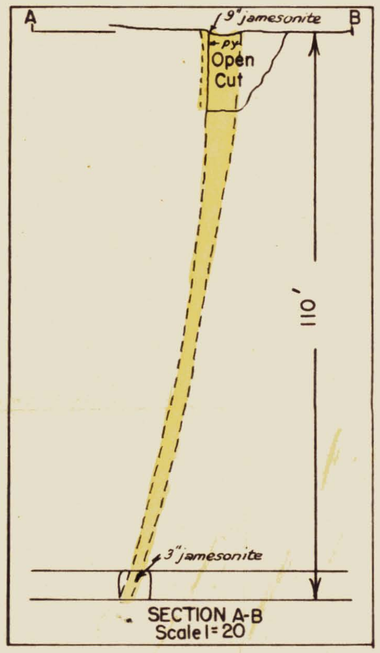


ADIT LEVEL PLAN
Scale 1" = 10'

Sample No. 11873 38"/7:5/11·7/0·5/0·0005/2·2/1·2

11874 12"/1·0/2·1/0·3/0·0085/3·1/0·4

11875 3"/43·6/44·2/7·2/0·0020/0·2/15·7



SECTION A-B
Scale 1" = 20'

Dump specimen sample (Higgins)
- /34·3,/39·2/0·8/Nil/Tr./12·3/0·6% Cu

Zero datum level

portal

ADIT LEVEL

41½'

69½'

Assays shown thus: - Width Pb.%, (Ag. and Au.) oz./ton, Zn.%, Bi.%, As.%, Sb.%.

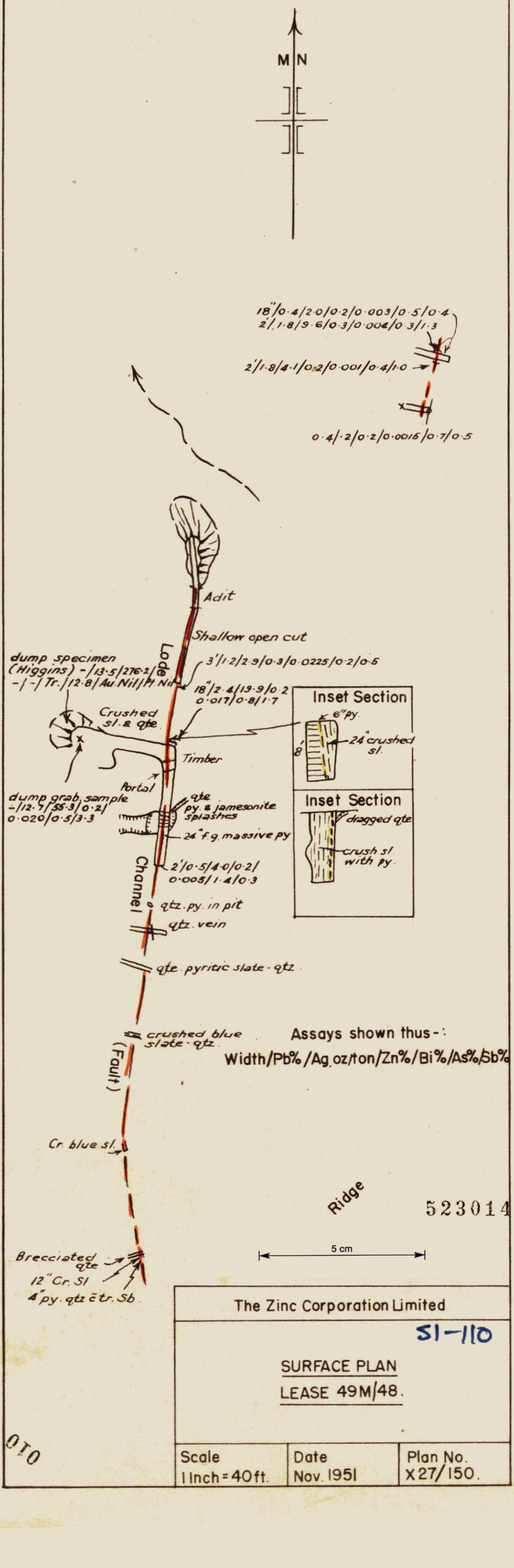
o Spot heights above adit level

5 cm

The Zinc Corporation Limited		
PLAN OF SURFACE W.E.HIGGINS LEASE M.L.48M/48. NORTH DUNDAS, TASMANIA 523013		
Scale 1 Inch = 20 Feet	Date Nov. 1951	Plan No. X 27/149.

51-110 Q5016

010



The Zinc Corporation Limited

51-110

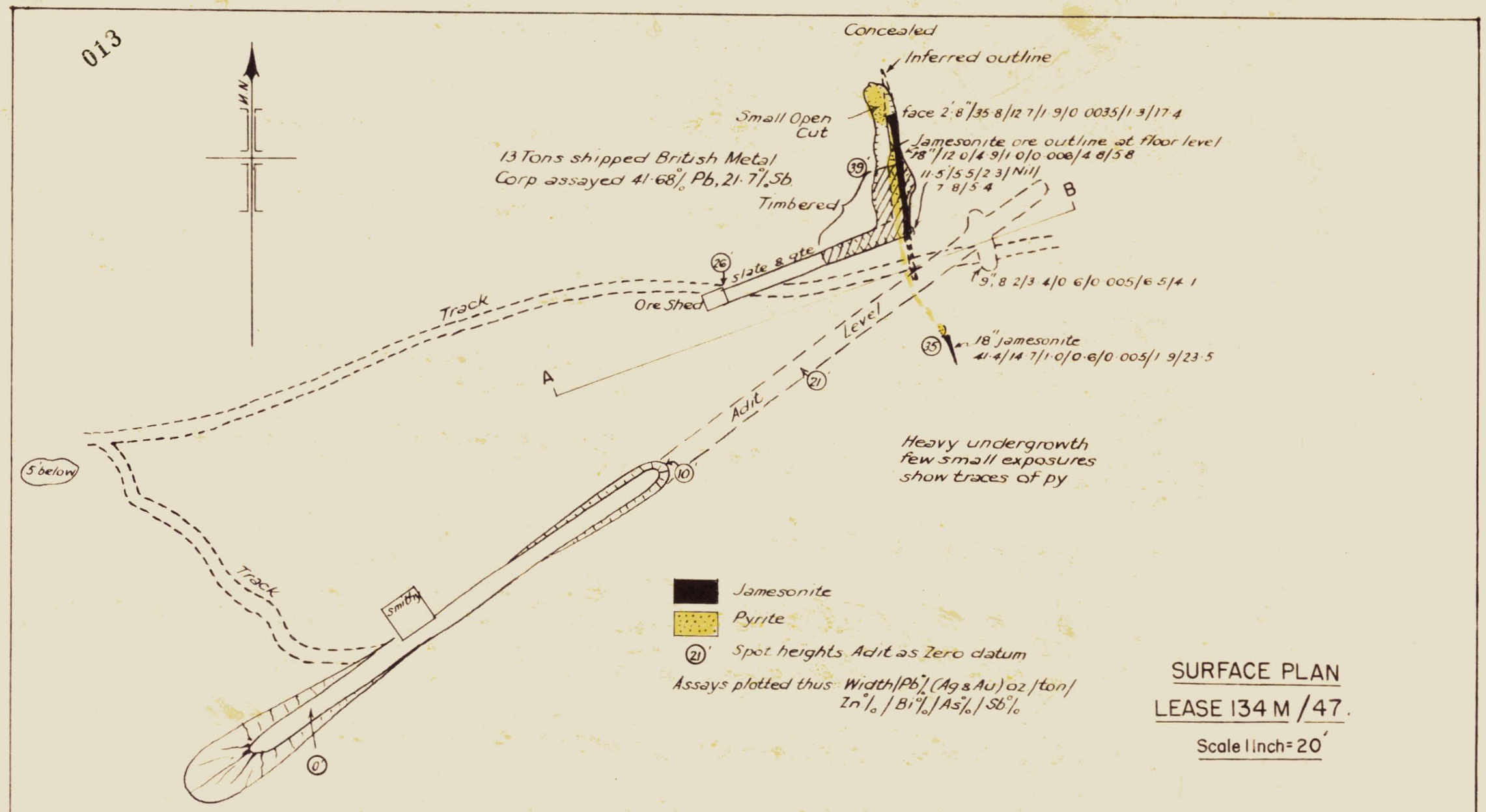
SURFACE PLAN

LEASE 49M/48.

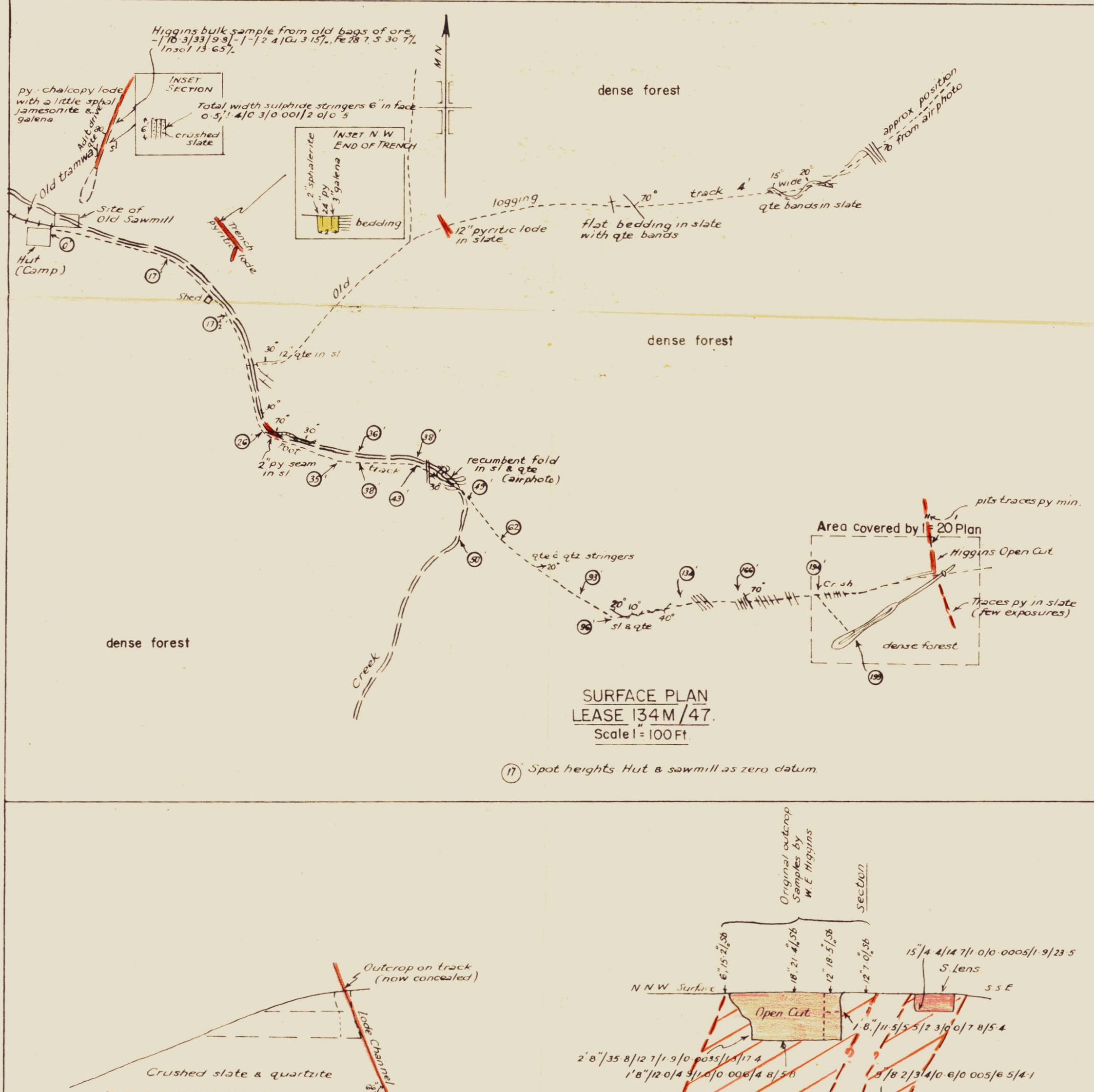
Scale	Date	Plan No.
1 Inch = 40 ft.	Nov. 1951	X27/150.

010

013



SURFACE PLAN
LEASE 134 M/47.
Scale 1 inch = 20'



SURFACE PLAN
LEASE 134M/47.
Scale 1" = 100 Ft.

(17) Spot heights Hut & sawmill as zero datum.

CROSS SECTION A-B N.70°E
LOOKING NORTH
LEASE 134M/47
Scale 1" = 20'

5 cm

LONGITUDINAL SECTION 134M/47
Scale 1" = 20"

523015

Plan No. X27/151

51-110 Q50/6