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REPORT ON THE SILVER STANDARD MINING PROPERTY

HAZELTON DISTRICT, B.C.

by

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4th Year Geological Engineering

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ACKNOWLEDGMENT

Thanks are due Dr. E.D. Kindle, Chief of the Geological Survey party in the Hazelton district during the summer of 1937. The writing of this report was greatly facilitated by his explanations of the geological features.

C O N T E N T S

ILLUSTRATIONS

1. Map Showing Location of Property

2. Plan and Elevation of Main Workings

3. Map Showing Principal Veins on the Property

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DATE OF EXAMINATION

The Silver Standard Mining Property was examined in July, 1937, by Dr. E.D. Kindle for the Geological Survey of Canada. The party included J.W. Hoadley and W.R. Bacon as assistants.

LOCATION

The property of the Silver Standard Mining Company is situated on Glen Mountain, seven miles distant by road from the town of New Hazelton, B.C. The mine and mill are respectively on the north-western and south-eastern sides of the mountain, the latter being two and three-quarter miles by road from the former. Glen Mountain overlooks the Kispiox Valley, which extends in a north-westerly direction from the mountain and contains the Skeena, Shegunia, and Kispiox rivers. Two-mile Creek, on which the mill is situated, flows southerly along the eastern side of the mountain, emptying into the Bulkley River near New Hazelton.

SIZE

The property of the company consists of fourteen crown-granted, full and fractional mining claims with a total area of 476.73 acres.

OUTLINE OF THE HISTORY OF THE MINE

The Silver Standard Mine, like other mines of the Hazelton district, came into prominence about 1910. In this year the claims were staked by Long and McBain, who developed them for a short time and uncovered a promising showing of silver-lead ore.

In 1911, the property was taken over by Stewart, McHugh and McLeod on a lease with option to purchase; after further exploratory work, this syndicate completed the purchase and operated the mine almost continuously until August, 1914. Then, because of the disruption of the market for this class of ore, the mine was closed.

Shipments by railroad to the Trail smelter had commenced in 1913.

The mine was reopened in the summer of 1915.

In the fall of 1917, the management decided that the mine had reached a stage of development which made it advisable to erect a concentrator to treat the milling-ore

already blocked out in the mine. After some experimenting and consideration, it was decided to erect a 50 ton mill on Two-mile Creek. Erection was commenced at the end of 1917 and completed in May of the following year. The mill was a modified form of water concentrator, run by steam-power, with cordwood as fuel.

The mine was again closed in December, 1918, because of the inability to satisfactorily market the concentrates. The silver-lead concentrates were being sent to Trail and the silver-zinc concentrates to Oklahoma.

The mine was operated during the first three months of 1919, and the summer of 1920 when it was closed indefinitely. The difficulty of marketing silver-zinc concentrates, the lowered market price for silver, and the rise in freight rates were the factors which caused the decision to shut down.

The total tonnage of ore, mined and milled, was about 14,500 tons, which contained approximately 1,100 ounces gold, 626,000 ounces silver, 1,225,000 pounds lead, and 1,400,000 pounds zinc. The gross value of this production would be somewhere about $500,000.

TRANSPORTATION

The mine is only seven miles by road from the Canadian National Railway station at New Hazelton.

The road down the mountain from the mine is too narrow for a truck and needs repairing in a number of places. However, the five-mile dirt road from the base of the mountain to the railway station is in good condition and of sufficient width for a truck.

TOPOGRAPHY

(a) General

The Hazelton district offers a striking contrast between the broad valleys of the Skeena and Bulkley rivers and the abrupt rugged topography of the Rocher Deboule group of mountains.

The district lies immediately to the east of the Coast Range, and is a continuation of the Interior Plateau country of southern British Columbia. The country presents isolated groups of hills and mountains of various altitudes, some of which are subdued in type, whereas others are extremely rugged. These groups are separated by broad valleys containing tumultuous streams, all of which are actively eroding, and many of which flow through canyons.

(b) Particular

Glen Mountain is a small, rounded hill about one mile long by half a mile wide. Its greatest elevation is about 2,500 feet above sea-level or 1,200 feet above the valley of the Skeena. Striae on the west side of the mountain indicate glacial action. The vegetation consists of a dense undergrowth with few large trees.

GEOLOGY

Tuffs and tuffaceous sandstones of volcanic origin are the main outcrops on Glen Mountain. These rocks belong to the Hazelton Series which was formed in Upper Jurassic time, and are generally fine-grained, hard, and show well-defined bedding.

They are intruded and have been considerably affected by a series of granodiorite-porphyry dykes, belonging to what is locally known as the Post Hazelton series.

The ore of the Silver Standard Mine is in fissure veins in tuffaceous sediments. The veins are characterized by galena, sphalerite, and tetrahedrite in distinct shoots in which the high grade mineral is associated with a great deal of milling ore.

DESCRIPTION OF WORK DONE

There are nine veins on the property which, with the exception of the main vein, are numbered consecutively from east to west across the mountain. The main vein, from which the bulk of the ore has been obtained, occurs between veins Nos. 6 and 7. About the middle of the property this main vein splits into two parts known as the Hanging-wall and Foot-wall veins.

A shaft has been sunk for 400 feet on the Foot-wall vein about 250 feet north of the intersection. Levels have been developed at 150 feet, 250 feet, and at 400 feet from the top of the shaft. A cross-cut tunnel, 870 feet in length, is driven to intersect the main vein at the 250-foot level, 290 feet south of the shaft. From near the shaft a cross-cut is driven 360 feet to intersect No.7 vein. The tunnels intersect all the veins except Nos. 1, 2, and 8; these veins are known only from surface cuts and strippings.

There is 110 feet of drifting on No. 4 vein on the 250-foot level. A 35-foot shaft has also been sunk on this vein.

Altogether there is 500 feet of drifting on the Hanging-wall section of the main vein, and 300 feet of drifting on the Foot-wall section. Besides the main shaft, there are two raises connecting the 250-foot level with the 150-foot level. There is a winze on the Foot-wall vein which

extends 86 feet below the 400-foot level.

No. 7 vein has been drifted for 170 feet on the 250-foot level.

No drifting has been done on veins Nos. 3, 5, and 6.

DESCRIPTION OF ORE BODIES

The strikes of the veins vary in detail, partly due to faulting, but the veins are roughly parallel and strike north 20 degrees to 35 degrees east (magnetic) with steep dips to the south-east.

No. 1 vein has been proved for 1,500 feet by open-cuts along the strike. An ore-shoot 100 feet long by 20 inches average width gave an average sample assaying: gold, 0.35 ounces; silver, 10.72 ounces. This vein contains galena and sphalerite in rich bunches, but is generally mineralized with arsenopyrite and pyrite with considerable siderite in a quartzose gangue. It carries much higher gold values than any of the other veins.

No. 2 vein is 100 feet distant from No. 1 and outcrops about 50 feet above it in elevation. It has been opened for 300 feet and shows a vein 6 inches to 1 foot in width, carrying some ore.

No. 3 vein is encountered in the main cross-cut tunnel at 140 feet from the portal, and at this point shows about 6 inches of mixed ore.

No. 4 vein is intersected by the main cross-cut tunnel at 410 feet from the portal. This vein has a sharply marked hanging-wall. The drift on this vein opened an ore-shoot 110 feet long, pitching 40 degrees to south with the face still in ore. The northern half of the shoot is almost solid sphalerite, whereas the southern end is high in galena and tetrahedrite.

The gangue is milky quartz,and has been crushed and sheared so that the ore is in veinlets as well as in massive replacements. Cross-fissures filled with milky quartz are cut off by the main vein carrying the mineralization.

Along one or both of the walls there is frequently a band of siderite with arsenopyrite, the central portion of the vein containing the silver-lead minerals.

No. 5 vein is small on the surface, but has been traced for a considerable distance. It is cut by the main tunnel 490 feet from the portal,and at this point 12 inches of solid ore, mostly sphalerite and tetrahedrite, are exposed. A general sample from this shoot gave the following values: gold, 0.16 ounces; silver, 106.60 ounces; lead, 1.59 per cent; zinc, 45.5 per cent.

No. 6 vein is cut by the tunnel at 635 feet from the portal, where a vein 12 inches to 2 feet in width contains sphalerite, galena, pyrite, arsenopyrite, tetrahedrite and pyrrhotite, scattered through a matrix of milky quartz. A sample at the point of intersection gave the following values: gold, 0.10 ounces; silver, 179.04 ounces; lead, 23.2 per cent.

The main vein strikes north 25 degrees east, dips 70 degrees south-east, and is crosscut by the main tunnel 870 feet from the portal and 290 feet south of the main shaft. There are shoots in both the Foot-wall and Hanging-wall veins near the shaft. These were the chief sources of ore.

The Foot-wall ore-shoot occurs at and near the intersection of the Foot-wall and Hanging-wall veins. It varies from 6 inches to 8 feet from the 150-foot level to the surface. The shoot at the 150-foot level is 200 feet long; at the 250-foot level it is about 150 feet long, with high grade appearing at intervals in the milling ore.

The Hanging-wall ore-shoot extends from the intersection of the Hanging-wall and Foot-wall veins, towards the north on the Hanging-wall vein. At the surface this shoot is solid ore, mostly galena and tetrahedrite, 12 inches in width and 40 feet in length. The shoot on the 150-foot level is 95 feet in length. On the 250-foot level there is 80 feet of continuous ore varying from 2½ feet to 4 feet in width, occurring along a well-defined hanging-wall.

No. 7 vein is situated about 400 feet east of the main vein, and is exposed at the surface where a showing of ore 80 feet in length and 18 inches in width was discovered.

The drift on the 250-foot level showed this vein to contain pyrite, arsenopyrite, chalcopyrite, and siderite.

No. 8 vein outcrops about 100 feet vertically above, and 400 feet horizontally east of No. 7 vein. It and several

other veins at higher altitudes do not appear promising.

TIMBER

There is a fair supply of medium-sized cedar and jackpine on Glen Mountain. The jackpine could be used for railroad ties, but cedar is of little use in mining operations.

WATER SUPPLY

There is a dependable supply of water on the Salmon River about one and a half miles from the property. The Skeena River also flows within the same distance of the mine. There is no other stream near the property that could be used for power and milling.

CONCLUSION

The only means of successfully operating the mine would be on a small scale. There is not enough ore in sight to justify the expenditure necessary to erect a mill. The old mill would be entirely unsuitable,as it has no dependable water supply and would necessitate hauling the ore over a road with two adverse grades. If a mill was erected on the

Salmon River, a tram would be required to transport the ore from the mine to the mill. The mill would be about ten miles from the railroad. If it was built on the Skeena River it would be about seven miles from the railroad. In either case a great deal of capital expenditure would be required, which would be out of the question with silver at its present quotation.

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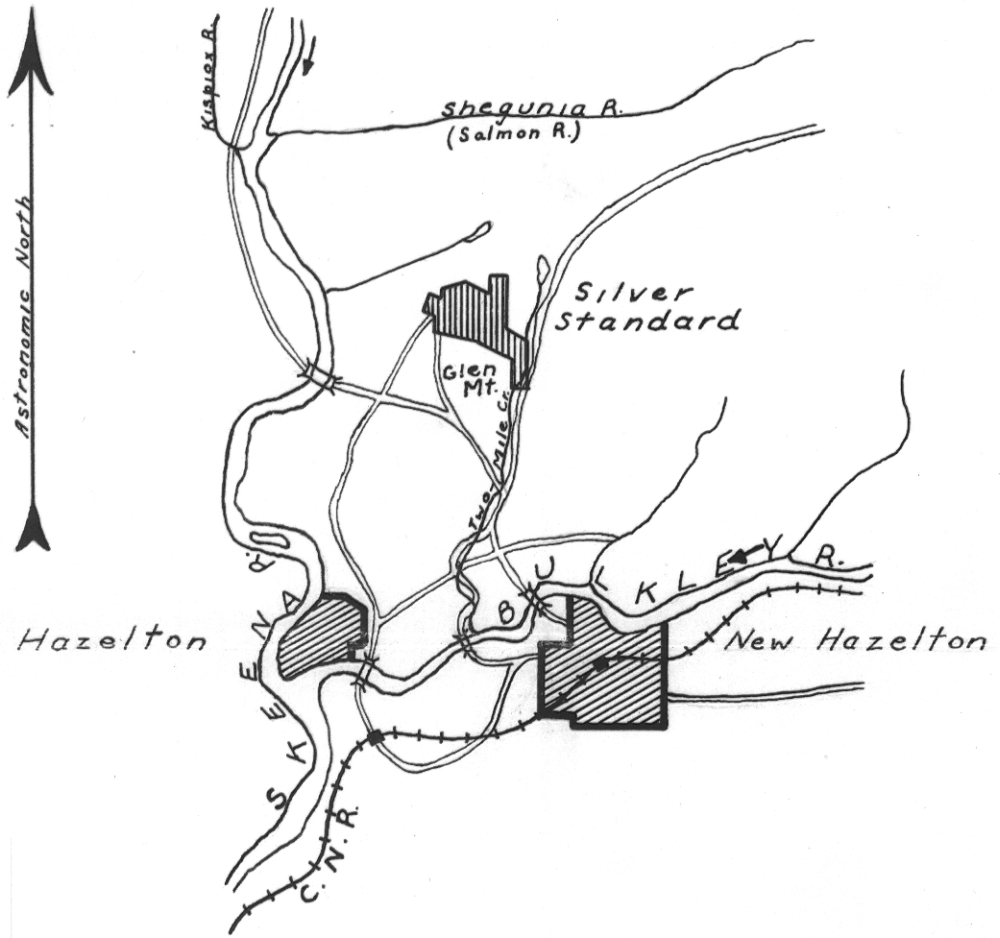
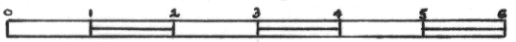
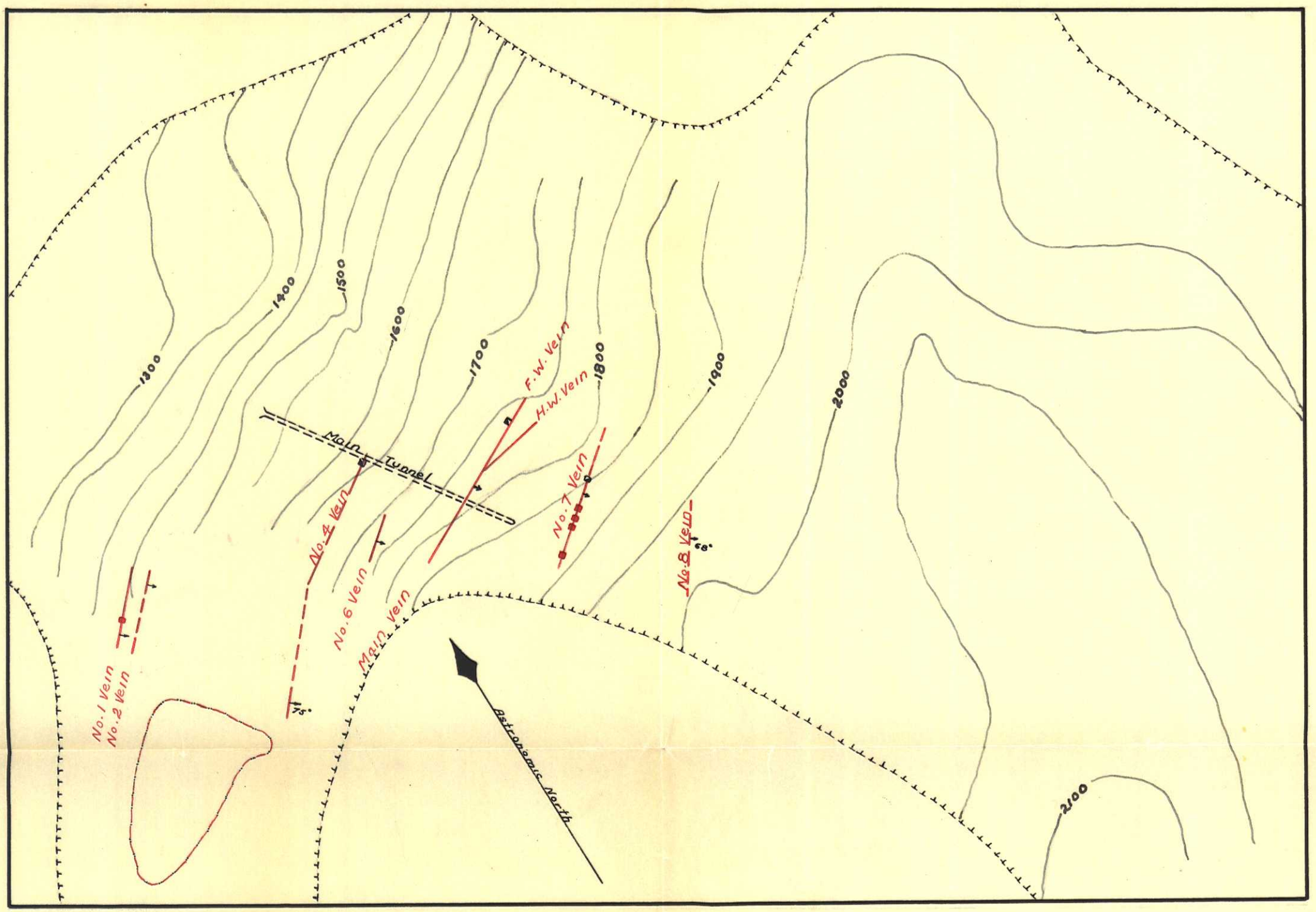


MAP
SHOWING LOCATION
OF
SILVER STANDARD MINE

Scale
Miles





LEGEND

Hazelton Series

Post Hazelton Series

Vein with open cut

30°

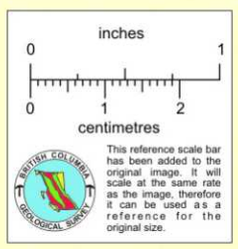
Dip and strike

PRINCIPAL VEINS

ON THE

SILVER STANDARD MINE

SCALE - 1" = 400'



Projection on vertical plane

Approximate Outcrop Main Vein

Raise

Stope

Stope

Stope

Drift 150 Level Drift

Raise

Drift 250 Level Drift

Main Shaft

400 Level

Trace of horizontal and vertical planes

Projection on horizontal plane

Main Vein

No. 3 Vein

Crosscut

Tunnel

Shaft

Stope

No. 4 Vein

Surface

No. 5 Vein

Stringers

Elev. 1780'

Surface

Stringers

No. 6 Vein

ore

2" ore

Main Vein

Main Vein

Approximate Outcrop Main H.W. Vein

Surface

Stringers

Stringer

Elev. 1760'

Main Vein

Stope

Stope

150 Level

Raise

Raise

Main Shaft

Drift E.W.

X-cut

X-cut

Scut

H.W.

F.W. Vein

Main Vein drift

250 Level

400 Level X-cut

400 Level

Cross-cut

Astronomic North

No. 7 Vein

Surface

Drift No. 7 Vein Drift

PLAN AND ELEVATION OF MAIN WORKINGS

(1" = 100')