Report on Cape Breton Coal mining area

Port Hood.

The area of the Cape Breton Coal Company is situated about a mile South of Port Hood village & covers the principal part of the landward outcrops of the only two workable Seams known in the locality.

Near the Northern boundary of the property the measures dip seawards at an angle of about 25°. Southwards the angle of dip becomes greater till at a distance of about ½ mile the beds are vertical & so continue along the shore to Little Judique Harbour.

The lower Coal bed, which alone has been worked is about 120 yds from the shore at the Northern boundary of the area. Its thickness as exposed in a pit on the outcrop (marked A) is six feet 1 inch. The Coal is of good quality from roof to floor (5 ft) underlain by a soft coaly shale which would allow it to be worked without the waste which arises when the coal itself is holed in.

dips N 79° W ∠ 24.5°

?

The old slope by which this seam was formerly worked is situated about 750 yds South from this trial pit. The direction of dip is here N 69° W & the angle has increased to 27°. The slope follows the full dip of the Coal. It has been furnished with a double line of rails & a small engine has been employed for hauling out the tubs & working the pumps, the rods of which are carried down the slope. The slope is now filled with water to within a few feet of the surface & the coal can only be seen where the people of the country have removed part of the timber & worked into the seam a short distance. The appearance of the coal is here not nearly so good as where seen in the trial pit before

mentioned. There is a larger quantity of pyrites & part of the coal near the roof is very shaly & would probably not pay for extraction unless for use in ~~engine~~ furnaces on the spot. I was informed by men who had worked in the mine that the quality of the coal improved very much after passing through a "trouble" or small fault which lies a short distance to the North of the old slope running out & can be seen on the shore ~~immediately North of the mouth of the level~~. This would agree with the improved appearance of the coal in the trial pit near the Northern boundary, & would show that the part of the seam between the small fault & the Northern boundary is of most importance. Southward from the old slope the outcrops of the coal is not seen. The overlying rocks exposed in the shore cliff dip seaward at an angle of from 35° to 40° & near the point marked — become somewhat suddenly nearly vertical in position. The quality of the coal in this direction is not known ~~& very probably retains the aspect of that seen in the slope~~ ?.

The outcrops of the overlying seam or so called 8 ft seam in no place touches the land. It has been seen at very low tides near the place marked — & at such times has been worked into by the country people. The position of the outcrops is therefore now marked by a hollow filled with gravel & stones, & at the time of my visit the crop was not laid bare, nor was it even found possible to obtain a sample of the coal for examination. Measurements said to have been made of this seam are somewhat uncertain it has been called 8 ft; & my opinion is that it might safely be calculated at 6 ft. The quality of the coal is by those who to have used said to be excellent.

The measures included between the 6 & 8 ft seams

Contains
~~Includes~~ Several small coal beds. One of these
exposed on the beach is 16 inches thick but none are of
workable dimensions.
The quality of the coal of the 6ft or lower bed
where exposed in the Northern trial pit is very good.
About a foot from the roof there is a hard pyritous
layer averaging about half an inch in thickness.
This should be removed as far as possible in
the working. Films of iron pyrites also occur here &
there between the cleat-surfaces of the coal but these
would be very likely to disappear or greatly diminish
when the solid coal is worked in depth?
The coal bed has below a soft-bluish clay which
would serve as a very good "holing stone" & prevent
waste of coal in extraction.
Samples selected from all parts of this seam where
exposed in the trial pit so as to give a fair average
gave on assay the following result.

The coal is highly bituminous. The quantity
of ash is small &c. Coke.
Gas. Steam &c

The 6ft seam would no doubt be most
economically worked by a slope, & whether the old slope
should be utilized & workings extended from it, or a
new slope opened on the Northern side of the trouble; ??
would have to be decided when the former workings
have been cleared of water & their condition ascertained.
In either case the overlying or so called 8ft seam
would require to be opened out by a nearly horizontal

drift from the Slope on the 6ft seam, when the workings on the latter had attained a suitable depth. It is to be observed that the seams are of such size as to be economically worked & dips at an angle not too great for convenient working & yet sufficient to ensure ample cover for operations under the harbour.

The Harbour of Port Hood is thoroughly sheltered from Easterly & Westerly winds. It is somewhat open to the North & South but at all times there is good shelter for small vessels under the Island, & it would appear that Larger Craft might at any time ride safely in the main harbour.

The water immediately opposite the opening of the old Slope is pretty bold, & if not too much exposed to the action of the ice & Southerly swell a wharf could easily be built here. If thought desirable a pair of chains of rail way would enable the coal to be shipped from a better protected part of the harbour.

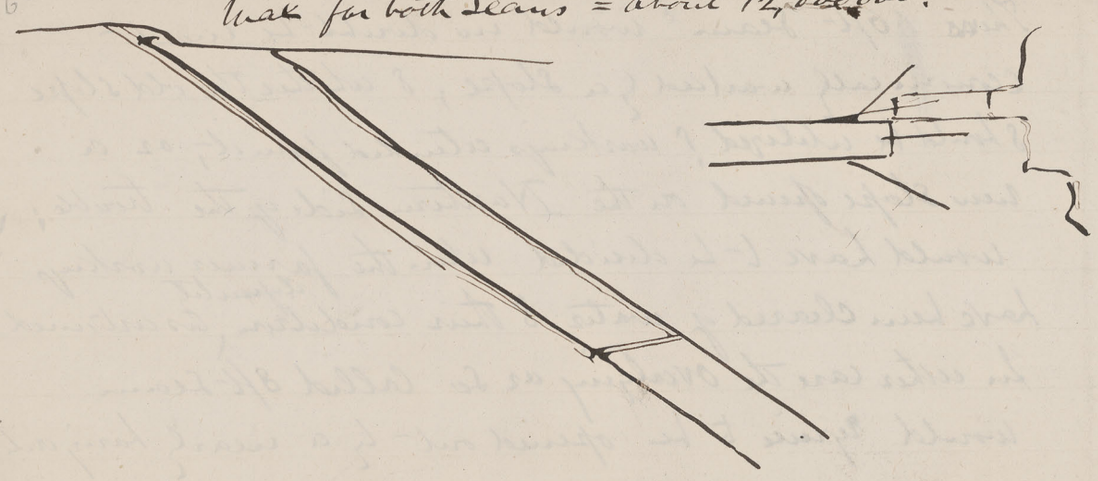
Smiths Island is entirely composed of lower Carb. rocks, & must be seperated by a fault from the rocks of the mainland. This renders the precise distance of seaward extension of the coal seams uncertain.

The minimum quantity of coal existing on the area may be put down as the minimum

In these estimates I have excluded the partings of the seams which are vertical & have counted both seams as 6ft in thickness.

Minimum 6ft = 3,744,000. Min. So called 8ft = 2,410,000
Total min = 6154000.

Mark for both seams = about 12,000,000.



Report on Cape Breton Co. Area. Port Hood.
by W. H. De Wolf.

The coal itself as seen in the shaft near the Port Hood mining Area boundary line, appears, to be of very good quality, & of a highly bituminous nature. It would seem to contain rather more pyrites than the Lictou Coals but a considerable part of this impurity lies between the cleat surfaces of the coal, & may be expected to decrease in quantity when the outcrop coal has been passed through.

The Harbour of Port Hood has been much damaged by the washing away of the Northern bar, & is exposed at times to a heavy North & South swell. It would appear however that large Vessels could at all times ride safely in the middle of the harbour, while there is very good shelter for small Vessels in the bay under the lee of the island.

The water immediately opposite the outcrop of the 6ft seam on the ~~Cape Breton~~ Port Hood area, is very shoal, & it might be a question whether to build out a long wharf on the shoals, or by a few chains of railway to carry the coal for shipment to a bolder part of the shore. Deep water for a wharf can be obtained a short distance either North or South of the position from which the slope would have to start.

The existence of the outcrop of the 6 ft seam on the Port Hood area has ~~never~~ been proved. The coal is found to be much better than that met with at first in the Cape Breton mine, & appears to be at least of fair average quality. The continuity of the measures at a moderate angle under a large part of the Harbour is almost certain from their regularity on the shore sections both North & South. At the same time the ~~Westerness~~ persistence of the coal under the island cannot be hoped for, & the mine would have to be worked by a slope from the shore.

From what I could learn of the so called 8 ft seam I think it might at least be safely calculated at 6 ft, & the

Coal is said by those who have seen it to be of excellent quality.

Area of 6 ft. seam putting faults as near shore as likely. 3/8 mile. Area of "8 ft." 1/4 mile. Minimum quantity 6 ft. on this. 3,046,781. Of 6 ft. 1/4 mile. 2,031,189½ tons.

Max area putting this fault as near island as possible about double. Last total.

Report on Port Hood
Area Port Hood, &
W. Richland Inlet.

The ~~Measures~~ beds of coal at Port Hood, of workable thickness are two in number so far as known.
The lowest is about 6 ft in thickness & its outcrop runs nearly parallel to the shore Southward from Mill Creek. The measures are nearly vertical at Little Judique Harbour & their dips decreases Northward till at Mull Creek it has fallen to about 20°. Near Mull Creek the ~~measures~~ beds take a general through pandal head to the Westward & the crops of the 6 ft seam passes out to sea. The Port Hood area includes nearly ~~about~~ 200 yds of the Northern end of the crops on land, & a great part of its Seaward extension.
Overlying the 6 ft seam is another said to be 8 ft thick its outcrops ~~at~~ nowhere touches the land though at one place it is sometimes visible at very low tides, & at such times has been worked by the country people. At the time of my visit it was not found possible even to obtain a piece of this coal for examination.
The 6 ft seam has been worked on the Cape Breton Co's area which lies immediately South of the Port Hood area. In the workings it dips at an angle of 27°
The coal opened up first, & now visible in the ~~upper~~ part of the Slope is somewhat inferior, the upper part being shaly & a good deal of pyrites appearing partly in the form of bands parallel to the stratification & partly between the cleavages of the Coal. The coal in this mine improved greatly, I am informed after passing through a trouble, or ~~seam~~ downthrow of about 6 ft to the N.
For the purpose of obtaining Samples of the coal from as near the Port Hood area as possible a Shaft formerly sunk on the crop of the coal near the Northern line of the C. B. Co's area

was cleared of water & debris, & a fresh face of coal showing the entire thickness of the Seam exposed. The improvement of the coal as compared with that seen in the slope of the old workings was very marked. The bed ~~dipped~~ was found to dip at the more moderate angle of 25°. & was 6 ft. 7 inch in thickness. The Shale so apparent in the old workings had almost entirely disappeared. Pyrites also seemed less there being only one band about a ½ inch in thickness which would have to be removed, & this lay at about a foot from the roof. The underclay appeared to be very soft, & well adapted for holing so that the entire thickness of the coal might be extracted without waste. Mr Lawson has traced the crop of the coal nearly to the beach northward, in pits now filled up.

~~Smiths Isd~~ The coal cannot be ~~exp~~ supposed to exist below ~~the~~ Smiths island as the rocks there seen are wholy Lower Carboniferous consisting in the main of Reddish crumbly sandstones & limestones gypsums, with some hard grit-stone. There must therefore be either a break running nearly parallel with the length of the harbour or a sudden fold, & estimates based on the extension of coal under the island must be largely reduced. The ~~extension~~ extension of the coal for a considerable distance under the harbour from the Port Hood Shore seems almost certain & from the Cape Breton Cos opening Northward to Isthmus Pt. & beyond the measures are very regular & dipping at lower & lower angles till they fall to about 16°. The coal would require to be worked by a slope from the Port Hood Shore, & there is a sufficient ~~frop~~ length of the ~~Seam~~ underlying outcrop on the Port Hood Area for that purpose. The 8 ft. Seam might be worked by connecting it with the slope on the 6 ft. Seam when the latter has reached a sufficient depth

The coal is highly bituminous & yields a good hard coke. The percentage of ash is low & compares very favourably with that found in the average of Picton coals. Sulphur appears to be present however in greater quantity than in the latter ~~and is~~ ~~constitutes the only objection to its being a first class~~ gas ~~coal~~.

PORT
HOOD.

REPORT

OF

Port Hood Coal Mining Area.

THIS property is situated at Port Hood, in the County of Inverness, Cape Breton, and contains about three thousand eight hundred acres.

There are two known workable seams of Coal on this property; one is called the six feet seam or vein, the other the eight feet vein. From the eastern side of Port Hood to Smith Island all are good coal measures; it has never been prospected, and it will be strange if no other workable seam is found in all that distance.

THE SIX FEET SEAM: — I traced this seam of coal into the property a distance of 800 feet, and found it running as represented on the plan and dipping westerly at an angle of 12° or 14° or 1 in 4½. The metals in this district have a remarkable regularity both in dip and strike. The seam measures from 6 feet to 6½ feet thick; one foot on the top of which is coarse coal, the remainder forms an unbroken seam of excellent coal, five feet thick, solid and free from partings and impurities. It is a good Gas coal and coaks well, is sufficiently portable, and is well liked for domestic purposes. It underlies an area of about 3200 acres of this property and will contain about 24 millions of tons of coal.

THE EIGHT FEET SEAM.—This valuable seam of coal overlies the six feet seam, it was exposed during some of the recent storms, but as its crop was under the sea, it was considered to be out of reach. Both the Deputy Commissioner of mines and the foreman of the "Cape Breton Coal Mining Company" examined it and described it to me as an eight feet vein, free from partings, solid and pure in its benches, free from sulphur, and the best blacksmith's coal in the Province. From what I saw of it I consider it a most valuable seam of coal and sufficient of itself to make any property valuable. It can only be seen at low tides. This seam underlies about 3000 acres of this property, and will contain by computation about 38 millions of tons of coal.

The two seams together will contain by estimation about sixty-two millions of tons of superior coal.

There are two methods by which this coal area might be worked: One is by a *Slope* sunk in the coal in a north-westerly direction, as represented on the plan. The other is by a *Shaft* sunk at or near to point B, on Smith Island, which by computation will strike the eight feet seam at a depth of about 800 feet. The slope extended and used as an incline with levels running from it north and south, every three hundred feet apart, with a cross cut at the bottom of the slope to catch the eight feet vein, with a stationary engine at the top or mouth of the slope capable of raising 13 to 15 tons per trip, would be the cheaper opening. But this plan would require about sixty chains of a railway to proposed wharf.

There could not be planned a more convenient opening than the shaft at point B. The saving effected by having no railroad to construct and keep up, no bridges to build and renew every ten years, no locomotive steam engines to purchase and keep in repairs, no expense for distant transportation, no expensive coal cars and steam tug-boats,—as are required at all the mines at Pictou,—no expensive artificial harbors or break-waters,—as have been constructed at the outlying mines in Cape Breton, for several of which places insurance is scarce obtainable but for three months in the year, viz: June, July, and August. The shipping season at Port Hood will be longer than at Pictou or Sydney, and freight will undoubtedly be taken at a lower rate. These obvious advantages all point conclusively to the fact, that coal could be shipped from Smith Island, at least 30 cents per ton cheaper than at any of the coal properties above referred to, and at a paying price at the utmost point of depression that has ever been known in our coal trade.

The monopoly of Smith Island as a mining area, will obviate many annoyances, that very constantly arise where mining areas are contiguous, and it is very far from improbable, that in boring on Smith Island a workable seam overlying the eight feet seam may be discovered.

In my opinion the coal could be mined, and put on board vessels from this area, paying the Royalty of ten cents at 70 cents per ton, leaving a dollar net profit if sold at $1.70 per ton; a price 55 cents less than the article is sold for at the Pictou mines.

Port Hood is distant from the Strait of Canseau, about 20 miles. Pictou about 70 miles, (see Provincial Map). Vessels bound to Pictou, have generally to beat up from Cape George against the prevailing South West Winds.

The distance to Sydney Mines is even farther than to Pictou, and a much more dangerous coast.

Experience Shows, that working under the sea, is just as safe as free from water, as easily aired and presents no more obstacles than working under dry land, and in this instance the coal can be mined under the sea, for any distance required. Sydney Mines Cape Breton is about ¾ of a mile under the sea, yet no one can see any difference in the works or the manner of workings. By Admiral Bayfield's Chart, the deepest part of Port Hood Harbour, is only about 42 feet.

Coal can be delivered as cheap from a 5 feet vein, as from any other sized vein; and where a large area can be obtained, it will be more easily aired, and much safer from Creeps, and in this instance is much preferable to a 15 feet vein.

The wharf at Port Hood was put up about four years ago and shews no bad effects either from worms or weather. Between the wharf and Dean Shoals, deep water can be had at 400 feet from the shore, under the lee of Port Hood wharf and Dean Shoals, and about half a mile westerly under the lee of Smith Island, 600 sail of vessels can safely ride at anchor and wait their turn to load.

I would here remark the present time is very favorable for opening and equipping new mines, as labor is now 25 per cent lower than the usual rates, and as the eight feet vein has first to be tested by bore holes before sinking the shaft on Smith Island it will take over 12 months to test the vein properly, and sink and equip the shaft, and it is next to a certainty by that time the present tariff will be greatly modified or altogether cancelled.

JOHN P. LAWSON, Mining Engineer.

Letter Rep
Repin
Lewson

Assay average samples Port Hood
6 ft seam (Trial pit)

Hygroscopic moisture	2.80
Volatile combustible matter	26.18
Fixed Carbon	63.76
Ash (reddish grey)	7.26
	100.00

Total volatile matter	= 28.98
Coke	= 71.02
	100.00

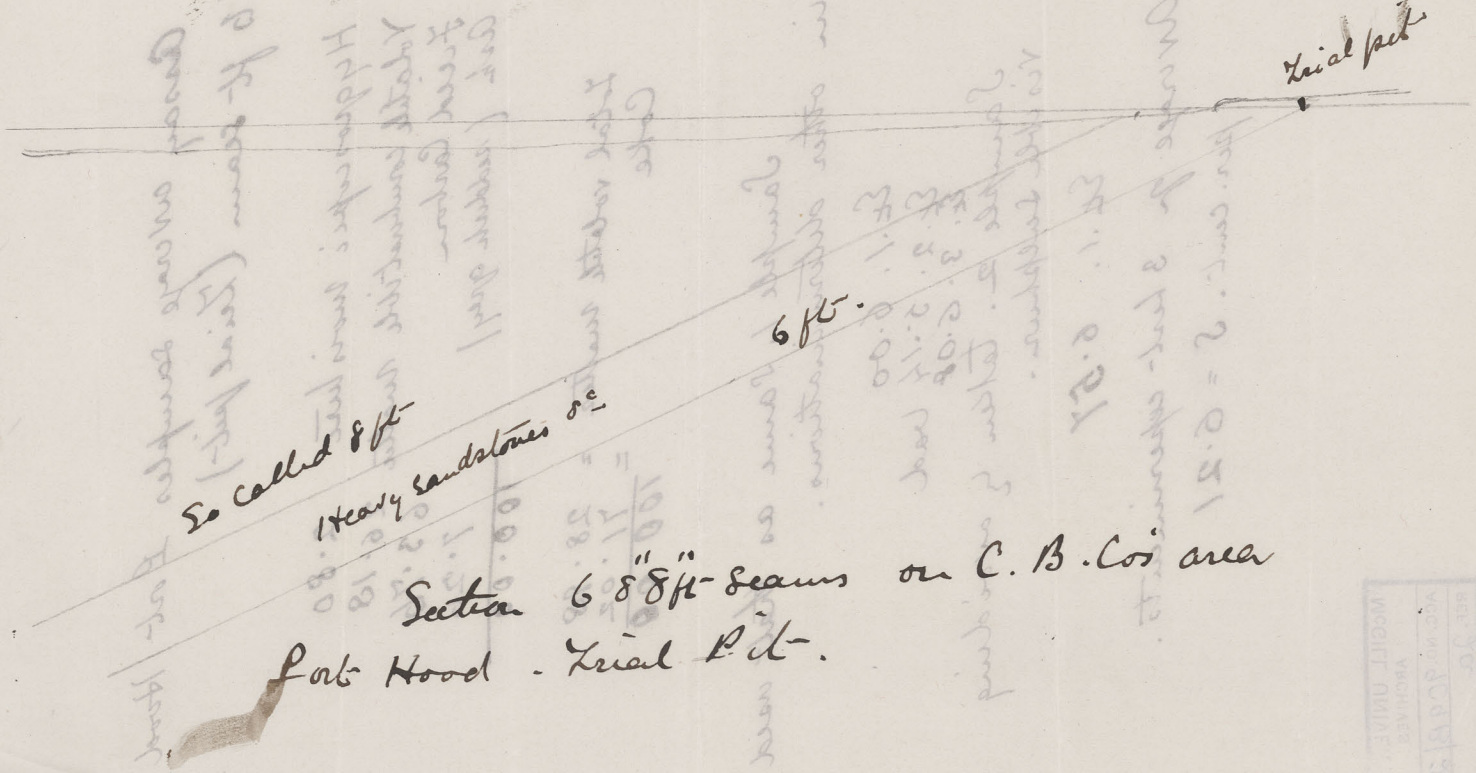
Sample 1. Same as that used in other determinations.

Et. 1. 6.00
Et. 2. 5.14 bad
Et. 3. 6.08

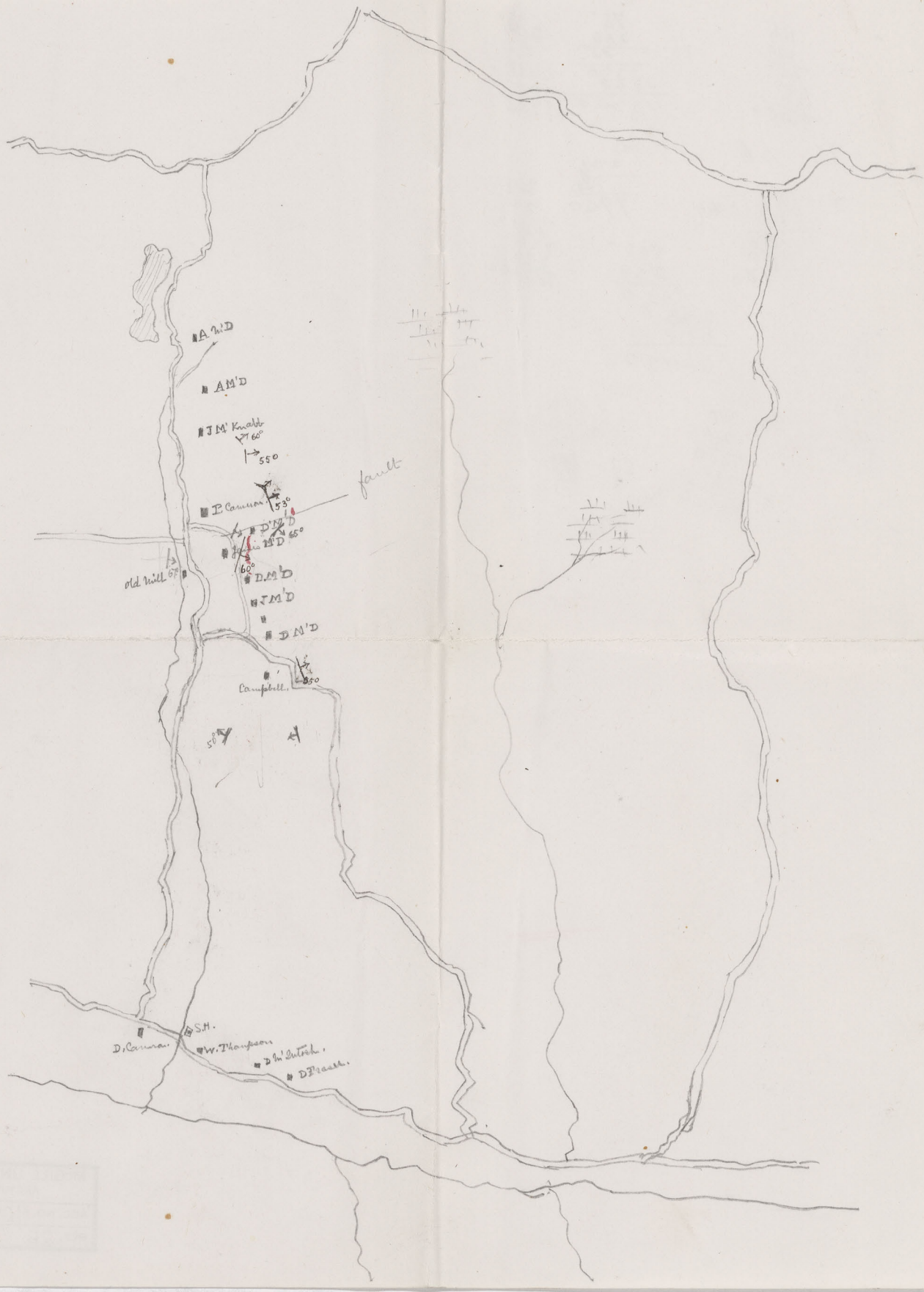
Sample 2. taken & avoiding visible Sulphur.

Et. 1. 6.57

Average of 3 best experiments.
per. cent. S = 6.21



Section 6 & 8 ft seams on C. B. Co's area
Fort Hood - Trial Pit.


A M'D
A M'D
J M' Knabb
60°
55°
fault
P Cannan
53°
D M'D
M'D
65°
60°
Old Mill
67°
D.M'D
J M'D
D M'D
Campbell.
55°
50°
S.H.
D. Cannan.
W. Thompson
D M' Intosh.
D Fraser.

114
264
456
684
228
30096

75
264
75
1320
1848
19700

264
240
10560
528
73360

25 : 66 :: 1

25 | 66 | 2.64
50
160
150
100

30
2.64
20
79.20

388
264
1552
2328
776
102432

405
264
1620
2430
810
106920

180
264
720
1080
360
47520

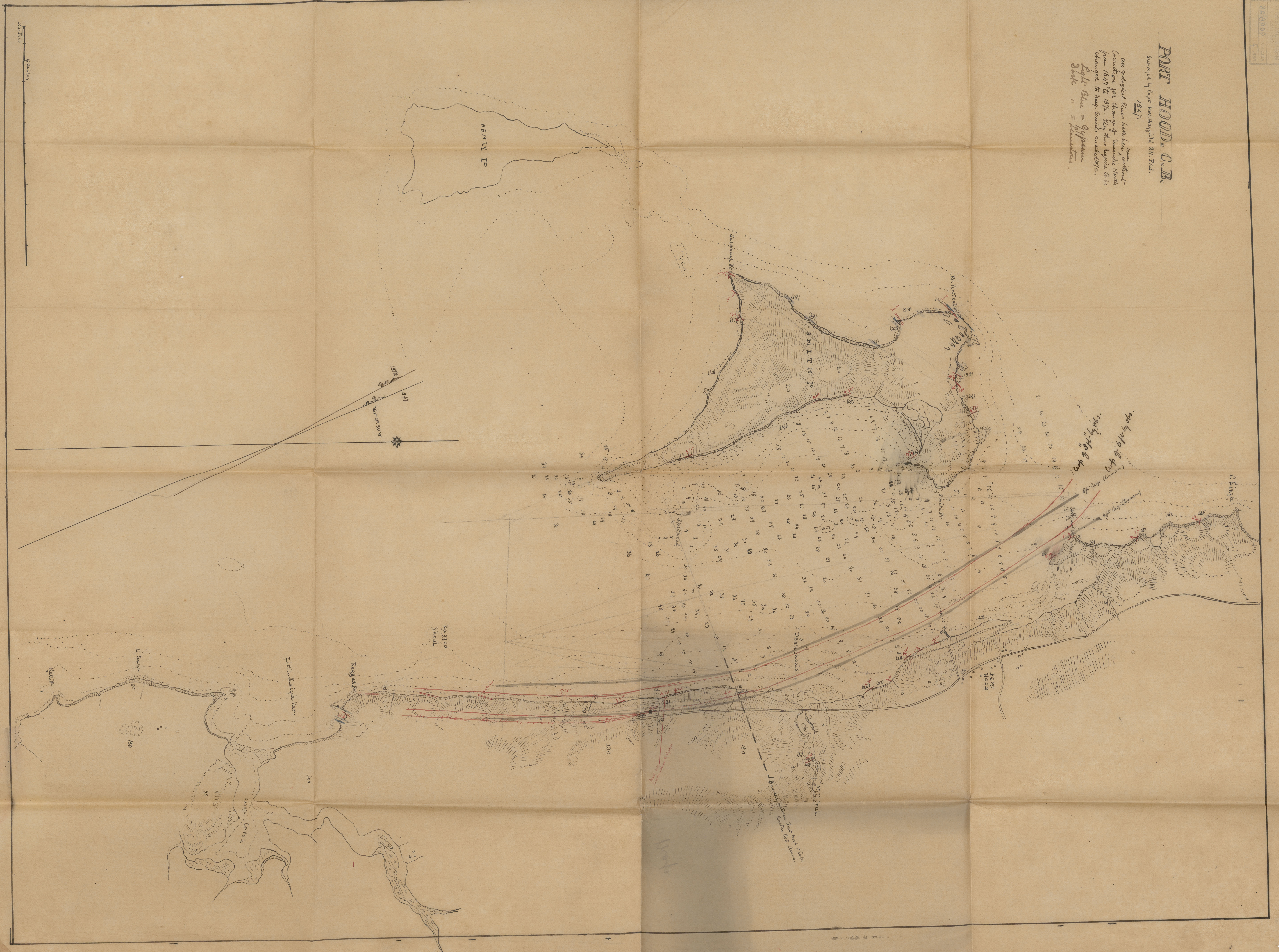
350
264
1400
2100
700
92400

2 2.64 200
528.00

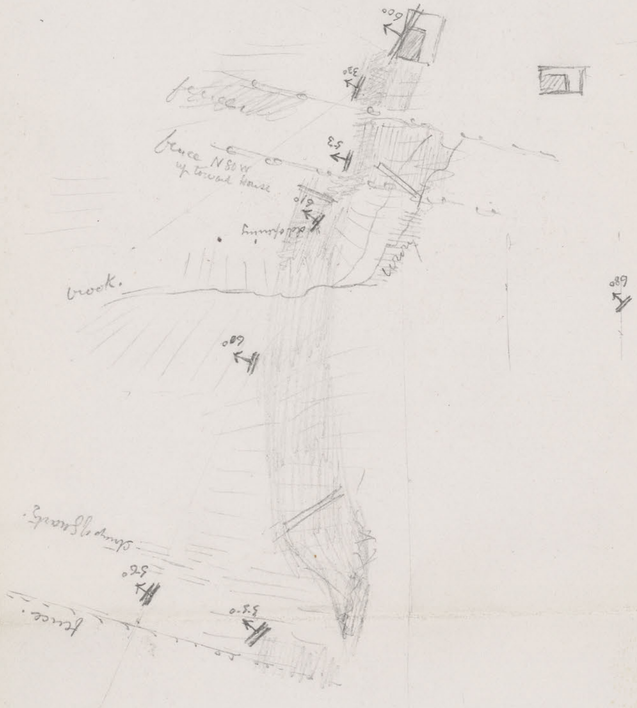
Map of Port Hood C. B.

by H. W. Bayfield

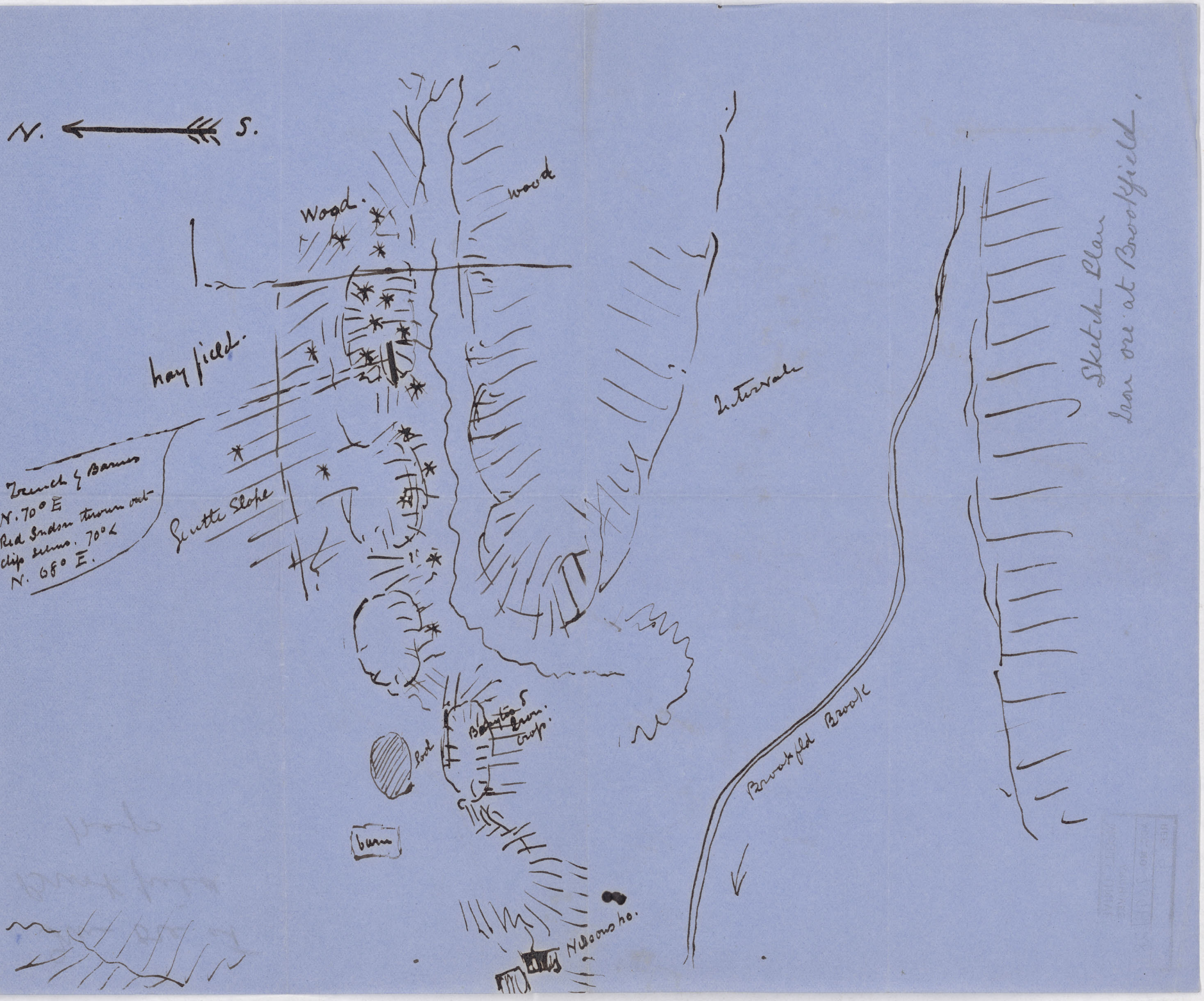
1847

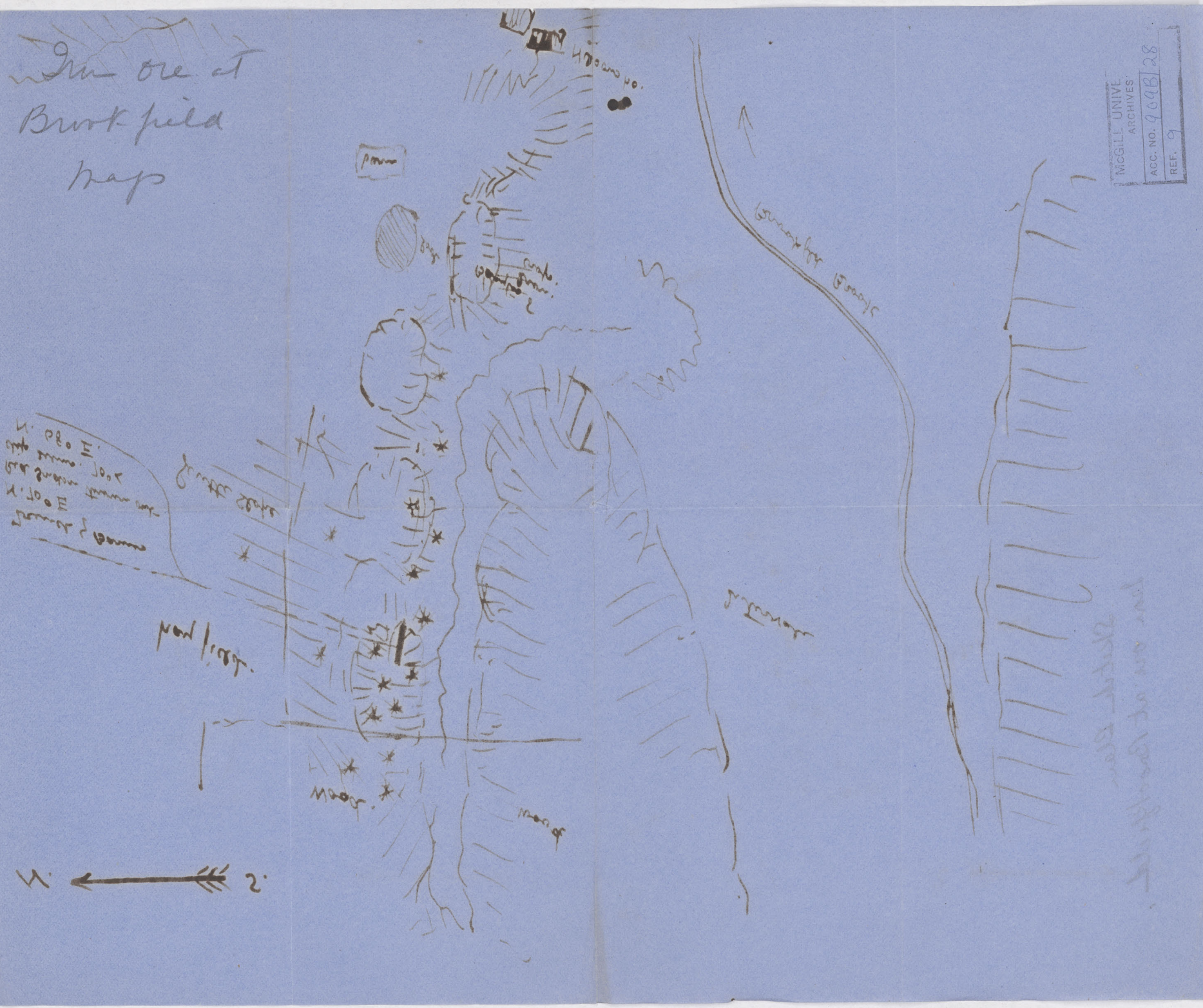

PORT HOOD. C.B.
Surveyed by Capt. H.W. Bayfield RN. FAS.
1847.
All geological lines have been drawn without correction for change of magnetic North from 1847 to 1872. They thus require to be changed to mag. merid: marked 1872.
Light Blue = Gypsum
Dark " = Limestone
HENRY I.
SMITH I.
PORT HOOD
1872
1847


PORT HOOD C.B.
Surveyed by Capt. H.W. Bayfield R.N. F.A.S.
1851
SMITH I.
HENRY I.
PORT HOOD


fence N 80 W
up toward House
brook.
fence.
180 pts rd. — 350 tho

L


N. S.
Wood.
wood
hay field.
Trench & Barrow
N. 70° E
Red Sandstone turned out
dip seems 70° N. 68° E.
Gutter Slope
Interval
Brookfield Brook
Sketch Plan
Lane one at Brookfield.



Sketch Map
of Iron ore at
Blanchards Settlement.

Duncan
Mc Donald

James Mc Donald

Campbell.

covered with drift.

hard altered ridge

hard altered ridge

Barn

Barn

1000'

Copy. Report
on Iron Ores at Brookfield
& Blanchard's Settlement.

Daps.

Reports on
coal mines &
iron ore.
by different
persons.
etc.
Port Henry,
Brookfield
Blanchards.

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