

FURTHER PAPERS

RELATING TO THE

SUPPLY OF WATER ON THE GOLD FIELDS.

PRESENTED TO BOTH HOUSES OF THE GENERAL ASSEMBLY, BY COMMAND OF
HIS EXCELLENCY.

WELLINGTON.

—
1871.

FURTHER PAPERS RELATING TO THE SUPPLY OF WATER ON THE GOLD FIELDS.

Mr. JOHN JAMES O'NEILL to Mr. BLACKETT.

SIR,—

Princes Street, Auckland, 13th October, 1871.

I have the honor to inform you, that, in accordance with your instructions, I have surveyed and taken sections at a high and low level, and made out plans and sections (herewith forwarded to you) for a proposed water supply for the Thames Gold Fields, and beg to report as follows, viz. :—

The High Level.—The high-level line commences at the Moanatairi Creek, 500 feet above the sea at high water, and ends at the River Kauaeranga, extending to 45 miles 12 chains or thereby, the cost of which I have estimated (exclusive of the value of the land) at £97,772. This sum, I have no doubt, would be repaid in a comparatively short period by the revenue obtained by the introduction of water. I found the opinion to be almost universal, that the higher the level the water could be got at, the better for the gold fields. This is my own opinion also. The high level first surveyed is as nearly as possible the height that will be of the greatest service, as a sufficient supply at all times may not be obtained at a much higher level.

During the period occupied by the survey of the high level, the weather was most severe—so much so that I was twice asked by my assistants to give the survey up till more favourable weather would set in. The state of the weather, therefore, caused a great delay in the completion of the survey. The constant rains kept the creeks leading to the Kauaeranga constantly flooded, and in that way there was seemingly a sufficient supply in the creeks themselves; but this supply, not very good in quality in times of flood, would cease in a great measure in an ordinarily dry summer.

The high-level water race, extended to the Kauaeranga itself, in addition to what would be picked up from the creeks, will in the driest seasons give a constant supply of at least forty heads of water.

By tunnelling at the places marked Nos. 1, 2, 3, 4, and 5 on plan, the line could be shortened. The tunnels would extend to 1 mile 14 $\frac{3}{4}$ chains, at a cost of £15,620; but if fluming be adopted instead of tunnels, it would extend to 10 miles 65 chains, at a cost of £22,430, being a difference in favour of the tunnels of £6,810.

After Mr. Puckey had obtained the permission from the Natives, the survey of the low level was proceeded with, but was interrupted, however, for some days by the objection of European occupiers of land on the line, which necessitated me to obtain authority from Captain Fraser, the Warden of the Thames, to proceed with the survey under the provisions of "The Gold Fields Act, 1866."

The low level line commences at the Moanatairi Creek, 132 feet above the sea at high water, and ends at the River Kauaeranga. It extends to 11 miles 70 $\frac{3}{4}$ chains or thereby. This line will at all seasons provide a constant supply of 40 heads of water. A good sum, however, will fall to be added for the purchase of portions of the land in the immediate vicinity of the Native settlement, as well as the land through which the line will pass occupied by Europeans. I have estimated the cost of the line (exclusive of the value of the land) at £29,603.

Both lines have been pegged off every hundred feet, at a grade generally of 1 in 1,000.

If either of the lines be adopted, I am of opinion that it will require very little repairs for twelve or fifteen years.

In the construction of the race, if as little of the bush be cleared away as possible, there will be no great damage done by trees falling across it. This can be proved by the examination of a race about 1,000 feet above the sea, near Punga Flat, at the Thames, successfully made use of for the conveyance of timber as well as for the supply of water. I examined this race several times, and found the water always pure and free from any vegetable matter or drift wood.

Small boats or punts sail along the race for the conveyance of stores, &c., and both the punts and wood, with a little care, float down without doing the slightest injury to the flume.

The River Kauaeranga or Wioakauaeranga, divided into two currents at one part by a large block of basalt, is a beautiful clear stream, admirably adapted for mining or domestic purposes. The lower portions of the bed of the river form a grade of about 15 feet, and the upper 100 feet, in the mile. The geological nature of the country is volcanic. The height of the dividing range of hills between the valley of the Kauaeranga and Grahamstown is about 2,000 feet.

I cannot conclude my report without acknowledging the prompt courtesy of His Honor the Superintendent of Auckland in placing his Provincial Government plans at my disposal.

I have, &c.,

John Blackett, Esq., C.E.,
Assistant Engineer-in-Chief, Wellington.

JOHN JAS. O'NEILL, C.E.

SUPPLY OF WATER ON THE GOLD FIELDS.

Estimate for High Level.

	£	s.	d.
41,796 cubic yards of excavating, at 1s. 6d.	3,134	14	0
22 chains tunnelling, timbering, and boxing, at £70	1,540	0	0
142 chains sleepers in cuttings	73	5	0
420 chains fluming, with footway, at £40	16,800	0	0
3,171 chains boxing and supports, at £20	63,420	0	0
Nails and spikes	3,532	0	0
Footpath along the line	2,998	0	0
Clearing bush	899	10	0
Branch flumes	720	0	0
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	£93,117	9	0
Contingencies, &c., 5 per cent.	4,655	0	0
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	£97,772	9	0

Estimate for Low Level.

	£	s.	d.
18,872 cubic yards of excavating, at 1s. 6d.	1,415	8	0
6 chains tunnelling, timbering, and boxing, at £70	350	0	0
126 chains sleepers in cuttings	64	10	0
280 chains fluming, with footway, at £40	11,200	0	0
675½ chains boxing and supports, at £20	13,506	0	0
Nails and spikes	942	0	0
Footpath along the line	650	0	0
Clearing bush	67	0	0
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	£28,194	18	0
Contingencies, &c., 5 per cent.	1,409	0	0
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	£29,603	18	0

Auckland, 13th October, 1871.

JOHN JAMES O'NEILL, C.E.