

1917.  
NEW ZEALAND.

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# WAIKATO RIVER COMMISSION

(REPORT OF THE).

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*Presented to both Houses of the General Assembly by Command of His Excellency.*

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## COMMISSION.

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LIVERPOOL, Governor-General.

To all to whom these presents shall come, and to Frederick William Furkert, Esquire, Inspecting Engineer, Public Works Department, Wellington; Charles Rankin Vickerman, Esquire, Civil Engineer, Wellington; and William Charles Kensington, Esquire, of Marton: Greeting.

WHEREAS, in pursuance of the powers conferred upon it by the Land Drainage Act, 1908, the Drainage Board of the Akaaka Drainage District constructed certain drains emptying into the Waikato River for the purpose of draining certain lands within the boundaries of the said district: And whereas, in pursuance of the powers conferred upon it by the River Boards Act, 1908, the River Board of the Waikato River District constructed certain groynes in the Waikato River near the outlets of the aforesaid drains: And whereas it is represented to me that the said groynes are causing part of the Waikato River to silt up in such a manner as injuriously to affect certain reclaimed lands outside the boundaries of the said river district and within the boundaries of the said drainage district, by stopping the outlets of the said drains and preventing the egress therefrom into the Waikato River of the water carried by the said drains: And whereas it is desirable that inquiry be made into the matter of the silting-up of the said river and the stopping of the outlets of the said drains:

Now, therefore, I, Arthur William de Brito Savile, Earl of Liverpool, the Governor-General of the Dominion of New Zealand, in pursuance and exercise of the power and authority conferred upon me by the Commissions of Inquiry Act, 1908, and of all other powers in anywise enabling me in this behalf, and acting by and with the advice of the Executive Council of the said Dominion, do hereby appoint you, the said

FREDERICK WILLIAM FURKERT,  
CHARLES RANKIN VICKERMAN, and  
WILLIAM CHARLES KENSINGTON,

to be a Commission under the Commissions of Inquiry Act, 1908, for the purpose of holding an inquiry and making a report upon the following matters and the necessity for any legislation relating thereto:—

1. Whether the said groynes are necessary either for protection of the bank of the Waikato River, or to improve the river for the purposes of navigation or discharge of flood-waters effectively.

2. Whether the said groynes cause the Waikato River to silt up at the outlet of the said drains in such a manner as to prevent the free egress of water carried by the said drains.
3. Whether the channel now groyned will have an adverse effect on navigation to mouth of Akaaka Stream, or will prejudice the construction of the Waikato-Manukau Canal.
4. Whether, if the said groynes have so caused the silting-up of the Waikato River as to prevent the free egress of water from the said drains, any substantial damage to the lands drained by the said drains has already been or is likely to be caused thereby.
5. Whether, in the event of substantial damage having already been caused as aforesaid, or in the event of any such damage being likely to be caused by the existence of the said groynes, it will be possible in any way to remedy or prevent such damage at a reasonable cost without removing groynes; and, if so, by what means could this be done.
6. Whether, in the event of its not being possible to remedy or prevent such damage without removing the said groynes, the removal of the said groynes would cause more material damage both to lands bordering the river and to navigation than the silting-up of the Waikato at the outlet of the said drains.
7. Whether legislation is necessary or desirable to enlarge or restrict the powers of either or both the Waikato River Board and the Akaaka Drainage Board in order to cope with any difficulties that have arisen through the separate existence and separate operations of those local bodies.

And, further, I do require you to recommend by whom and in what proportions the costs of and incidental to the inquiry shall be borne.

And with the like advice and consent I do further appoint you, the said

FREDERICK WILLIAM FURKERT,

to be Chairman of the said Commission; and, further, I do require you to report to me your opinion as to the aforesaid matters within twenty-one days of the date hereof.

And, lastly, it is hereby declared that these presents are issued under and subject to the Commissions of Inquiry Act, 1908.

Given under the hand of His Excellency the Right Honourable Arthur William de Brito Savile, Earl of Liverpool, Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, Member of the Royal Victorian Order, Governor-General and Commander-in-Chief in and over His Majesty's Dominion of New Zealand and its Dependencies; and issued under the Seal of the said Dominion, at Government House, at Wellington, this seventeenth day of September, in the year of Our Lord one thousand nine hundred and seventeen.

G. W. RUSSELL,  
Minister of Internal Affairs.

Approved in Council.  
J. F. ANDREWS,  
Clerk of the Executive Council.

## REPORT.

To His Excellency the Right Honourable Arthur William de Brito Savile, Earl of Liverpool, Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, Member of the Royal Victorian Order, Governor-General and Commander-in-Chief in and over His Majesty's Dominion of New Zealand and its Dependencies.

MAY IT PLEASE YOUR EXCELLENCY,—

Your Warrant dated the 17th day of September, 1917, appointed us a Commission to inquire into and report on the following matters:—

1. Whether the said groynes are necessary either for protection of the banks of the Waikato River, or to improve the river for the purposes of navigation or discharge of flood-waters effectively.
2. Whether the said groynes cause the Waikato River to silt up at the outlets of the said drains in such a manner as to prevent the free egress of water carried by the said drains.
3. Whether the channel now groyned will have an adverse effect on navigation to mouth of Akaaka Stream, or will prejudice the construction of the Waikato-Manukau Canal.
4. Whether, if the said groynes have so caused the silting-up of the Waikato River as to prevent the free egress of water from the said drains, any substantial damage to the lands drained by the said drains has already been or is likely to be caused thereby.
5. Whether, in the event of substantial damage having already been caused as aforesaid, or in the event of any such damage being likely to be caused by the existence of the said groynes, it will be possible in any way to remedy or prevent such damage at a reasonable cost without removing the said groynes; and, if so, by what means could this be done.
6. Whether, in the event of its not being possible to remedy or prevent such damage without removing the said groynes, the removal of the said groynes would cause more material damage both to lands bordering the river and to navigation than the silting-up of the Waikato at the outlets of the said drains.
7. Whether legislation is necessary or desirable to enlarge or restrict the powers of either or both the Waikato River Board and the Akaaka Drainage Board in order to cope with any difficulties that have arisen through the separate existence and separate operations of those local bodies.

These matters have received our most careful consideration. We now have the honour to submit to Your Excellency our report thereon.

In pursuance of Your Excellency's instructions, we advertised a sitting of the Commission to be held at the Courthouse, Waiuku, at 10 a.m. on the 22nd September, 1917. The Akaaka Drainage Board was represented at the sitting, but although members of the Waikato River Board, including the Chairman, were present, they decided that officially they could not appear on behalf of the River Board, but would give evidence simply as ratepayers thereof. In this attitude they were guided by the advice of their solicitor, whose opinion is attached hereto [not printed]. None of the interested parties employed counsel, but Mr. H. E. R. L. Wily, one of the owners of land in the Akaaka, represented the Akaaka Drainage Board and conducted their case. Mr. Glass was the principal mouthpiece of the ratepayers of the Waikato River Board.

Before proceeding further it would be as well to state that the Commission confined its inquiries entirely to the region between what is known as the Devil's Elbow and Oteata Point, and particularly the influence which the River Board's works may have had on the works and lands under the control of the Akaaka Drainage Board.

*Local Visits.*—Preliminaries having been arranged, we adjourned the sittings of the Commission until Tuesday, the 25th, to enable the Commission to visit the district affected and to view principally the works already carried out both by the River Board and the Drainage Board. We spent the remainder of Saturday and the next two days travelling over the district, particularly the river between the Devil's Elbow and Oteata Point, and the various channels between the islands that stud the river from Kaitangata Point seawards, and which are shown on map attached [not printed].

*Witnesses.*—We sat again on the 25th, 26th, and 27th in Waiuku, and then proceeded to Auckland on the 28th, where we took further evidence, the sittings at Auckland having also been notified in the public Press in advance. We took the evidence on oath of twenty-three witnesses, twenty-one of whom were examined at Waiuku and two in Auckland. In addition a written statement was received from Mr. R. J. Hamilton, a property-owner in the Waikato district, who also attended the Commission and explained his letter.

Mr. Hamer, M.I.C.E., Engineer to the Auckland Harbour Board, furnished the Commission with a graphical representation of the river-levels at Mercer, extending over a period of years, also tidal diagrams showing the action of the tide in the Waikato River, and an explanatory letter, copy of which is attached [not printed].

The following plans [not printed] are enclosed to illustrate the report:—

- A. General plan from Devil's Elbow to near Oteata Point, showing the islands and channels in river, the groynes as built, shoaling as surveyed by Mr. Ashley Hunter, and also a portion of the Akaaka Drainage District and its outlet-drains delivering into the river.
- B. Copy of the plan accompanying the Order in Council issued by the Marine Department authorizing the work of the River Board, 19th April, 1912.
- C. A comparative plan and section from Mercer to the sea, showing the variation between the survey made by Mr. Breakell in 1911 and the survey by the Lands Department in 1913.
- D. Plan, dated 1862, of soundings taken by Captain Greaves, D.A.Q.M.G., Her Majesty's Forces, Waikato Heads to Tuakau.
- E. General plan of the district, showing the Akaaka and Otatau Drainage District, the Waikato River Board boundary, and the general course of the river.
- F. Waikato River anchorage, 1863.
- G. Graphical representation of levels of Waikato River at Mercer, April, 1914, to date.

*Physical Characteristics.*—The Waikato River and the greater number of its tributaries take their rise in country which is within the volcanic area of the North Island, and which is covered to a greater or less extent with pumice and other easily eroded materials, and as a consequence it carries great quantities of pumiceous sand derived directly from the volcanoes as explosive dust and from the disintegration by natural agencies of the pumice and other soft rocks. This detrital matter has a very low specific gravity, and as the result the travel of detrital matter is not, as in most rivers, confined to flood-time, but is carried on continuously. An examination of the river-bed at any time or place discloses a constant movement of a volume of sandy material of greater or less thickness constantly moving down-stream. Uninterrupted discharge of this material to the sea requires a minimum of obstruction in the course of the river. The presence of any obstructing agency such as a snag results in the immediate formation of a sandbank. The sandbanks are constantly shifting and changing their shapes and dimensions, but there is usually to be found between them a navigable channel of greater or less depth. The above added to the extremely low fall in the lower reaches and the tidal obstruction is the problem of the river.

*History and Condition of Present Works.*—The old plan, number D, previously referred to, shows a navigable channel via the southern channel, between Oteata Point and the Devil's Elbow and Tuakau; but an explanatory note on the plan to the effect that the river was then 3 ft. above normal rather discounts its value as

evidence, especially as in the knowledge of one of the Commissioners, and by the weight of sworn evidence, the principal navigable channel was in olden times along the north bank. Until the commencement of the River Board's operations there seems little doubt that the northern channel, or a combination of the northern and middle channels, was still the best route.

In 1911 a combination of landowners to the south of Mercer formed a drainage association with the object of endeavouring to reclaim their swamp land, which lay so low that even with a very moderate rise in the stage of the river they were submerged. Contingent on their operations also hung the question of the draining of some thousands of acres of Crown lands in the Whangamarino and Maramarua district. This association very soon found that it required more extended power to enable it to deal with the question satisfactorily, and took steps to form a River Board. About the same time they employed a Mr. Breakell to make surveys and devise a scheme of river-improvement which would attain the object sought. Unfortunately, later investigations have shown that the work done by Mr. Breakell was inaccurate, and it led the River Board to assume that results could be obtained which a more complete knowledge of the facts leads one now to suppose are practically impossible. Before commencing on their scheme of operations the Board obtained the services of Mr. Mowatt as Resident Engineer, who made a survey of the islands in the river and projected a system of groynes with the assistance of Mr. Breakell's data.

(NOTE.—Although throughout this report and the evidence the structures erected are referred to as "groynes," they really partake more of the nature of training-walls. They consist of long rows of white-pine piles, in some cases attached by wire and wattled in between with willows. In the upper ones the piles were about 8 ft. apart, and in some cases short spurs were attached at right angles to the main run of the river. At the lower ones, in the open bay, the piles were at approximately 2 ft. centres, and there are no willows. No plan of these structures was produced, and the Board's overseer stated that the type was varied at his discretion. At the present time the works cannot be considered as in a satisfactory state of affairs.)

Mr. Mowatt's plan was submitted to Mr. Kennedy as Consulting Engineer to the Board, and he approved the same with some modification, and the matter was then referred to the Marine Department and an enabling Order in Council obtained. It has now been shown that the plan prepared by Mr. Mowatt was extremely inaccurate, and that the work had not been carried out in accordance therewith, either as regards the type, number, position, or extent of the groynes. In connection with its operations, no doubt in consideration of the fact of relief being promised to Crown lands, financial assistance towards the works to the extent of approximately £2,500 was given by the Government. The balance of the funds expended, some £6,000, was obtained by a loan raised on the security of the lands included within the River Board's district.

In addition to the reach of the river dealt with in the Order in Council, the Board has also proceeded up-stream a distance of two miles, and on this part of the river erected an almost continuous line of works, for which it obtained no legal sanction.

*Navigation.*—Here it would be as well to explain how the improvements of navigation came to be included within the scope of the Board's operations. The Board found by the advice of its engineers that their works were likely to result in improved navigational facilities, and, no doubt with the object of obtaining further popular support, have laid increasing stress on this navigation question as time progressed, whereas at the inception of the Board navigation was entirely subordinated to the question of drainage.

#### *Reference—Clause 1.—Necessity for Groynes.*

1. (a.) In our opinion the groynes are not necessary for the protection of the banks of the river.

1. (b.) Although some groynes, if properly placed so as to provide a channel of sufficient width, should eventually tend to improve navigation, the structures as at present placed and built are not satisfactory.

1. (c.) The said groynes as at present constructed and placed are not necessary for the effective discharge of flood-waters, but rather, from evidence supplied, have a retarding effect.

*Reference—Clause 2.—Siltng Effects.*

The groynes as now placed have caused silting up at the back of them, which will extend down-stream if the groynes are kept in repair, and must eventually affect the mouths of the Akaaka Drainage Board's drains. So far the mouths have not been seriously affected, but silting-up is visibly increasing over the area adjacent to the mouth of the eastern drain.

*Reference—Clause 3.—Navigation.*

The navigation of the channel known as the Akaaka or northern channel, which gives access to the Akaaka Stream, has been already affected by the action of the groynes silting up the channel, and as the mouth of the proposed Waikato-Manukau Canal, as already laid out, will be in this vicinity it must also suffer accordingly. In this connection the Commission would like to point out that a diversion of the canal might be made whereby its junction with the Waikato River would be in the vicinity of the Mangawhero Creek (near the 'Devil's Elbow'). If this were done the silting trouble caused by the groynes would not affect it, but its length and consequently its cost would be increased, and such increased cost would appear rather a charge against the river than against the canal.

*Reference—Clause 4.—Damage to Lands.*

Up to the present the banks caused by the said groynes have not seriously affected the egress of water from the said drains, but it is merely a matter of time. They will increase, and do so if the groynes are retained and kept in proper repair. Any interference with the drains must necessarily reflect adversely on the lands.

*Reference—Clause 5.—Remedial Measures.*

Substantial damage has not yet occurred: it is likely, but can be avoided by constructing a new outlet sufficiently far down-stream to be beyond the adverse influences, or possibly by periodical dredging when such is found necessary.

*Reference—Clause 6.—Alternative Remedial Measures.*

The removal of the groynes would cause no damage to the river or to the land bordering on it. As far as the evidence goes, they have not improved the navigation to any extent up to the present. Owing to the hard shoal at Pakau Stream (known locally as "the sheep-paddock") not having materially scoured, the expected action of the rest of the scheme has not appreciably taken place.

*Reference—Clause 7.—Legislation.*

While clause 84 of the River Boards Act forbids the carrying-out of any work which interferes with the operations of another local body already in existence, the question of what constitutes interference is not adequately defined, nor is any provision made whereby the cost of alterations, which may prove necessary to the works of the prior constituted local body, should be charged to the body carrying out the later works. We are of opinion that the erection of works in a river which cause silting at the outlets of existing drains is interference within the meaning of this Act, and that therefore the Waikato River Board should have obtained the consent of the Akaaka Drainage Board to their works, or have entered into an amicable agreement with them as to the apportionment of costs of future maintenance; whereas, on the other hand, they not only did not do so, but they refused to even meet the Akaaka Board in open conference, though repeatedly approached for that purpose. Had the conference referred to and pressed for by the Akaaka Drainage Board been held, and an amicable settlement then arrived at, none of this present trouble need have arisen.

In the event of it being impossible for two such local bodies to agree, we are of opinion that the law should make a provision that the dispute should be referred to

the Minister of Public Works as arbitrator. The recently passed River Boards Act Amendment Act makes full provision whereby the Government can overcome the neglect or the dereliction of duty of any River Board.

*Costs.*—While our finding is such that in an ordinary civil case it would result in the appellants being granted costs, we also find that the Waikato River Board is practically without funds, and we consider that the most satisfactory way to apportion the costs will be for the Government to pay the cost of the Commission, while each local body pays the expenses of its own witnesses. In this we are not influenced in any way by the Waikato River Board refusing to appear officially before the Commission.

We were materially assisted in our consideration of the various questions by having before us reports, &c., on the river questions of the several dates, &c., as follows :—

W. C. Breakell, of 3rd March, 1911.

C. D. Kennedy, of 26th November, 1911, 1st June, 1912, 29th August, 1912, 18th March, 1914, and 27th October, 1916.

Ashley J. Hunter, of 19th August, 1912, and 10th June, 1916.

J. B. Thompson, of 19th August, 1912, and 10th December, 1912.

E. Simmonds, proposal for new Akaaka outfall, 16th October, 1916.

Extracts from minutes from the Akaaka Drainage Board meeting held 11th May, 1912.

Letter from Mr. W. H. Hamer, M.I.C.E., Engineer to Auckland Harbour Board, *re* river-levels and canal, 29th September, 1917.

Copy of letter from R. H. Hamilton, 26th September, 1917.

Local newspaper cutting of 5th August, 1913, quoting Mr. J. B. Thompson's report and Mr. C. D. Kennedy's reply thereto.

Circular by G. G. Hull, Chairman, Akaaka Drainage Board, 26th December, 1916.

Chairman (Mr. Glass), legal opinion by solicitor to Waikato River Board, 24th September, 1917.

Copies of these reports are attached.

And this our report, which has been unanimously adopted, we have the honour respectfully to submit for the consideration of Your Excellency in obedience to the Commission addressed to us.

Given at Auckland, under our hands and seals, this 3rd day of October, 1917.

F. W. FURKERT, Chairman of Commission.

CHAS. R. VICKERMAN, }  
WM. C. KENSINGTON, } Commissioners.

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