

(No. 73.)



1875.

T A S M A N I A.

H O U S E O F A S S E M B L Y.

MERSEY AND DELORAINÉ RAILWAY.

ENGINEER'S REPORT, WITH PLANS AND ESTIMATES.

Laid upon the Table by the Minister of Lands and Works, and ordered by the
House to be printed, August 26, 1875.



MERSEY AND DELORAINE TRAMWAY.

Hobart Town, 10th October, 1873.

SIR,

REFERRING to my recent interviews with you respecting the sale to the Government of the Mersey and Deloraine Tramway, I have the honor to state, on behalf of Mr. Foster and myself, that we are not prepared to sanction the sale of the Line under £15,000. At this price, and putting a fair value on the land granted by way of bonus for the construction of the works, we would each be losers, including interest to the end of last year, of more than £10,600. At the price here named we are ready at once to take steps to carry out the sale to the Government of—

First—The Tramway Line with the land to the distance of 50 links on each side, measuring from the centre.

Second—Sites for Stations.

Third—All Rolling Stock and Plant belonging to the Line.

The vendors will reserve the right to mine for coal under the land sold.

I have, &c.,

(Signed) ASKIN MORRISON,

The Hon. the Minister of Lands and Works.

Lands and Works Office, Hobart Town, 14th October, 1873.

SIR,

I AM in receipt of your letter of the 10th instant, offering to sell to the Government the Mersey and Deloraine Tramway, including land, buildings, machinery, rolling stock and plant, &c., for the sum of £15,000.

In reply I have the honor to state that, having regard to the large expenditure which it will be necessary for the Government to incur, not only for the completion of the Line, but also for the construction of roads as feeders to the Railway; considering also that the value of the land now held and which will be retained by the Company will thereby be greatly increased, and the facilities which the completion of the said Railway will afford in the development of the Coal Fields known to exist on the land in question, the Government would not be prepared to recommend to Parliament a larger sum than £12,500 for the purchase of the said Railway.

I have, &c.,

(Signed) WM. MOORE, *Minister of Lands and Works.*

ASKIN MORRISON, *Esq., Hobart Town.*

New Wharf, 21st October, 1873.

SIR,

I HAVE the honor to acknowledge receipt of your letter of the 14th instant, and to state in reply that Mr. Foster has agreed with me to submit to the views of the Government by promoting the sale at the reduced price of £12,500, provided the light rails used during the construction of the Railway, and which are now required at the coal pit, be excepted from the plant.

I have, &c.,

(Signed) ASKIN MORRISON.

The Hon. the Minister of Lands and Works.

The Globe Foundry, Globe Road, Water Lane, Leeds, 16th December, 1873.

SIR,

IN reply to your favour of October 7th, copy of which has been forwarded by Mr. Lord, expressing the dissatisfaction of the Tasmanian Government at the unreasonable delay that has taken place in the completion of the Locomotive for the Launceston and Western Railway, I beg to say that a copy of your letter has been sent to Messrs. Sharp, Stewart, and Co.; and they state in reply that you have doubtless cause for complaint, but that the strikes amongst their workmen rendered them helpless in the matter; that they are doing their best to remedy past delay; and that the engine is now approaching completion.

I am personally greatly annoyed, as you would naturally think that I had not sufficiently urged the importance of early delivery. This I can assure you has not been the case, and I will take steps in future to prevent a recurrence.

I have now the honor to submit photographs and prices of two locomotives, either of which are suited for the 3ft. 6in. gauge and a 40lb. rail. They are both engines that have been well tested; a number of the four-wheels coupled tank engines being now used on the Norwegian narrow gauge Railways, and of the six-wheels coupled engines on the Queensland Railways: the Government have lately ordered eight (making the total number sixteen) to the same drawings and specification I sent home from Queensland some years ago. The fire-box in the present engines has been lengthened 6 inches, and the stroke increased from 18 feet to 20 feet. The capacity of the tender has been added to, and the wheels altered from 2 feet to 2 feet 9 inches diameter.

With regard to the 4-wheeled bogie, I can assure you that it is not as efficient as the 2-wheeled Bissell bogie when arranged as it is in these engines; besides, that it takes up space that ought to be reserved for the coupled driving wheels. This bogie consists of a truck carrying the axle-boxes and leading wheels, a wrought-iron plate forming part of the truck being stayed back to a cross girder between the frames, where it radiates about a fixed centre, 1 inch play being allowed the leading wheels to right or left in traversing curves. These wheels, therefore, serve to guide the engine round the curves, which they do very smoothly, and without the least jerking motion to which a 4-wheeled bogie working about its own centre is liable.

In the ascent of the Main Range in Queensland of 15 miles, the average gradient for the whole distance being 1 in 70, whilst 4 miles 14 chains of it are 1 in 50, the above six-wheels coupled engines take up gross loads of 70 tons as their ordinary load.

I know of no other engine of the same weight that will do as much and at the same time traverse curves of 5 chains radius with ease.

The chief objection to the smaller engine is the small capacity of the trucks, which would involve additional pumping stations, a constant cause of expense, and the greater weight on the driving wheels, this being from 6 tons 5 cwt. to 6 tons 12 cwt. as compared with 5 tons 5 cwt. in the six-wheels coupled engine. In the latter the weight is more equally distributed on the three pairs of driving wheels, and there is less weight for the bogie to carry. As little weight as practicable should be thrown on the bogie, because its wheels are only carrying and not driving; and if you will kindly compare the Launceston and Western engines with the six-wheels coupled one, you will note how much of the weight is uselessly laid on the 4-wheeled bogie.

The engine I am sending you will, I am sure, compare favourably with the present engines, specially when the respective weights are considered.

The six-wheels coupled engine and tender I recommend have been perfected by degrees; various improvements suggested by actual working over a difficult line having been introduced in three successive orders, all for the same class; and if you make trial of them I am satisfied they will be found most economical and efficient.

The first cost may be somewhat reduced by adopting iron tubes instead of brass ones in the boilers, and as the water is good in Tasmania they may be adopted.

You could not expect to receive either engines much under nine months from the time the order was received here.

I have, &c.,

(Signed) J. F. L. JETTER.

The Hon. the Minister of Lands and Works.

Lands and Works Office, 10th February, 1874.

SIR,

THE enclosed specifications and photographs of locomotive engines just furnished me by J. F. L. Jetter, Esquire, are forwarded to the Manager of the Launceston and Western Railway for the information of the locomotive foreman.

The Minister of Lands and Works is favourably impressed with the six-wheeled coupled engine for a 3ft. 6in. gauge on a 40lb. rail; it is questionable, however, whether it would answer for the Mersey and Deloraine Line with a 30lb. rail.

An engine similar, except as regards weight and diameter of cylinder, would answer admirably for that line,—say diameter of cylinder 10 inches, weight 15 tons. Perhaps the Locomotive Foreman will favour with his views.

The Minister of Lands and Works is aware of a difficulty; viz., that English firms will not undertake new pattern engines for small orders.

I have, &c.,

(Signed) GEORGE F. LOVETT,

By instructions of the Hon. the Minister of Lands and Works.

R. W. LORD, Esq., Manager,

Launceston and Western Railway, Launceston.

SPECIFICATION of Six Wheels coupled Engine and Tender.

Messrs. Kitson and Co., of Leeds, offer to supply two Locomotives and Tenders to the specification and drawings of those they are constructing for the Queensland Government, of the best material and workmanship, for the sum of £2100 (say Two thousand one hundred Pounds) for each Engine with Tender delivered in Liverpool. Terms of payment—Net cash upon presentation of Bills of Lading.

SPECIFICATION of Bogie Tank Locomotive.—Gauge of Rails 3ft. 6in.

Cylinders, outside, 11in. diameter × 18in. stroke.

Wheels, leading, 2ft. diameter, fitted with Bissel bogie.

Ditto, driving, 3ft. 9in. diameter, coupled with compensating balance beam.

Ditto, trailing, 3ft. 9in. diameter, ditto.

From centre of leading wheel to centre of trailing wheel, 14ft. 3in.

Central buffer and draw-hook combined, 2ft. 6in. from rail.

Boiler, 8ft. long × 2ft. 10½in. diameter, with 107 brass tubes, 15ft. 8in. diameter outside.

Copper fire-box 3ft. 3in. long × 2ft. 3in. wide × 3ft. 7½in. high.

Heating surface in tubes	<i>sq. ft.</i> 376·48
Ditto in fire-box	40·

Total..... 416·48

Area of fire-grate..... 7·31

Side tanks to contain 300 gallons of water.

Fuel space equal to 22·5 cubic feet.

	<i>Full.</i> tons cwt. qrs.	<i>Empty.</i> tons cwt. qrs.
Weight on leading or bogie wheels.....	4 2 0	3 18 0
Ditto, driving ditto	6 12 0	5 8 3
Ditto, trailing ditto	6 5 0	4 14 3
Total.....	16 19 0	14 1 2

All materials and workmanship to be the best of their respective kinds.

Price for two of these engines packed for shipment and delivered free on board in London or Liverpool, £1600 each.

LOCOMOTIVE FOR MERSEY AND DELORAINÉ LINE.

Launceston and Western Railway,

Manager's Office, Launceston, Tasmania, 18th March, 1874.

SIR,

IN conformity with your Memorandum of 10th February last, I have now the honor to forward you copy of the Locomotive Foreman's Report on the Locomotive Engines, photographs of which were forwarded to you by Mr. Jetter.

I have, &c.,

(Signed)

R. W. LORD.

The Hon. the Minister of Lands and Works.

(Copy.)

*Locomotive Department, Launceston and Western Railway,
16th February, 1874.*

DEAR SIR,

IN reply to yours of the 11th instant, enclosing two photographs of Locomotive Engines suited for 3 ft. 6 in. gauge, and a letter from the Hon. the Minister of Lands and Works asking me to report on the particular matter referred to therein.

I beg to state that having heard that the gradients on the Mersey and Deloraine Railway are light, and the curves of easy radius, I think the four-wheeled coupled engine would make a serviceable one, and would suit all purposes if the tanks were taken off, the framing cut where marked with pencil, and a four-wheeled tender added, so as to carry more water and fuel, and to distribute the weight to suit a 30 pounds rail: this could be done without altering the templates or patterns, and would not add very much to the cost.

The six-wheels coupled engine shown in photograph I am well acquainted with, having been Locomotive Foreman at Towoomba when they arrived in Queensland, and afterwards saw them working for some time; they are a good serviceable engine and do their work well, but I should think would be too large for the traffic on the Mersey Line for some time, and to alter them as suggested would cause some trouble, particularly such parts as the cylinder patterns and boiler templates, &c., so as to reduce the weight to 15 tons; but should the traffic be expected to be heavy, and the gradients heavier than I am aware of, viz., 1 in 70 for a short distance only, you could not have a more serviceable engine, but upon no account would I recommend the use of iron tubes, as they are a constant nuisance either with good water or bad.

I have, &c.,

(Signed) W. E. BATCHELOR, *Loco. Foreman.**The Manager, Launceston and Western Railway.**Launceston and Western Railway,
Manager's Office, Launceston, Tasmania, 11th May, 1874.*

SIR,

I HAVE the honor to enclose you the Locomotive Foreman's Report upon the Engine on the Mersey and Deloraine Tramway, and his estimate of the probable cost of altering.

I have, &c.,

(Signed) R. W. LORD.

The Hon. the Minister of Lands and Works.

(Copy.)

*Launceston and Western Railway, Locomotive Department,
6th May, 1874.*

ROLLING STOCK ON THE MERSEY LINE.

DEAR SIR,

I HAVE to report that I have examined the Locomotive Engine at Latrobe, No. 2030, built in the year 1870, by Messrs. Sharp, Stewart, & Co., Atlas Works, Manchester.

The above engine is one of a class generally used for shunting purposes; it is a four-wheeled engine, with outside cylinders 8 in. in diameter and 15 in. stroke. The wheels are 2 ft. 5 in. in diameter, 5 feet centres coupled. The boiler contains 75 brass tubes, 1½ in. outside diameter, and 7 ft. 9 in. long between tube plates. These tubes give an external surface of 100·32 square feet, making, with 33·875 square feet of fire-box surface, a total heating surface of 134 square feet nearly. The fire-grate area is 6·875 square feet. The boiler has a saddle-tank on top and is fed by two of Giffard's injectors, and carries a pair of Ramsbottom's safety-valves. The engine has a gauge of 4 ft. 6 in., and appears to have done little work. If required to be altered to a 3 ft. 6 in. gauge, I would recommend another pair of wheels put behind the fire-box and coupled, the framing also lengthened, and a coal-bunker placed at the back; she would then be able to take a gross load of 100 tons up a bank of 1 in 100 at about 12 miles an hour. The above alterations could be made for about £300.

There are also 6 pairs of wheels and axles complete, 12 springs, and 12 axle-boxes, all quite new. The other stock would be useless, unless for old material.

I have, &c.,

(Signed) W. E. BATCHELOR, *Loco. Foreman.**The Manager, Launceston and Western Railway.*

To His Excellency CHARLES DU CANE, Esq., Governor of Tasmania.

The humble Petition of Settlers and Landowners on the North West Coast of Tasmania.

SHOWETH :

THAT your Petitioners, although for many years large producers and consumers and contributing largely to the Revenue of the Colony, have suffered severely through want of roads to connect them with other parts of the Colony, and have always hitherto been unable, without any fault of their own, to attain that object.

That some years ago a Railway or Tramway was proposed from Deloraine to a shipping-place at deep water on the Mersey, to enable some of the producers to get their produce to market in a quicker and better method than then existed, and several persons were induced to take shares in the Company formed for that purpose.

That owing to extremely bad management the Line was commenced near the western centre, necessitating great expenditure and loss of time and labour ; and by keeping the destination on the Mersey dark, persons were induced to take shares in the hope of having the shipping-place made in the end at some locality that would enhance the value of their property.

That this system of proceeding has been attended with the most ruinous results ; and the residents on the Coast were in hopes that when the Government under Your Excellency had taken the matter in hand it would be completed for the public benefit generally without any reference either to local influence or selfish argument.

That your Petitioners viewed with great regret the action taken by the Honorable Members of the Legislative Council in throwing out the sum proposed to be voted for a Survey of the Line to a Shipping-place at deep water on the Mersey. That your Petitioners are for the most part well acquainted with the difficulties of the navigation of the River Mersey above what is known as Whirlpool Reach, and aware of the additional pilotage charged by the Mersey Marine Board for taking vessels up there when the tide permits, and also for the additional risk charged by the different Victorian Insurance Companies for that part of the river, owing to the prevalence of westerly winds in the Latrobe Reach, which, with a narrow channel running nearly west, makes its navigation difficult ; and are impressed with the necessity of making the shipping-place at such a locality as will enable the produce to be taken away by a steam vessel on its arrival by the Railway.

That your Petitioners are also aware that a fine level, without any engineering difficulties between, exists from the terminus to Latrobe to lots owned respectively by Tasman Parker, Esq., of the Lake River, and Charles Oldaker, Esq., on the east side of the Mersey at deep water, and a good shipping-place at a distance of only four miles from the present station, and that Your Excellency's Government are already in possession of sufficient engineering skill to have a survey of this locality made so as to give you at least some data to go on for future negotiations.

Your Petitioners therefore pray that Your Excellency will be pleased to cause a Survey to be made of the line across Stott's Plain to the place indicated, and a report made as to the eligibility of the site for a terminus at deep water at all times of tide.

A. Gardiner.
John F. Liddle.
Robt. Snow.
John Meers.
James Filluel.
E. Connors.
Patsy Robson.
C. B. M. Fenton.
John Drake.
Michael Dooley.
Henry Carter.
William Jones.
James Denison.
A. Young.
J. H. M'Call.
G. Tucker.

John Crookes.
H. J. Wilson.
John D. Jowett.
Joseph Wiffen.
B. H. Rooke.
Dl. Phillips.
Thomas Thompson.
William Bennett.
Jno. Steer, jr.
J. Murray.
Geo. Best.
H. M'Cluskey.
David Best.
John Murray.
William Chapman.
George Hill.

Wm. Johnson.
Timothy Denis.
James Turner.
Neil Graham.
Colin Graham.
James Naylor.
James Sayers.
William Sayers.
Charles Child.
B. Ruddock.
Joshua Lyons.
R. Winspear.
Arthur Calhoun.
William Norris.
Frank Wilson.
R. Shekleton.

B. W. Thomas.
Wm. Gadsby.
Charles Saunders.
George Heritage.
A. H. Stephens.
B. H. Davies.
Robt. Stewart.
R. A. Dargaville.
R. D. Stewart.
Fras. Oldaker.
Chas. Oldaker.
John Williams.
George Williams.
Charles Martin.
William Gadsby.
S. H. Thomas.

RESOLUTION OF PARLIAMENT, 17 SEPTEMBER, 1874.

Resolved, That a sum not exceeding £2000 be appropriated to defray the cost of an Engineering Survey of the Mersey and Deloraine Railway, and to ascertain the value of the work already constructed : provided that no expenditure of the sum of £2000 be made unless the proprietors of the Mersey and Deloraine Tramway first agree with the Government for the sale of the Tramway and Plant at a price not exceeding £12,500, subject to the approval of Parliament.

*Tasmanian Main Line Railway,
Contractors' Offices, Hobart Town, 18th September, 1874.*

MERSEY AND DELORAINE RAILWAY SURVEY.

SIR,

I AM informed that it is the intention of the Government to obtain an Engineering Survey of the above Railway, and I take the liberty to offer my services in reference thereto.

In connection with the Main Line Railway I have been employed during the past 2½ years by Messrs. Clark, Punchard, and Reeve as their District Engineer, and entrusted by them with the engineering and construction of 33 miles of the Main Line Railway, from Campbell Town to near Oatlands, and latterly in completing the Hobart Town Section.

As to the former section, my survey was strictly carried out, without any modification by Mr. Grant or Mr. Reeve.

I offer this as a guarantee of capability without troubling you with an enumeration of public works with which I have been entrusted in England, Canada, Brazil, and almost every country in Europe.

The Main Line being now near completion I can within a month undertake other work in the Colony, or failing such it is my intention to leave for England at that time.

I have, &c.,

(Signed)

JOSIAH HUMAN, C.E.

The Hon. the Minister of Lands and Works.

82, Collins-street West, Melbourne, 1st October, 1874.

SIR,

OBSERVING that a sum of money has been voted for making a Survey of the Mersey and Deloraine Tramway, I have the honor to state that I am prepared to undertake the work. As I have just completed 130 miles of work for the Western Australian Government, I am in a position to start your Survey at once.

I have, &c.,

(Signed)

JAS. MAJOR.

The Hon. the Minister of Lands and Works.

MEMO.

Re AGREEMENT OF SALE OF THE MERSEY AND DELORAINE TRAMWAY TO THE GOVERNMENT.

UNDERSTANDING that the above document is with you for perusal on behalf of the vendors, my clerk waited upon your firm, under my instructions, on the 10th, 11th, and 12th instants, in respect thereto.

Would you favour me by giving the matter immediate attention, as I cannot order the Survey authorised by Parliament until the agreement of sale referred to has been executed by the vendors.

(Signed)

WM. MOORE, *Minister of Lands and Works.*

12th November, 1874.

JOHN ROBERTS, Esq., Allport, Roberts, & Allport, Solicitors.

Lands and Works Office, 25th November, 1874.

SIR,

REFERRING to your letter of the 18th of September, and to our subsequent interviews having reference to the survey of the Mersey and Deloraine Railway, I may state that the vote for this survey was passed by Parliament contingent in the first place upon the Mersey and Deloraine Tramway Company as present proprietors entering into an agreement with the Government for the sale of the Line; when this agreement has been formally entered into the Government will require an Engineering Survey of say 13 miles of Railway to a 3 ft. 6 in. gauge, viz. 13 miles between Coiler's Creek and Deloraine, connecting that portion of the Line already completed with the terminus of the Launceston and Western Railway at Deloraine.

I would be glad to be informed upon what terms you would undertake the proposed Engineering Survey of say 13 miles of Railway referred to, which I may remark passes through a country com-

paratively easy and open ; whether on salary at say so much per month, or whether by contract for a lump sum.

A report is required upon the 17 miles of Railway already constructed by the Company to a 4 ft. 6 in. gauge between Coiler's Creek and Latrobe, as to the value of the present works and rolling stock, with an estimate of the cost of an alteration of gauge, or its conversion from a 4 ft. 6 in. gauge to a 3 ft. 6 in. gauge ; together with the probable outlay required to make the Line perfect and complete through from Deloraine to Latrobe.

The report and survey must be furnished by the end of March, 1875, to include all the necessary plans, quantities, estimates, &c., in every way complete and sufficient to enable the Government, if need be, to call for Tenders for the construction of the said Railway.

I have, &c.,

(Signed) WM. MOORE, *Minister of Lands and Works.*

JOSIAH HUMAN, *Esq., Wellington Crescent, Hobart Town.*

(Similar letter to James Major, Esq., C.E., only referring to his letter of the 1st October.)

82, Collins-street West, Melbourne, 2nd December, 1874.

SIR,

I HAVE the honor to acknowledge the receipt of your letter of the 25th ultimo, having reference to the Survey of "The Mersey and Deloraine Railway," and requesting to be informed on what terms I would undertake the proposed Engineering Survey of the Line ; the making of the necessary plans, supplying report, estimates, and quantities, in every respect complete and sufficient to enable the Government to call for tenders for the construction of the said Railway ; together with an estimate of the value of the seventeen miles of Railway already constructed by the Company, &c.

I beg to say that the time you have named in which this work is to be completed is inadequate ; and I venture to think that you will agree with me after I have pointed out what is necessary to be done to comply with the requests contained in your letter.

To enable me to make an estimate of the value of the present work, together with the probable outlay that will be required to make the Line complete through from Deloraine to Latrobe, I expect it will be necessary to peg out the centre line all through, and to take a large number of cross sections,—especially where any of the embankments have been injured by the action of the weather ; these cross sections are necessary for taking out the earthwork quantities. It will also be necessary to remove the ballast on any portion of the made seventeen miles of Line, where it covers the sleepers, to enable me to see in what condition they are. After all the field work is completed there is a considerable amount of office work to be done, in the preparation of the requisite plans, specifications, estimates, &c. ; these latter alone will take a considerable portion of the time that you have named. I need scarcely say that I shall endeavour to complete the work in as short a time as possible.

I am prepared to undertake the work by contract for a lump sum of Thirteen hundred and fifty Pounds sterling (£1350), finding all assistants, chainmen, plant, instruments, pegs, drawing paper, and all office requisites ; the centre line on the 13-mile length to have a peg—12 in. long × 3 in. × 2 in.—driven in to the level of the ground at every chain length, and at the tangent points of curves,—the tangent points to be marked, in addition to the centre line peg, by one on each side of it at right angles to the centre line (thus \perp). The horizontal scale of the plan and section to be 3 chains to one inch ; the vertical scale of the section to be 30 feet to one inch.

Payments to be made as follows:—£337 10s. during the first month, from the date of the commencement of the work ; £337 10s. during the second month ; £337 10s. during the third month ; £337 10s. to be retained in the hands of the Government until the delivery of the plans, report, and estimates complete.

I have, &c.,

(Signed)

JAS. MAJOR.

The Hon. the Minister of Lands and Works.

Stone Buildings, 12th December, 1874.

THE MERSEY AND DELORAINÉ TRAMWAY.

DEAR SIR,

WE return Draft Contract, with Messrs. Foster and Morrison's approval, subject to a few alterations which we have made. The only material one is in respect of the land taken by the late Company under the 33 Vict. No. 33. That entitles us to 104½ feet on each side of the Tramway,

measuring from its centre. Fifty links only is required on each side, and that is all you claim through the purchased land. The vendors would be seriously prejudiced by conceding the 209 feet of the land first mentioned, because they own a considerable portion of the land along the Tramway immediately abutting on it; they would, in short, lose their frontage on the Tramway.

We are, &c.,

(Signed) ALLPORT, ROBERTS, & ALLPORT.

R. P. ADAMS, *Esq.*

THE draft agreement, with Messrs. Allport and Co.'s alterations therein, is referred to the Minister of Lands and Works for his perusal.

ROB. P. ADAMS,
14 Dec. 1874.

THE whole of the land vested in the Mersey and Deloraine Tramway Company by 33 Vict. No. 33, should be conveyed back to the Government. This land properly belongs to the Tramway, as it was given the Company for Tramway purposes only.

It was also understood the Company would give the Government, where required along the Line, land for station purposes, and land for roads leading to such stations (without compensation).

The station ground at Latrobe should also be included. I enclose tracing herewith.

WM. MOORE,
14. 12. 74.

Hobart Town, 18th December, 1874.

SIR,

REFERRING to your esteemed communication of the 25th November, I have the honor to state that I am prepared to make an Engineering Survey of the 13 miles of *Railway* between Deloraine and Coiler's Creek, and to furnish plans, sections, and estimates in every way complete, and sufficient to enable the Government of Tasmania to call for tenders for the construction thereof, for a sum of £780; and submit herewith details or specifications of the work I am prepared to do for that sum at the time mentioned, viz., the end of March, 1875.

As regards the 17 miles of Permanent Way already laid from Coiler's Creek to Latrobe, I will undertake to furnish a report thereon, together with professional advice in respect to the alteration of gauge, with cross sections, &c., for the sum of £170; and, in the event of these terms being accepted, will proceed at once with the work.

For this report an extension of time to the middle of April is desirable.

I have, &c.,

(Signed) JOSIAH HUMAN.

The Hon. the Minister of Lands and Works.

SURVEY of the Mersey and Deloraine Railway from the Terminus of the Launceston and Western Railway to Coiler's Creek (Thirteen Miles).

PLAN to be plotted to a scale of four chains to an inch, showing divisions of property inside fences with bearings, and names of owners and occupiers written thereon, with the quantities of land to be taken, and extending to not less than 10 chains on each side of centre line.

Section to be plotted to the same horizontal scale as the plan, and to a vertical scale of twenty feet to an inch. Centre line to be cleared of brush and trees, of sufficient width (not less than eight feet) for the line to be staked out with numbered stakes driven into the ground, two chains apart on straight lines, and one chain apart on curves, and marked with poles with crosses at certain intervals so as distinctly to mark the centre line.

Levels in feet and decimals to be marked on the section at each stake, showing the depth of cuttings and heights of banks respectively, with quantities of excavation and the nature of the soil, ascertained by trial holes or borings.

Bench-marks not less than every half mile to be clearly cut on trees on side of line, and shown in position on plan with their respective heights above datum.

Both Plan and Section to be plotted on mounted paper, and to be complete in every respect for the due construction of the Line.

Cross sections to be plotted on sheets of ordinary drawing-paper to a scale of one-eighth of an inch to one foot horizontal and vertical, to be taken at intervals of eight chains on level ground, but where sidlying, to be taken sufficiently close together to show correctly the quantities of excavation in cuttings and banks.

Drawings for bridges and culverts to be plotted on separate sheets to a scale of a quarter of an inch to a foot, with specifications of the work and material in detail.

SUMMARY of Works to be done for the Sum stipulated in the Letter dated 18th of December, 1874.

For an Engineering Survey of Thirteen Miles, with an extension of Five Miles at Latrobe, which embraces the following:—

- Line to be selected and staked out.
- Levels to be taken with check levels.
- Bench-marks and stakes to be numbered.
- Curves to be distinctly marked by additional stakes, and to be not less than 8 chains radius.
- Section to be graded with gradients of not less than 1 in 50.
- Land plan, showing lands to be taken.
- Working section, with cross sections.
- Formation on banks and in cuttings, 14 feet wide.
- Quantities of excavation, with description of the same.
- Estimate of cost per mile, including stations and equipment.
- Supply of water for stations.

REPORT on Seventeen Miles constructed to embrace as follows:—

- Alteration of gauge to 3 feet 6 inches.
- As to condition of earthworks and permanent way.
- A plan of the Line, and longitudinal and cross sections necessary to show any additional works required.
- Estimate of cost to perfect the Line, and of its present value,—including rolling Stock, Stations, Bridges, &c.
- Should a through Section be absolutely necessary, in consequence of the subsidence of banks, entailing re-staking of the Line, a further sum of Fifty Pounds will be necessary to meet such additional cost.

JOSIAH HUMAN.

82, Collins-street West, Melbourne, 18th December, 1874.

DEAR SIR,

As I have some important business matters to make arrangements for carrying out, I would be much obliged by your informing me, at your earliest convenience, whether you propose to entrust the survey of the Mersey and Deloraine Line to me.

Yours, &c.,

(Signed) JAS. MAJOR.

The Hon. the Minister of Lands and Works.

Lands and Works Office, Hobart Town, 31st December, 1874.

SIR,

THIS is the earliest opportunity I have had of replying to your letter of the 18th instant; and I have now the honor to intimate that the terms upon which you signified your willingness to effect the Survey of the Mersey and Deloraine Line being considered too high, your services in respect to that work will not be called into requisition. Thanking you for your offer,

I have, &c.,

(Signed) WM. MOORE, Minister of Lands and Works.

JAMES MAJOR, Esq., C.E., 82, Collins-street, Melbourne.

BY ELECTRIC TELEGRAPH.

22nd December, 1874.

THE land vested in the Company by Act of Parliament is 3 chains 17 links wide. The vendors refuse to sell more than fifty links on each side of the Mersey Tramway out of that, but agree to include the terminus land at Latrobe, and are prepared to execute agreement of sale on these terms.

The Cabinet will consider the matter this morning; will you kindly say whether you agree? There is no Crown land along the Line, and I do not think, therefore, the extra slip of land is worth contending for. They will give all roads required.

GEORGE F. LOVETT.

To the Hon. WM. MOORE, Minister of Lands and Works, Launceston.

By ELECTRIC TELEGRAPH.

Launceston, 22nd December, 1874.

I THINK the Company should give up all the land vested in them by Act of Parliament for Railway purposes only. It is not desirable to be confined to a width of one chain; but it might perhaps be better to give in rather than further prolong the correspondence. You say nothing about land for stations.

WM. MOORE.

MR. G. F. LOVETT, *Lands and Works Office, Hobart.*

Stone Buildings, Hobart Town, 26th December, 1874.

DEAR SIR,

MERSEY TRAMWAY.

WE have perused and now return the amended Draft Contract between Messrs. Foster and Morrison and the Government. As soon as you have engrossed one part, please return the Draft that we may get a counterpart ready.

I have, &c.,

(Signed) ALLPORT, ROBERTS, & ALLPORT.

The Solicitor-General.

Lands and Works Office, 7th January, 1875.

DEAR SIR,

Re MERSEY AND DELORAINE AGREEMENT.

WHEN may I look for this matter to be settled, and what is the reason of the extraordinary delay?

(Signed) WM. MOORE.

JOHN ROBERTS, *Esq., Stone Buildings.*

Stone Buildings, Hobart Town, 7th January, 1875.

DEAR SIR,

MERSEY AND DELORAINE TRAMWAY.

IN reply to yours, this moment received, we are quite ready to exchange agreements. Both parts are engrossed. Had you not better await the Solicitor-General's return?

I have, &c.,

(Signed) JOHN ROBERTS.

The Hon. WM. MOORE.

Stone Buildings, Hobart Town, 8th January, 1875.

DEAR SIR,

MERSEY AND DELORAINE TRAMWAY COMPANY.

WE send counterpart Agreement for signature of the Hon. the Minister of Lands, our clients have signed your part.

Faithfully yours,

(Signed) ALLPORT, ROBERTS, & ALLPORT.

The Solicitor-General.

MEMO.

Crown Solicitor's Office, 13th January, 1875.

MERSEY AND DELORAINE TRAMWAY.

THIS Contract having been signed in duplicate, the copy bearing the signatures of Messrs. Foster and Morrison is forwarded to the Commissioner of Crown Lands, to whom all correspondence hereon is also sent.

ROB. P. ADAMS.

Articles of Agreement made and entered into this ninth day of January, one thousand eight hundred and seventy-five, Between JOHN FOSTER and ASKIN MORRISON, both of Hobart Town in Tasmania, Esquires, of the one part; and The Honorable WILLIAM MOORE, being and as the Minister of Lands and Works in Tasmania (the said William Moore entering into this agreement for and on behalf of the Government of Tasmania, and being hereinafter described as "The Minister,") of the other part.

Whereas a Company called the Mersey and Deloraine Tramway Company, Limited, was formed for the purpose of making a Tramroad from the Mersey to Deloraine in Tasmania, and the said Company constructed a portion of the said Tramroad and certain works in connection therewith: And whereas certain land on both sides of the said Tramroad was vested in the said Company by the Act of the Parliament of Tasmania 33 Victoria, Number 33, and certain other lands in Tasmania were purchased by the said Company for the purposes of the said Tramroad, and the said Company entered into agreements with certain persons for the gratuitous transfer to the Company of certain portions of the lands through which the said Tramroad was to be made: And whereas the said Company was possessed of certain plant, rolling stock, a steam engine, and machinery used in connection with the said Tramroad, and also was possessed of certain rights, privileges, powers, and advantages affecting or appurtenant to the said Tramroad: And whereas a Judgment was lately recovered in the Supreme Court of Tasmania against the said Company at the suit of Crawford Mayne Maxwell, Thomas Giblin, and Lavington Roope, and thereupon a writ of *Fieri Facias* was, on the fifteenth day of June last, issued out of the Supreme Court of Tasmania, directed and delivered to the Sheriff of Tasmania, at the suit of the said Crawford Mayne Maxwell, Thomas Giblin, and Lavington Roope against the said Company, which said writ was indorsed to levy Fifty-five thousand three hundred and forty-three pounds nineteen shillings and one penny, besides &c.: And whereas, on the 17th day of June last, levy was made by virtue of the said writ on all the lands, interests in lands, tramroad, rolling stock, plant, and effects of the said Company; and on the twenty-second day of July last the said Sheriff caused the same to be duly exposed for sale by Public Auction, at the Court House in Launceston in Tasmania, and at such sale the said lands, interests in lands, tramroad, rolling stock, plant and effects were purchased by the said John Foster and Askin Morrison, who are hereinafter described as "The Proprietors," for the sum of Five hundred pounds: And whereas the Parliament of Tasmania lately resolved as follows, (*i.e.*),—"That a sum not exceeding Two thousand pounds be appropriated to defray the cost of an Engineering Survey of the Mersey and Deloraine Railway and to ascertain the value of the work already constructed; provided that no expenditure of the sum of Two thousand pounds be made unless the Proprietors of the Mersey and Deloraine Tramway first agree with the Government for the sale of the Tramway and Plant at a price not exceeding Twelve thousand five hundred pounds, subject to the approval of Parliament:" And whereas the Proprietors are desirous of entering into such agreement for the sale of the said Tramway and Plant as is hereinafter contained, and the Minister is also desirous of entering into the said agreement on behalf of Her Majesty the Queen: Now each of them the Proprietors, so far as relates to the acts and deeds on their and each of their part to be performed, doth hereby agree with the Minister, and the Minister doth hereby agree with the Proprietors, that the Proprietors shall sell and that the Government of Tasmania shall purchase (the consent of the Legislature of Tasmania for such purchase first being obtained), for the sum of Twelve thousand five hundred pounds, the several properties hereinafter particularly described; that is to say,—

First. All the Tramroad constructed by the said Company, and all works, buildings, stations, and erections connected therewith, and the land upon which the same are respectively erected and built or used in connection therewith.

Secondly. So much of the land vested in the said Company by the Act of the Parliament of Tasmania, 33 Victoria, Number 33, to a width of Fifty links on each side measuring from the centre of the said Tramroad, and so much of any land purchased by the said Company for the purposes of the said Tramroad as extends to a width of Fifty links on each side measuring from the centre of the said Tramroad.

Thirdly. Also all the land vested in the said Company and situate between Cotton-street and Gilbert-street in the Town of Latrobe, as the same is shown and colored pink in the plan drawn on or annexed to these presents.

Fourthly. All those three several allotments or pieces of land in the said Town of Latrobe and severally containing Two roods and twenty-four perches, Thirty-seven perches, and Two acres one rood and thirty-four perches (being portions of land granted to the said Company), as the same are shown in the said plan and therein respectively colored yellow.

Fifthly. All plant, permanent way, rolling stock, machinery, and the steam engine used in connection with the said Tramroad.

Sixthly. All rights, privileges, powers, and advantages whatsoever affecting or appurtenant to the said Tramroad which are vested in, held, enjoyed or possessed by, or conferred on the said Company or the Proprietors or any person claiming by, through, or under them or any of them.

And it is hereby agreed between the parties hereto that, for the consideration aforesaid, the Proprietors, their heirs, executors, administrators, or assigns, will at all times hereafter, at the request and costs of the Government of Tasmania (but without further compensation), vest in Her Majesty the Queen, or in any person or persons having competent authority in that behalf, all such lands for station purposes and for roads leading to any station or stations to be erected for the purposes of the said Tramroad as may be required from time to time: And that the said purchase money for the said Tramroad and premises shall be paid to the Proprietors on the Transfer thereof as hereinafter mentioned; and that the said Tramroad and premises shall be transferred by the Proprietors, their heirs, executors, administrators, or assigns, to and vested in Her Majesty the Queen, or in such other manner as may be provided by the Parliament of

Tasmania: And that the sites for the said stations and the said roadways shall be from time to time vested as aforesaid, as and when the said stations respectively are completed and opened for traffic: And it is hereby further agreed and declared that, for the purpose of completing the said intended purchase, the Proprietors and each of them, their and each of their heirs, executors, administrators, and assigns, will at all times hereafter do and execute or cause or procure to be done and executed, at the cost of the Government of Tasmania, all such acts, deeds, and things as may be deemed necessary by the Minister for vesting the said Tramroad and premises in Her Majesty the Queen, or in such manner as may be provided by the said Parliament: Provided always, and it is hereby lastly agreed, that this Agreement shall be void unless within Two months after the close of the next Session of the Parliament of Tasmania the purchase-money for the said Tramroad and premises shall be paid to the said Proprietors. ~~In Witness~~ whereof the said parties to these presents respectively have subscribed their names, the day and year first hereinbefore written.

Signed by the above-named John Foster and
Askin Morrison in the presence of
JOHN ROBERTS,
Solicitor, Hobart Town.

JOHN FOSTER.
ASKIN MORRISON.

Lands and Works Office 11th January, 1875.

SIR,

In reply to your favour of the 18th ultimo, I have the honor to intimate that the Government accepts the terms upon which you are willing to furnish an Engineering Survey and Report of the Mersey and Deloraine Railway; viz., for the lump sum of £950 (nine hundred and fifty pounds), and to inform you that you will be required to enter into an agreement to that effect.

Arrangements will be made that you receive advances at such times as may be agreed upon as the work progresses, but the Government will retain one-third of the stipulated sum of £950 until the Plans, Specifications, Estimates, and Report, &c. are duly deposited with the Government.

I have further to intimate, that an extension of the Line from Latrobe to a deep-water shipping-place on the Mersey (say 5 miles) is contemplated. It is presumed that you would be willing to undertake that survey on similar terms to those already submitted for the 13 miles of Railway if required to do so.

I have, &c.,

(Signed) WILLIAM MOORE, *Minister of Lands and Works.*
JOSIAH HUMAN, *Esq., C.E.,*
Wellington Crescent, Hobart Town.

Hobart Town, 12th January, 1875.

SIR,

I HAVE the honor to acknowledge receipt of your letter of the 11th instant, and in reply I hereby agree and undertake to make the Survey and furnish the Report, Plans, Sections, and Estimates in every way complete and sufficient to enable the Government of Tasmania to call for Tenders for the construction of the Mersey and Deloraine Railway on the terms specified in your letter.

I am also willing to furnish an Engineering Survey of the proposed extension of the Line referred to in the last paragraph of the same letter, on the terms named therein, if required to do so; that is, for a further sum of £300 (three hundred pounds), making a total of one thousand two hundred and fifty pounds (£1250).

JOSIAH HUMAN.

Witness to the above Signature—GEORGE F. LOVETT.

The Hon. the Minister of Lands and Works.

Drumreagh, 22nd January, 1875.

SIR,

I AM given to understand that the Survey of the Mersey and Deloraine Tramway Line is being proceeded with, but as yet I have received no intimation of the same from your office or from the Engineer making the Survey. In your letter of the 30th November you stated that you would comply with the wish of the Promoters and instruct the Engineer making the survey to place himself in communication with them in order to determine the site of the Bridge. I shall be glad to hear from you on the subject.

I have, &c.,

(Signed) R. H. MUNCE, *Chairman of Promoters.*
The Hon. the Minister of Lands and Works.

Lands and Works Office, 27th January, 1875.

SIR,

I HAVE the honor to acquaint you, in reply to your favour of the 22nd instant, that, consequent upon delay resting with the vendors in the settlement of the arrangements for the sale of the Mersey and Deloraine Tramway, the Government has but recently been in a position to authorise the survey of that Line in the terms of the Resolution of Parliament.

The services of Mr. Josiah Human, an Engineer of considerable experience in Railways, (who is at present engaged examining the country with a view of selecting the shortest and best line as a connecting link between the Launceston and Western Railway Deloraine Terminus and Coiler's Creek) have been secured, and I will instruct Mr. Human to place himself in communication with the Promoters so soon as I receive his preliminary Report upon that portion of the Line referred to.

I have, &c.,

(Signed) WILLIAM MOORE, *Minister of Lands and Works.*

R. H. MUNCE, *Esq., Chairman of Promoters*
Deloraine Bridge, Deloraine.

MEMORANDUM.

2nd February, 1875.

By Resolution of Parliament, dated the 17th of September, 1874, with an Amendment thereto, the Government were authorised to expend a sum of £2000 on an Engineering Survey of the Mersey and Deloraine Tramway, conditionally upon the purchase of the Line by the Government for a sum not exceeding £12,500, subject to the approval of Parliament.

The proprietors of the said Tramway having executed an Agreement of Sale of the said Tramway, together with Plant, Rolling-stock, Land, &c., for £12,500, the Governor in Council has been pleased to sanction an expenditure of £1500 to defray the cost of an Engineering Survey and Report of the Mersey and Deloraine Tramway, and has approved that the Tender of Josiah Human, Esq., C.E., to effect such Survey for a sum of £1300 (one thousand three hundred pounds) be accepted.

I have, &c.,

(Signed) WM. MOORE, *Minister of Lands and Works.*

The Hon. the Colonial Treasurer.

Lands and Works Office, 2nd February, 1875.

SIR,

I WOULD be glad to be furnished with a Report as to your views with respect to the Deloraine Bridge over the Meander River.

You may not be aware that the District proposes to borrow, and to rate itself to meet the Interest on a loan of say £2000 to construct a Bridge to replace the present structure, and have elected Promoters as required by the Public Works Act, R. H. Munce, Esquire, being Chairman.

The question now arising which is delaying further action on the part of the Promoters is, whether a Bridge should be built to serve the double purpose of ordinary Road traffic and Railway, or whether the Bridge should be distinct.

Personally, I am in favour of the latter; but await any suggestions you may make professionally on the subject.

The District would of course be glad to be relieved of the proposed liability in erecting a Bridge on its own account for Road traffic only; and I am not disposed to throw any obstacle in the way if it can be shown that one Bridge could be built within a reasonable limit as to cost to serve the double purpose, without the interests of Road and Railway hereafter clashing,—materially affecting the cost, or affecting the stability of the Bridge.

I have, &c.,

(Signed) WM. MOORE, *Minister of Lands and Works.*

JOSIAH HUMAN, *Esquire, C.E., Deloraine.*

Lands and Works Office, 3rd February, 1875.

SIR,

I HAVE the honor to acquaint you that, as the preliminary Report referred to in my communication of the 27th ultimo has not yet come to hand, I have written Mr. Human for a Special Report as to his professional views with respect to the Bridge over the Meander River.

I have, &c.,

(Signed) WM. MOORE, *Minister of Lands and Works.*

R. H. MUNCE, *Esq., Chairman Promoters Deloraine Bridge,*
Deloraine.

Deloraine, 6th February, 1875.

SIR,

I HAVE the honor to enclose, at your request, a report on the proposed Railway and Road Bridges crossing the Meander River in Deloraine; viz., whether it is advisable, on grounds of economy and convenience to the public, to combine the two bridges into one or not.

The site and direction of the Railway Bridge is fixed by the present Launceston and Western Railway Station and the direction the extension of the same to Latrobe must take after crossing the river, which necessitates a skew bridge with greater spans and length than if crossed on the square, as a separate road bridge will do.

There are three ways of treating the question.

First, by combining the two bridges so that the road traffic be upon the same platform as the railway traffic, and making the former intermittent.

In the heart of a township where the traffic is constant, and increasing with time, interruption from passing trains would be so inconvenient, and somewhat dangerous to the public, as to render this proposal inadmissible, even if more economical.

Secondly, as to a twin bridge, the road traffic being separated from the railway trains by a truss, close-boarded, to form a screen.

This arrangement would involve a new and expensive approach on the eastern side, a greater length of bridge and spans than if the bridge were built on the square, and would be more expensive on the whole and less convenient to the public.

Under these circumstances I recommend that two distinct bridges be adopted, and that the site for the new road bridge be on the up-stream side of the present one.

I have, &c.,

(Signed) JOSIAH HUMAN.

The Hon. the Minister of Lands and Works.

Deloraine, 6th February, 1875.

MERSEY AND DELORAINE RAILWAY.—PRELIMINARY REPORT.

SIR,

HAVING permanently staked out 10 miles of the Line, and contoured by chain and level the remaining 3 miles, I have the honor to describe, at your request, the route, &c.

The total length is 13 miles 10 chains. Commencing at the terminus of the present Launceston and Western Railway, it crosses the Meander on the skew; then with an 8-chain curve, (which may be varied to suit the new bridge), takes a course along the margin of the river for 50 chains, leaving a sufficient width below the bottom of the enclosures for a road 30 feet wide, running parallel with the Line; thence winding round the foot of the high ground in order to avoid flooded land, (sometimes 8 feet deep), till crossing the Chudleigh road at 3 miles 15 chains; then continuing on the right hand margin of public road to Mr. Easted's, where it crosses the same, and passes through the orchard of Mr. Walker to the rather high saddle at 4 miles 60 chains. Here will be a cutting of about 12 feet and approached by a grade of 1 in 50. Thence the Line continues straight $1\frac{1}{2}$ mile to another saddle near to Wyatt's, leaving his house on the right, takes a straight line for 2 miles across a very level country and crossing the public road at Fowler's farm, and passing his house to the right to the source of the Coiler Creek at 8 miles 60 chains.

From this point I contoured a line on the right hand slope of the valley down to the junction of the Blackamore with the Coiler, passing pretty close to the house of Mr. Daniel Griffin.

The fall in this 3 miles is 320 feet, giving a grade of 1 in 50—this is rather serious, but cannot be avoided; thence to the Tramway is a fall of 111.56 feet over a distance of 1 mile 32 chains, which gives a grade of 1 in 66.

In staking out I shall endeavour to shorten the length of the 1 in 50, and so increase the remainder of 1 in 66.

The last four miles will run upon sidlying ground, at places steep and rocky, and so requires time and careful setting out to avoid heavy and expensive earthworks; this I am doing carefully.

These grades will, when compared with previous reports, astonish; but when it is known that, with the exception of the last two miles, the survey upon which the report is based was made upon horseback, and in such a difficult country, that astonishment will disappear.

I have, &c.,

(Signed)

JOSIAH HUMAN.

The Hon. the Minister of Lands and Works.

Deloraine, 13th February, 1875.

DEAR SIR,

I BEG to enclose printed forms, and duplicate, for the 1st instalment on my agreement, the Mersey and Deloraine Railway, filled in for £300.

I shall be much obliged by this sum to be paid to my account by the middle of next week, of which will you kindly inform me and oblige.

I have, &c.,

(Signed)

JOSIAH HUMAN.

G. F. LOVETT, *Esq.*

MERSEY AND DELORAINE RAILWAY.

Deloraine, 13th March, 1875.

SIR,

I HAVE the honor to report that the field work of the Line from Deloraine to the Coiler Creek is completed, and that the plan and section is well advanced, so as to be finished at the end of this month.

The Line is also well staked, and further marked by posts, so that it can be easily traced on the ground.

I have, &c.,

(Signed)

JOSIAH HUMAN.

The Hon. the Minister of Lands and Works.

MERSEY AND DELORAINE RAILWAY.

Deloraine, 31st March, 1875.

SIR,

NEXT week I shall begin the field work of the Tramway, and shall be much assisted by the use of the two Railway Carriages now at Latrobe belonging to the Company and unused by them. I spoke to Mr. Moore on the subject who kindly promised to procure them for my use, but probably was too hurried in his late visit to Latrobe to do so. Will you kindly do what you can in the matter? Mr. Oldham had them in charge, and with a letter from your office would, no doubt, let me have them.

Tracings of the plan and section are in hand, and in a few days I shall send the originals of the 13 miles to the office.

I have, &c.,

(Signed)

JOSIAH HUMAN.

P.S.—An early reply will greatly oblige.—J. H.

G. F. LOVETT, *Esq.*

Lands and Works Office, 1st April, 1875.

SIR,

Mr. Human, C.E., who is about furnishing a Report on the 17 miles of Mersey and Deloraine Tramway constructed, has applied for the use of two Railway Carriages belonging to the Mersey and Deloraine Company, stationed at Latrobe, and it would facilitate that object if the Directors of that Company would kindly allow the Carriages to be temporarily used during the progress of that Report.

Every care would be taken of them, and in the event of any damage being sustained to either Mr. Human would be held personally liable.

I am, &c.,

(Signed) WM. MOORE, *Minister of Lands and Works.*

GEORGE WHITCOMBE, *Esq., Secretary,*

Mersey & Deloraine Tramway Company, Hobart Town.

MERSEY AND DELORAINE-RAILWAY.

Deloraine, 17th April, 1875.

SIR,

I BEG to inform you that the Plans and Sections of the 13 miles of Railway from Deloraine to the Coiler are completed, and copies made of them; and, further, that the survey of the 17 miles of Tramway is well in hand.

I should be glad, in order not to reduce my staff, to receive the authority for the extension of the survey from Latrobe to Torquay as soon as convenient.

Unless the Hon. Mr. Moore visits this neighbourhood shortly, I should prefer sending to you the Plans and Sections, so that some work at all events might be given in.

As my expenses have been rather heavy, I beg to ask for a further sum of £300 on account,—the sum to be apportioned upon Contract No. 1 and 2 as you think best.

I enclose the printed form of receipt, and shall esteem it a favour to have this sum, during the week, placed to my credit at the Commercial Bank, Launceston.

I am, &c.,

(Signed) JOSIAH HUMAN.

G. F. LOVETT, *Esq.*

Lands and Works Office, Hobart Town, 27th April, 1875.

SIR,

I HAVE the honor to acknowledge the receipt of Plan, Section, and Cross Sections of 13 miles of the Mersey and Deloraine Railway between Deloraine and Coiler's Creek, laid out by you under your agreement with the Government.

I have, &c.,

(Signed) WM. MOORE, *Minister of Lands and Works.*

JOSIAH HUMAN, *Esq., C.E., Deloraine.*

Lands and Works Office, Hobart Town, 27th April, 1875.

SIR,

I HAVE the honor to intimate my desire that you should examine and report upon the following routes with as little delay as possible, one of which to be hereafter adopted as an extension of the Mersey and Deloraine Railway to a deep-water shipping-place on the Mersey, and to furnish an approximate estimate of the cost per mile:—

Route No. 1.—Branching off above the Railway Bridge on the Mersey, passing at the back of Kelcey's, and thence to a shipping-place at Horse Head Creek.

Route No. 2.—Extending from Latrobe Terminus through town allotments to the Esplanade, and by the Esplanade and through Parker's land to a deep-water shipping-place at Torquay.

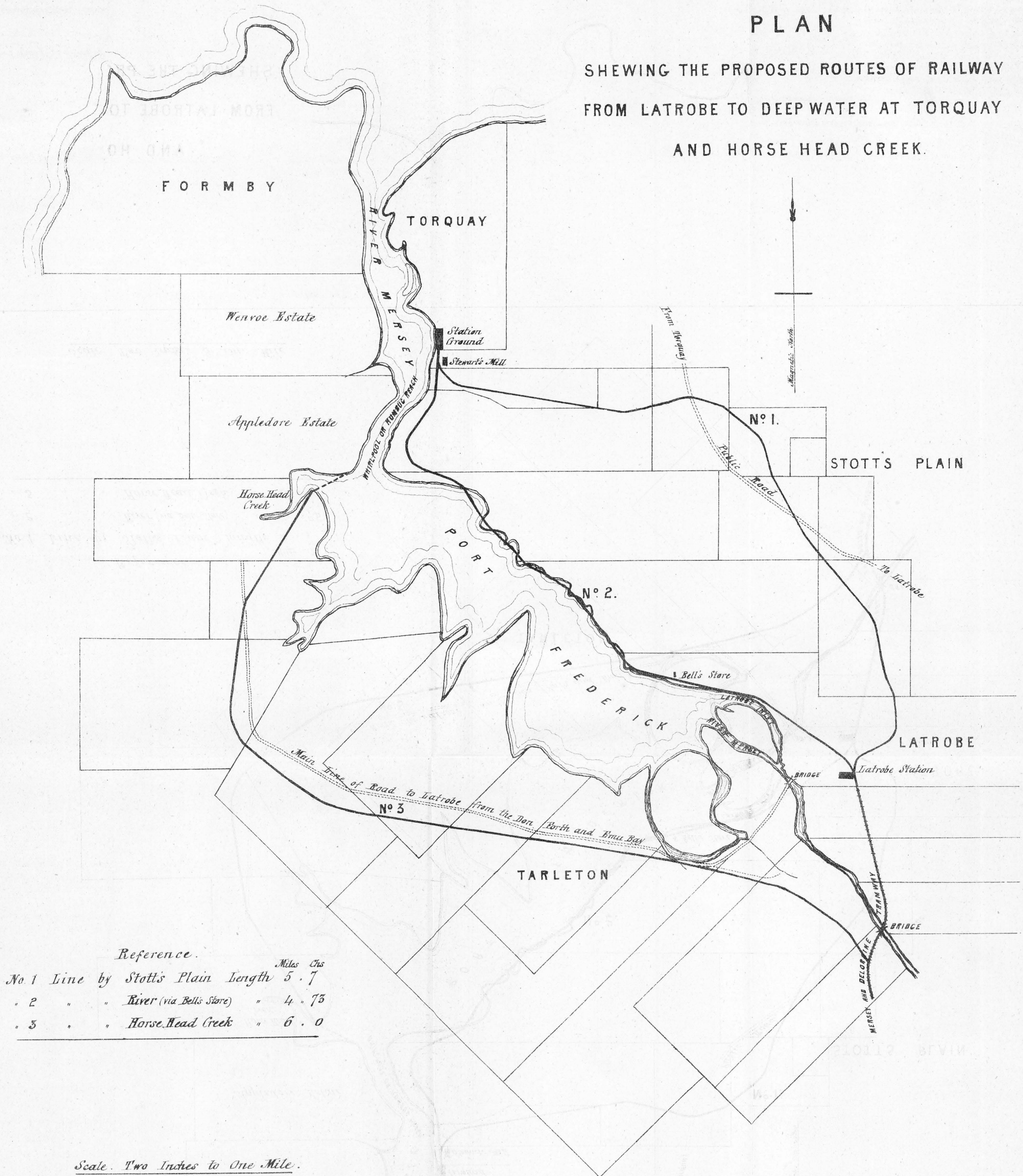
Route No. 3.—Branching off at Latrobe Station and extending in the direction of Moriarty Road by way of Stott's Plains to Torquay.

Each of the above routes being shown by red lines on the accompanying plan.

BASS' STRAIT

PLAN

SHEWING THE PROPOSED ROUTES OF RAILWAY
FROM LATROBE TO DEEP WATER AT TORQUAY
AND HORSE HEAD CREEK.



Reference.

		Miles	Fms
No 1 Line by Stott's Plain	Length	5	7
" 2 " " River (via Bell's Store)	"	4	75
" 3 " " Horse Head Creek	"	6	0

Scale. Two Inches to One Mile.

In examining these Lines Mr. Human will be good enough to report to me which, in his opinion, would be the most advantageous, having due regard to the costliness of construction, proximity to the centres of population, and facilities for shipment.

It would be desirable to select a shipping-place and terminus where accessible to vessels drawing not less than 16 feet.

I have, &c.,
(Signed) WM. MOORE, *Minister of Lands and Works.*

JOSIAH HUMAN, *Esq., C.E., Deloraine.*

Mersey and Deloraine Railway Office, Deloraine, 28th April, 1875.

SIR,

I HAVE the honor to acknowledge the receipt of your letter of the 27th ultimo, conveying instructions for the survey, &c. of the three Lines from Latrobe to Torquay, in order to select the best one. I beg to assure you that no time shall be lost in completing the work.

I have, &c.,
The Hon. the Minister of Lands and Works. (Signed) JOSIAH HUMAN.

SIR,

Latrobe, June 6th, 1875.

IN compliance with your instructions of the 27th of April, I have the honor to enclose an approximate and comparative estimate of the cost of the following three routes from Latrobe to deep water on the Mersey at Torquay and Horse Head Creek.

The annexed plan shows the said lines which I have surveyed.

No. 1 Route.—Branching off at Latrobe Station and extending in the direction of Moriarty Road by way of Stott's Plains to Torquay. Length, 5 miles 7 chains.

There are no engineering difficulties, although the earth-works are heavy. Bridges and culverts light, and curves favourable.

A short length of gradient of 1 in 50 is necessary on descending to Stewart's mill. This is also unavoidable on No. 2 Route.

<i>Estimate of 5 miles 7 chains length.</i>		£
Excavation, 60,000 cubic yards, at 1s. 6d.		4500
Ballast, 11,396 cubic yards, at 2s. 6d.		1424
Permanent way, per mile, £945		4809
Land		356
Fencing		640
Bridges and Culverts		400
		<hr/>
		£12,129

Route No. 2, extending from Latrobe Terminus through town allotments to the Esplanade, and by the Esplanade and through Parker's land to a deep-water shipping-place at Torquay.

The contour of the foot of the hill which this line must traverse is very irregular, requiring a continuity of sharp curves, heavy cuttings, and banks; collectively one mile in length of the latter will have to be built in water, the earth for which will be obtained with difficulty.

Immediately below Bell's store the steep slope of the hill extends to deep water, and being at an angle of repose will not admit of cuttings.

The slopes are principally rock, overlaid with 4 or 5 feet of loose earth, which from saturation will slip in large masses when cut into.

The maintenance of the line would be expensive and liable to frequent interruption.

<i>Approximate Estimate. (Length, 4 miles 73 chains.)</i>		£
Excavation, 90,264 cubic yards, at 2s. 6d.		11,283
Ballast, 11,000 cubic yards, at 2s. 6d.		1375
Permanent way, per mile, £945		4641
Fencing, 7 miles, at £64		448
Land		260
Bridges and Culverts		1000
Rip-rap stone facing to banks		528
		<hr/>
		£19,535

Route No. 3.—Branching off above Railway bridge on Mersey River, passing at the back of Kelcey's, and thence to a shipping-place at Horse Head Creek.

This route is 6 miles in length to the creek, which it will cross by an embankment of 25 chains in length in order to reach deep water, making a total length of 6 miles 25 chains.

The ground for 1½ miles is somewhat broken by gullies, at the end of which a heavy cutting will be necessary to reach the higher and level ground extending to the Horse Head Creek. The earthworks will be comparatively light until reaching the embankment mentioned, which, on account of its length, height, and breadth necessary for a double road, will be heavy, and protected from wash by rip-rap stone-work.

Estimated comparative Cost. (Length, 6 miles 25 chains.)

	£
Excavation, 61,500 cubic yards, at 1s. 6d.	4612
Ballast, 14,140 cubic yards, at 2s. 6d.	1767
Rails and Sleepers, at £945 per mile	5965
12 miles of Fencing, at £64	768
Bridges and Culverts	770
Land, £10 per acre	480
Rip-rap stone-work	165
	<hr/> £14,527 <hr/>

The above estimates do not include stations, wharfs, &c.,—being common to all routes, will not by omission affect the comparative cost.

SUMMARY.

	<i>Distance.</i>	<i>Estimated Cost.</i>
		£
Route No. 1.....	5 miles 7 chains.	12,129
Route No. 2.....	4 miles 73 chains	19,535
Route No. 3.....	6 miles 25 chains	14,527

With regard to your instructions to report which route in my opinion would be most advantageous, having due regard to costliness of construction, the estimates herewith submitted show in favour of Route No. 1 by Stott's Plains, which I think preferable to the other two routes.

No. 2 Route I cannot recommend on account of cost, engineering difficulties, and uncertain maintenance, which, in my opinion, renders this line reasonably impracticable.

No. 3 Route being longer is more costly than No. 1, the earthworks less per mile, and the gradients favourable; but I apprehend that Horse Head Creek does not fulfil the conditions required in selecting the best shipping-place.

No. 1, with less cost, reaches deep water, with all the conveniences for shipping which the Mersey affords.

Horse Head Creek terminates one mile higher up the river, involving the navigation of the narrow and at times dangerous channel of Whirlpool Reach, is without the advantages of a resident population or township lands, and in the hands of one proprietor.

The site selected for a shipping-place, immediately below Stewart's mill, has 20 chains of deep water frontage of not less than 16 feet at low water, and will afford accommodation for any craft which can pass over the bar of the river.

Horse Head Creek is favourably regarded by those interested in the extension of the line along the west coast.

Such extension before reaching the Don, and beyond, would be very costly. The competition of water carriage by sea would leave little for railway transit. The same sum of money expended in the interior opening up new districts would be more beneficial to the Colony.

I have the honor to be,
Sir,

Your obedient Servant,

The Hon. WM. MOORE, Minister of Lands and Works.

JOSIAH HUMAN.

MERSEY AND DELORAINE RAILWAY.

*REPORT on the proposed Line from Deloraine to the Tramway at Coiler's Creek.
Length, 13 miles.*

SIR,

I HAVE the honor to submit the following report on, and estimate of, the above surveyed line of Railway, accompanied by plans and sections, &c.

Earthworks.

The earthworks will average 9200 cubic yards per mile. The soil is favourable, consisting of earth, mixed in some instances with broken rock easily moved.

The slopes of cuttings, with few exceptions, are one and half to one; and the width of formation of both banks and cuttings 14 feet.

Bridges.

The bridge crossing the Meander at Deloraine is the only one of importance. The piers and abutments of masonry, with a timber superstructure of simple beams, spanning nine 25 feet openings, will afford sufficient water-way for floods. The timber top is designed to admit of expeditious repairs, or of being replaced if destroyed by fire or otherwise, without stopping the traffic of the line. The foundation is rock; and no special difficulties exist in the construction of this bridge.

The small bridges and culverts, with three cattle creeks to preserve access by stock to the water of the creek, are of the usual character.

One bridge over the line at 4 miles from Deloraine will be necessary.

Ballast.

Ballast can be found close to the line 2 or 3 miles from Deloraine, but beyond it is not plentiful, although further search during the execution of the works will, I have no doubt, be successful.

I have put down a full price per cubic yard to cover the expense of a long lead.

Sleepers.

Sleepers can be readily obtained, either sawn or hewn square. The Main Line Railway procured from this District a large supply of sleepers.

Permanent Way.

The permanent way and fastenings will be similar to those of the Main Line Railway rails,—40 lbs. to the lineal yard.

Curves and Gradients.

The sharpest curve is of 10 chains radius, and the steepest gradient one in 50. The natural fall of the country from 9 miles to the junction of the Tramway renders this grade necessary, and is unavoidable.

The survey has been carefully made in order to reduce the earthworks to a minimum; and the line throughout is staked in a permanent manner.

Stations.

The present station at Deloraine will be used. A flag station is intended at the Chudleigh Road; and at 8 miles from Deloraine a station will be provided for local and other traffic coming from the western districts.

I beg to refer you to the annexed estimate of cost.

I have the honor to be,

Sir,

Your obedient Servant,

JOSIAH HUMAN.

The Hon. WM. MOORE, Minister of Lands and Works.

FROM DELORAINE TO THE LATROBE TRAMWAY, (13 MILES).

Estimate of Cost.

	£	s.	d.
Land, including station ground, 97 acres 2 roods 34 perches, at £10...	977	0	0
Compensation for severance	420	0	0
Clearing, 13 miles	190	0	0
Fencing, 2018 chains, at 16s.	1614	0	0
Excavation, 118,334 cubic yards, at 1s. 6d.	8875	0	0
Ditto, road crossings, 1300 cubic yards, at 1s. 6d.	97	0	0
Road metal, 300 cubic yards, at 5s.	75	0	0
Side drains, 13 miles, at £20	260	0	0
Bridges and culverts	1065	0	0
Bridge over Meander River	2800	0	0
Bridge over at 4 miles 48 chains	180	0	0
Ballasting, 8 ft. 6 in. × 1 ft. 6 in., 30,032 cubic yards, at 3s. 6d.	5255	0	0
Rails, including sidings, 846 tons, at £11	9306	0	0
Fish-plates, bolts, and spikes	1050	0	0
Sleepers, 32,400, at 1s. 6d.	2430	0	0
Points and crossings, 10 sets, at £25	250	0	0
Transport of railway material	250	0	0
Laying permanent way, 13½ miles, at 1s. 2d. per yard	1386	0	0
Station and goods shed, &c.	1000	0	0
Signal posts, &c.	229	0	0
Six public road and 12 private crossings	240	0	0
Engineering expenses	900	0	0
Contingencies, 8 per cent.	3100	0	0
	<u>£41,949</u>	<u>0</u>	<u>0</u>

REPORT on the 17 Miles of Tramway from Coiler's Creek to Latrobe.

SIR,

I HAVE the honor to submit the following Report and Estimates of the above Tramway.

The accompanying plans, sections, and drawings have been made without reference to any that exist, and show the curves, gradients, formation, bridges, culverts, ballast, permanent way, and fencing in their present state.

Earthworks.

The cuttings and banks are in a fair state considering the time which has elapsed since their construction, and will require only a small outlay to put them in a proper state of repair.

The drainage of the line at certain places is not sufficiently provided for, will require some length of 8 feet ditches, and one new 12 feet bridge.

During the late heavy floods I inspected the line, and found that water had crossed and washed away the ballast for some length of the line, particularly at and near to the Railton Station, which was submerged. A 9-feet ditch at the back connecting the two creeks will prevent this in future.

Bridges.

The two large bridges crossing the Mersey River are in an insecure state, and unsafe for the light rolling stock provided. The timber trusses of 50 feet span are very defective in design and workmanship, which applies also to the whole superstructure. The piles are sound, and have withstood the rapid flood waters from the first to the present time without injury. With additional diagonal bracing, and new caps, the piled piers will last the usual term of timber bridges. The superstructure must be discarded, and a new one built upon a better principle; some of the transoms are sound, and can be re-used.

The timber viaduct, 10½ chains in length, adjoining the bridge at Kimberley's Ford, requires a large outlay; many of the stringers and beams are decayed, and must be replaced by new ones. The structure is very weak laterally, diagonal bracing at each pier is required to make it safe for heavier engines.

In all cases of bridges and viaducts on this line the rails are fastened by chairs to the longitudinal timbers, without any tie whatever to keep the gauge,—an omission which renders it unsafe for the lightest rolling stock, and shows that the person entrusted with the work was unacquainted with railways.

I have estimated that a sum of £1500 will have to be expended on the two bridges and viaducts.

Small Bridges and Culverts.

There are five piled bridges crossing creeks, from 100 to 132 feet in length, and four from 50 to 90 feet in length. The superstructure of these bridges is in a state of decay, requires strengthening, and in some instances renewal.

There are eighteen beam culverts of 10 and 12 feet span, with rubble stone headings and timber beams. They require but little repairing. Cross sleepers upon the beams, to keep gauge and raise the permanent way to a higher level, will be necessary.

A sum of £844 will be required for these small bridges and culverts.

Ballast.

The ballast is of a mixed quality, but on the whole length not objectionable. On opening it at every four chains I found that none was at a greater depth than the bottom of the sleepers, which were laid upon the formation and never lifted.

Without bottom ballast, at least 6 inches thick, the road would not carry any engine, and a running surface could not be maintained. It will be necessary to reballast the whole line.

Ballast is readily obtained on the side of the line, at places marked on the Plan.

Sleepers.

The sleepers are of all shapes and sizes, split like an ordinary fence post, and in a state of decay. Two years hence very few would be fit for use. I recommend that new ones, of proper dimensions for a 3 ft. 6 in. gauge, be provided, and the present ones discarded as useless.

Permanent Way.

The present permanent way was intended and designed for a "tramway." The rail, 30lbs. to the yard, is shown in the accompanying drawings. The section is a bad one, long since discarded in railway construction, and the fastenings weak. If fished it would be improved, but still weak laterally, unsuited and unsafe for the work expected from it by running 18 ton engines.

I think it unadvisable to spend more money upon a permanent way of this character, and recommend that it be sold, and permanent way similar to that intended for the preceding 13 miles be laid down in its place.

With this view I have prepared the estimates.

Curves and Gradients.

The curves are favourable, and the gradients not steeper than one in 60.

At the Big Cutting two opposing steep grades meet without a short length of flat intervening. It is advisable to alter this, and at a small cost.

I beg to refer you to the annexed estimate of cost of reconstruction.

I have the honor to be,

Sir,

Your obedient Servant,

JOSIAH HUMAN.

The Hon. WM. MOORE, Minister of Lands and Works.

LATROBE TRAMWAY, (17 MILES).

Estimate of present Value of 17 Miles Constructed.

	£	s.	d.
Excavation, £11,818, less £680.....	11,138	0	0
Drains and stone pipes.....	498	0	0
Clearing line.....	716	0	0
Rock excavation.....	24	0	0
Two bridges over Mersey River, £2839, less £1000.....	1839	0	0
Viaduct at Kimberley's Ford, £847, less £500.....	347	0	0
Small bridges and culverts, £1327, less £830.....	497	0	0

	£	s.	d.
Ballasting, £3726, less £2476	1250	0	0
Sleepers, 1550, useless .....	..	..	..
Points and crossings, 221, ditto .....	..	..	..
Transport of permanent way, ditto .....	..	..	..
Laying permanent way, ditto .....	..	..	..
Station and buildings, £757	757	0	0
Land, £347	347	0	0
Fencing, £754	754	0	0
Rails, £11,440, allow £5 per ton	4250	0	0
Survey, &c., £6950, allowed £100 per mile	1700	0	0
Rolling stock	900	0	0
Estimated present value	£25,017	0	0

Estimate of Cost of Re-construction.

	£	s.	d.
Fencing, 20½ miles, at £64	1312	0	0
New Works, 52 chains of 8 feet ditches, at £3	156	0	0
One new 12 feet bridge	50	0	0
Eighteen beam culverts, repairing and altering, at £5	90	0	0
Nine timber bridges, ditto	740	0	0
Two bridges over the Mersey River	1000	0	0
Viaduct at Kimberley's Ford, repaired and altered	500	0	0
Ballasting additional, 9 ft. × 6 in., 15,000 cubic yards, at 2s. 9d.	2062	0	0
Sleepers, 6 ft. 6 in. × 8 in. × 4½ in., 40,800, at 1s. 6d.	3060	0	0
Seventeen miles of permanent way taken up	680	0	0
Seventeen miles of 40lb. rails, 1071 tons, at £11	11,781	0	0
Fish plates and fastenings	1297	0	0
Seventeen miles of laying permanent way, per yard, 1s. 2d.	1745	0	0
Earthworks, repairing	680	0	0
Points and crossings, 4 sets	100	0	0
Cattle guards, 8	80	0	0
Transport of railway material	200	0	0
Supply of water to Stations	150	0	0
Supervision	400	0	0
	£26,083	0	0
Deduct value of old permanent way, at £5 per ton	4250	0	0
	£21,833	0	0

REPORT on the proposed extension from Latrobe to Torquay by way of Stott's Plains. Length 5 Miles 7 Chains.

THE earthworks are heavy, and average 12,000 cubic yards per mile. The slopes throughout 1½ to 1; width of formation 14 feet on banks and cuttings.

Bridges and culverts are light.

The sharpest curve, 10 chains radius; and the steepest grade 1 in 50, on descending to the shipping place at Stewart's Mill, which is unavoidable. A back-siding will be best suited for working the goods traffic at this terminus.

The Station ground affords a large supply of good ballast, the removal of which will give space for station buildings 5 feet above high water mark, and a deep water frontage 20 chains in length, giving great facilities for the construction of wharves and store buildings.

I beg to refer you to the annexed estimates, showing the cost of construction, and the special works required at the Terminus.

JOSIAH HUMAN.

EXTENSION FROM LATROBE TO TORQUAY, (5 MILES 7 CHAINS).

Estimate of Cost.

	£	s.	d.	£	s.	d.
Land, 37 acres—16 acres at £8	128	0	0			
4 acres at £10	40	0	0			
17 acres at £4	68	0	0			
Oldacre's barn	70	0	0			
Ditto, extra for land	50	0	0			
Station ground, 5 acres, at £40	200	0	0			
				556	0	0
Clearing				230	0	0
Fencing, 10 miles, at £64 per mile				640	0	0
Excavation, 62,621 cubic yards, at 1s. 6d.				4696	0	0
Side ditches, 7½ miles, £20 per mile				150	0	0
Bridges and culverts				458	0	0
Ballasting, 11,396 cubic yards, at 2s. 6d.				1424	0	0
Rails, 346 tons, at £11				3806	0	0
Fish-plates and fastenings				404	0	0
Sleepers, 2400 per mile, 13,200, at 1s. 6d.				990	0	0
Points and crossings, 8 sets, at £25				200	0	0
Four public and two private crossings				118	0	0
Laying permanent way, per yard, 1s. 2d.				564	0	0
Station buildings				2000	0	0
Station ground				500	0	0
Turntable				260	0	0
Signal posts, &c.				90	0	0
Transport of material				100	0	0
Supply of water at Station				250	0	0
Wharf				280	0	0
Crane				160	0	0
Store sheds				600	0	0
Supervision				800	0	0
Contingencies				1000	0	0
				<u>£20,276</u>	<u>0</u>	<u>0</u>

SUMMARY.

	£
Purchase of Line	12,500
Engineering Survey, &c., say	1500
Estimate of cost of 13 miles from Deloraine to Coiler's Creek	41,949
Ditto 17 miles to be re-constructed	21,833
Ditto 5 miles to deep water on the Mersey	20,276
Rolling stock	7000
	<u>£105,058</u>
Estimate of present value of 17 miles constructed	<u>£25,017</u>