

Agreed to and leave granted.

Bill introduced and read a first time.

THE DIRECTOR OF PUBLIC WORKS then gave notice that on Monday next the Attorney General would move the second reading of the Bill.

THE DIRECTOR OF PUBLIC WORKS, for the Attorney General in his absence, asked leave to introduce a Bill entitled The Vendors and Purchasers' Law, 1888.

Motion seconded by Mr. Gillard.

Agreed to and leave granted.

Bill introduced and read a first time.

THE DIRECTOR OF PUBLIC WORKS then gave notice that on Monday next the Attorney General would move the second reading of the Bill.

THE DIRECTOR OF PUBLIC WORKS, for the Attorney General in his absence asked leave to introduce a Bill entitled The Prevention of Accidents at Sugar Mills Law, 1888.

Motion seconded by Mr. Gillard.

Agreed to and leave granted.

Bill introduced and read a first time.

THE DIRECTOR OF PUBLIC WORKS then gave notice that on Monday next the Attorney General would move the second reading of the Bill.

THE DIRECTOR OF PUBLIC WORKS for the Attorney General in his absence, asked leave to introduce a Bill entitled a Law to correct an error in Section 18 of the Island Records Laws, 1879, Amendment Law, 1887.

Motion seconded by Mr. Gillard.

Agreed to, and leave granted.

Bill introduced and read a first time.

THE DIRECTOR OF PUBLIC WORKS then gave notice that on Wednesday next the Attorney General would move the second reading of the Bill.

THE DIRECTOR OF PUBLIC WORKS, for the Attorney General in his absence, asked leave to introduce a Bill entitled The Post Office Further Protection Law, 1888.

Motion seconded by Mr. Gillard.

Agreed to and leave granted.

Bill introduced and read a first time.

THE DIRECTOR OF PUBLIC WORKS then gave notice that on Tuesday next the Attorney General would move the second reading of the Bill.

THE DIRECTOR OF PUBLIC WORKS for the Attorney General in his absence asked leave to introduce a Bill entitled The Employers Liability Law, 1888.

Motion seconded by Mr. Gillard.

Agreed to and leave granted.

Bill introduced and read a first time.

THE DIRECTOR OF PUBLIC WORKS asked leave to introduce a Bill entitled The Parochial Roads Law, 1873, Amendment Law, 1888.

Motion seconded by Mr. Gillard.

Agreed to and leave granted.

Bill introduced and read a first time.

On the suggestion of Mr. Harvey the President directed the publication of the Bill before its second reading.

THE DIRECTOR OF PUBLIC WORKS then gave notice that he would move that the Bill be read a second time on Monday, the 16th day of April, 1888.

The Council then adjourned to Monday, the 9th day of April, 1888, at 2 o'clock, p.m.

APPENDIX No. 1.

Report of the Director of Public Works on the Extension of the Railway.

Director of Public Works Office, 10th February, 1888.

Copy.

SIR,

I beg to submit the following Report on the proposed Extension of the Railway from Bog Walk through Annotto Bay to Port Antonio. Accompanying this Report the Plans and Sections of the Line are sent for the inspection of His Excellency the Governor, but as no copies have as yet been made I have to request that they may be returned to me as soon as they can be spared in order that I may have them copied.

2. The total length of the Line is 54½ miles.

3. The first 5½ miles from the Bog Walk Station to Riversdale pass through a very easy country. The gradients and curves are consequently good, and the works very light, the average cost per mile for Works, Permanent Way and Stations is about £5,500.

4. From Riversdale to Bagbie, the summit of the hills separating Saint Mary's from Saint Thomas in the Vale, a distance of 5½ miles, the country is very rugged; the Line has to rise 707 feet. The works are very heavy, with steep gradients and sharp curves; the steepest gradient is 1 in 30 and the sharpest curve is of 10 chains radius; there are two Tunnels, one 66 yards in length, and the other 176 yards. The average cost per mile for Works, Permanent Way and Stations is about £17,500.

5. From the line of the Parishes at Bagbie to Annotto Bay, 17 miles, the country is exceedingly difficult and rugged; the Line falls 852 feet. The gradients are necessarily steep and the curves sharp; the works are excessively heavy. There are 6 Tunnels of the following lengths respectively: 140 yards, 50 yards, 56 yards, 40 yards, 50 yards and 900 yards. There are 16 large Viaducts and an Iron Girder Bridge of 9 spans of 80 feet over the Wag Water River. The steepest gradient is 1 in 30 and the sharpest curve is of 7 chains radius. The average cost per mile is about £19,000. A more extended study of this Line will probably enable it to be improved and possibly the cost to be somewhat reduced.

6. From Annotto Bay to Port Antonio the Line follows the coast, and the country traversed is for the most part easy. At three points, viz., at the Kildare Rocks near Buff Bay, at Savanna Point between the Spanish and Swift Rivers, and at Burlington on the east side of the Rio Grande the hills extend to the sea shore, and some heavy works and steep gradients are required to surmount these obstacles. The steepest gradient is 1 in 50 and the sharpest curve is of 10 chains radius. It is possible that a more extended study may show that a better Line than that projected round Savanna Point may be obtained by way of the Black Hill, but I have not thought it necessary to study that Line as there would probably be little difference in the cost.

7. The average cost per mile of this section is about £8,500 per mile.

8. I append hereto a summary of the estimate for the whole Line. The total cost for Works, Permanent Way and Stations amounts to £673,072 8s. 6d., being an average of £12,332 per mile. Adding £20,000 for Engineering and Supervision, and £30,000 for Rolling Stock, the grand total is £723,072 or an average of £13,206 per mile.

9. It has been assumed that the Bridges over the Rivers between Annotto Bay and Port Antonio will be constructed for the Main Road and may be utilized for the Railway; their cost is therefore not included in the Railway Estimates. The cost of these Bridges is estimated at £36,484, and if added to the Railway Estimates would increase the average cost of this section by £1,351 per mile and the average cost of the whole Line by £666 per mile.

I have, &c.,
(Sigd.)

VALENTINE G. BELL, Director Public Works.

The Honorable The Colonial Secretary.

JAMAICA GOVERNMENT RAILWAY.

PROPOSED EXTENSION FROM BOG WALK TO PORT ANTONIO.

		<i>Estimate of Cost.</i>					
		£	s.	D.	£	s.	D.
Land and Legal Expenses	54½ miles at £150	...	...	...	8,212	10	0
Fencing, Gates and Huts	54½ miles at £300	...	...	...	16,425	0	0
Open Cuttings	2,020,478 c. yds., at 2s. 6d.	...	252,559	15	0		
Extra for Banks	404,096 c. yds., at 2s.	...	40,409	12	0		
Tunnels	1,599 l. yds., at £30	...	47,970	0	0		
Side Drains	54½ miles at £80	...	4,380	0	0		
					345,319	7	0
Bridges and Viaducts (see details)	...	111,942	12	0			
Culverts (do.)	...	23,883	11	6			
Retaining Walls (do.)	...	8,592	15	0			
Pitching to Embankment (do.)	...	838	15	0			
Pipe Drains	54½ miles at £20	...	1,095	0	0		
					146,352	13	6
Road, Metalling	4,500 c. yds., at 5s.	...	...	...	1,125	0	0
Permanent Ways	54m. 58c. at £2,020	...	...	...	110,544	10	0
Telegraph	54m. 58c. at £24	...	...	...	1,313	8	0
Stations	54m. 58c. at £800	...	...	...	43,780	0	0
	(£12,332 per mile)				£673,072	8	6
Engineering and Supervision	...	...	...	...	20,000	0	0
Rolling Stock	...	...	...	...	30,000	0	0
	(£13,206 per mile)						
					Total	£723,072	8 6

Director of Public Works Office, 28th March, 1888.

No. 527.

SIR,

I hand you herewith the plans and sections of the proposed Extension of the Railway from Porus to Montego Bay and my Report thereon with estimate of cost.

2. The surveys for the two proposed Railway Extensions being now completed I desire to express my high appreciation of the zeal and unflinching energy which all engaged on it have cheerfully displayed throughout this arduous work. I think the Island may be proud that, without any extraneous assistance, we have been able to complete in a highly creditable manner the preliminary plans, sections and estimates for 119 miles of Railway, for the most part through mountainous districts, without any reliable Maps to guide them, at the very moderate average cost of about £41 per mile.

3. I think it right to place on Record the names of the gentlemen employed on these surveys, which are as follow:—

Mr. W. H. Allport, Civil Engineer.

Mr. J. H. Dodd

Mr. S. T. Scharschmidt

Mr. J. Richmond

Mr. A. G. Nash, Superintendent Parochial Roads Manchester.

Mr. J. Dunbar, Civil Engineer.

Mr. S. S. Wortley, Overseer of Works, General Penitentiary.

Mr. R. G. Mossman

Mr. L. M. Facey

Mr. A. Hearne

Mr. W. S. Dunn

Mr. C. J. Rodgers

Mr. H. E. Miles

Mr. T. Gray

Mr. H. J. Rudolf

Mr. A. G. Bell

Mr. R. A. Stafford.

} District Engineers.

} Commissioned Land Surveyors.

4. Mr. Allport's section from Vauxhall to Belfont, though only 12 miles in actual distance, was the most difficult and in all respects the most arduous, involving the exploration of a large tract of mountainous and in some parts almost inaccessible country in order to discover a practicable route. The distance of the line in most parts from any habitable house and from sources of food, and its inaccessibility otherwise than on foot, frequently entailed very considerable hardships and privations on Mr. Allport and his Assistants, which were borne with cheerful and unflinching endurance and energy.

5. Owing to the press of work in his district and to the serious accident to his son, Mr. Richmond was compelled to give up charge of the section allotted to him after having roughly tracked out the general direction of the line. After completing the section between Port Antonio and Annotto Bay, Mr. Dodd took charge of Mr. Richmond's section and completed the survey to Bog Walk. Having finished that, Mr. Dodd proceeded to Belfont and, with three Assistants, laid out, surveyed and levelled the line from there to Montego Bay and made the plans and sections. To Mr. Dodd, therefore, belongs the honour of having conducted the survey of 75 miles out of a total of 119. The work was done very rapidly and in a masterly manner. Mr. Dodd and his Assistants must have worked very hard and made very long days. Mr. Dodd's plans are also admirable as works of art.

6. Mr. Scharsmidt's section required considerable engineering skill in determining the line from Porus up on to the Manchester plateau, and again in descending from it into Saint Elizabeth. The survey and sections from Porus to Vauxhall, 32 miles, were very ably carried out and completed by Mr. Scharschmidt and his Assistants within six months, notwithstanding much unfavorable weather. They must all have worked energetically and efficiently.

I have, &c.,

(Signed) VALENTINE G. BELL, Director Public Works.

Proposed Railway Extension from Porus to Montego Bay.

The total length of the line is 64½ miles.

2. Starting from Porus the line rises 1,095 feet in the first 9½ miles to Martin's Hill, a considerable detour being necessary near Porus in order to obtain a gradient not steeper than 1 in 30. In the next 4½ miles the line rises 106 feet to Skull Point, the highest point on the proposed Railway and 1,636 feet above the sea.

3. Up to this point the works are of an ordinary character, the deepest gradient is 1 in 30, and the sharpest curve is of 10 chains radius. The average cost per mile for works, permanent way and station is about £7,000.

4. From Skull Point the line falls 1,191 feet in 11 miles to Mexico, 25 miles from Porus. The country is very broken and much difficulty was encountered in locating the line. The works are heavy and include five tunnels of the following lengths:—470 yards, 90 yards, 237 yards, 147 yards and 1,130 yards, respectively. The steepest gradient is 1 in 30, and the sharpest curve is of 10 chains radius. The average cost per mile of this length is about £13,700.

5. From Mexico to the crossing of the Black River on Vauxhall Estate, 32 miles from Porus, the line falls 40 feet in 7 miles. The works are easy; there is one short tunnel 50 yards long. The steepest gradient is 1 in 35, and the sharpest curve is of 10 chains radius. The average cost per mile is about £5,500.

6. From Vauxhall in Saint Elizabeth to Belfont Bridge over the Great River in Saint James, a distance of 12 miles, the line traverses an exceedingly rugged and difficult country bordering on the Cockpits. The line rises from the Black River 292 feet in 2½ miles to Grove Hill, thence it undulates somewhat rising 133 feet in 3½ miles to the road leading from Ipswich Works to Mulgrave; in the next 4 miles the line rises 75 feet to the summit at Stonehenge 875 feet above the sea, and 42 miles from Porus. From this point to the crossing of the Great River at Belfont the line falls 244 feet in 2 miles. It is remarkable that although this section of the line crosses the main range of the Island its general direction is comparatively straight and the summit level is only 875 feet above the sea.

7. The works of this section of the line are very heavy, the steepest gradient is 1 in 30 and the sharpest curve is of 7½ chains radius. There are six tunnels of the following lengths:—60 yards, 47 yards, 115 yards, 67 yards, 987 yards, 1,017 yards and 200 yards, respectively; two bridges of 80 feet span over the Black River, and two viaducts 85 yards long each. The average cost per mile is £19,429. This district will require further careful study before the best location of the line can be finally decided upon.

8. After crossing the Great River at Belfont the line falls 259 feet in the next 7 miles to Hazelymph Estate. The country is somewhat rugged; there is one tunnel of 100 yards in length and a viaduct 70 yards long over the Great River.

9. From Hazelymph to Anchovy Bottom, a distance of 5 miles, the line rises 316 feet to the summit on this section 713 feet above the sea, through an easier country. For the next two miles the line follows the course of the main road to Kingate, falling 118 feet in that distance. From this point to Bellefield Plain, 3½ miles, the line falls 468 feet; the country is rugged, necessitating a tunnel 374 yards long and three viaducts, one of 120 yards and two of 100 yards each in length. From Bellefield Plain to the terminus at Montego Bay, a distance of three miles, the country is easy. The line falls 110 feet. There is a bridge of 80 feet span over the Montego River. A branch 30 chains in length, with a stone jetty going out into 4 feet water is provided for lighters to load and unload cargo at.

10. The steepest gradient on this section is 1 in 30, and the sharpest curve is of 10 chains radius. The average cost per mile is £12,240.

11. I append hereto a summary of the estimate for the whole line. The total cost for works, per-

manent way and stations amounts to £771,399 11s. 10d, being on an average £11,948 11s. 2d. per mile. Adding £25,000 for engineering and supervision and £36,000 for rolling stock the grand total is £832,399 11s. 10d., or an average of £12,893 8s. 4d. per mile.

VALENTINE G. BELL, Director of Public Works.

JAMAICA GOVERNMENT RAILWAY.

PROPOSED EXTENSION FROM PORUS TO MONTEGO BAY.

Estimate of Cost.

	£	s.	d.	£	s.	d.
Land and Legal Expenses 52.56 miles, at £150	...	...	...	7,884	0	0
Land and Legal Expenses 12 miles, at £100	...	...	...	1,200	0	0
Fencing, Gates and Huts 56.56 miles, at £300	...	...	...	16,968	0	0
Open Cuttings 1,592,322 c. yds., at 2s. 6d.	...	199,040	5 0			
Open Cuttings 600,988 c. yds., at 3s. 6d.	...	105,172	18 0			
Extra for Banks, 159,231 c. yds., at 2s.	...	15,923	2 0			
Tunnels, 5,111 Lin. yds., at £30	...	153,330	0 0			
Side Drains, 56.56 miles at £80	...	5,544	16 0			
Road Diversions, 65 chns at £5	...	320	0 0			
River Diversions, 37,500 c. yds., at 2s. 6d.	...	4,687	10 0			
				482,998	11	0
Bridges and Viaducts (see details)	...	59,095	19 0			
Culverts	...	9,682	0 0			
Retaining Walls	...	7,306	0 0			
Pipe Drains, 64.56 miles at £20	...	1,291	4 0			
				77,375	8	0
Road Metalling 5,460 c. yds., at 5s.	...	...	...	1,365	0	0
Permanent Way, 64.56 miles at £2,020	...	...	...	130,411	4	0
Telegraph, 64.56 miles at £24	...	...	...	1,549	8	10
Stations, 64.56 miles at £800	...	...	...	51,648	0	0
(£11,948 11s. 2d. per mile)						
				771,399	11	10
Engineering and Supervision	...	...	...	25,000	0	0
Rolling Stock	...	...	...	36,000	0	0
(£12,893 8s. 4d. per mile)						
Total	...			£832,399	11	10

* 28th March, 1888.

† 3rd April, 1888.