

1896.

VICTORIA.

RAILWAYS CONSTRUCTED UNDER THE BUTTY-GANG SYSTEM.

RETURN to an Order of the *House*,
Dated 11th August, 1896. *for—*

A RETURN showing—

1. The names of the railway lines constructed under the butty-gang system.
2. The length of each line and total length of all those constructed.
3. The Engineer's estimate of cost of each line.
4. The actual cost of each line, showing the principal headings and total cost of all the lines.
5. The cost of supervision, including the salaries of construction engineers and inspectors.
6. The average wages paid.
7. The total number of men employed on each line.
8. The time occupied in the construction of each line.

(*Mr. McColl.*)

Ordered by the Legislative Assembly to be printed, 1st October, 1896.

Board of Land and Works
(Railways Construction Branch),
Melbourne, 21st September, 1896.

RE COST OF LINES CONSTRUCTED UNDER "BUTTY-GANG" SYSTEM.**MEMO:**

At the end of 1891, when the butty-gang system was applied to the construction of our railways, it was decided that all country lines should be built, in the first instance, as cheaply as possible.

A fairly substantial permanent way, with reduced ballast, was to be provided, but no fencing or gate-houses, except where absolutely required, and only a skeleton equipment for stations and water supplies.

The lines were to be strengthened and brought up to the requisite standard of efficiency as settlement proceeded and traffic developed.

This system, which is the one most suitable to a new country, has been strictly carried out on the whole of the lines constructed since 1891, but the estimates made and the amounts inserted in the Acts for the construction of all these lines—except the coal lines, which were treated as a special case—included fencing, fully-equipped stations, water provision, &c., &c., complete for a developed traffic.

The lines have been constructed during a period of great depression and of falling prices, both for labour and materials, and have been opened for public traffic at less cost than was to be expected.

In the case of the Outtrim line, the estimate was based on the standard navy wage of 5s. per day, and on the understanding that the coal companies were to pay the cost of the sidings and other accommodation works constructed for their special use. The standard navy wage, however, was raised to 6s. per day shortly after the works were begun, and the Department paid part of the cost of the sidings and other special accommodation works for the Jumbunna and Outtrim coal companies.

The Korumburra to Jumbunna and the Jumbunna to Outtrim lines are now being fenced, and most of the mallee lines have been fenced, the land-owners contributing to the cost in some cases.

F. RENNICK,
Engineer-in-Chief.

[Approximate Cost of Return.—Preparation, not given; Printing (760 copies) £2 17s. 6d.]

VICTORIAN RAILWAYS.

ANALYSIS OF COST per Mile of Lines constructed under the "Butty-gang" System to 31st August, 1896.

By Authority: ROBT. S. BRAIN, Government Printer, Melbourne

1	Names of Lines	Warrack-nabeal to Beulah.	Donald to Birchip.	Beulah to Hopetoun.	Dimboola to Jeparit.	Natimuk to Goroke.	Boort to Quambatook.	Wycheproof to Sea Lake.	Totals and Averages.	Korumburra to Jumbunna.	Korumburra to Silkstone and Strezlecki.	Totals and Averages.	Jumbunna to Outtrim.	Totals for all Lines.
		Easy and moderate country—Mallee lines.							Difficult country.			Very difficult country.		
2	Lengths of lines	22 miles	32½ miles	16 miles	23 miles	28¼ miles	22 miles	48 miles	191¾ miles	3¾ miles	2¾ miles	6½ miles	2·4 miles	200·65 miles
		£	£	£	£	£	£	£	£	£	£	£	£	£
3	Engineer's estimate	82,500	120,937	41,175	61,950	94,446	60,500	86,400	547,908	18,750	13,750	32,500	20,000 + 5,000	605,408*
	Engineer's estimate per mile	3,750	3,750	2,574	2,694	3,343	2,750	1,800	2,857	5,000	5,000	5,000	8,571 } 10,714	3,017*
	Actual cost of line to 31st August, 1896	51,510	69,818	30,841	35,889	57,721	38,863	66,469	351,111	15,488	10,610	26,098	24,427	401,636*
	Actual cost of line per mile	2,341	2,148	1,928	1,560	2,043	1,766	1,385	1,831	4,130	3,858	4,001	10,178	2,001*
	COST PER MILE OF PRINCIPAL WORKS.													
	Clearing and grubbing	22	6	10	10	23	6	5	11	580	343	475	286	...
	Fencing	83	87	48	8	56	45	31	49	119	6	69	146	...
				(incomplete)	(unfenced)		(incomplete)	(incomplete)			(incomplete)			...
	Cattle pits at crossings	28	39	30	6	13	11	5	17	36	8	23	2	...
	Earthworks (including stations and approaches)	165	214	192	146	240	150	118	171	1,303	1,316	1,308	6,679	...
	Bridges	65	49	34	12	66	23	...	32	...	...	...	233	...
	Culverts	34	45	40	25	25	19	5	25	84	283	170	473	...
	Gravelling and metalling roads and approaches	25	36	12	5	18	19	3	16	4	2	3	10	...
	Ballast (main line and sidings)	360	252	128	109	182	253	95	188	295	189	250	(corduroy) 323	...
4		(gravel)	(gravel)	(sand)	(sand & gravel)	(gravel)	(gravel)	(sand)						...
	Sleepers (main line and sidings)	459	372	439	386	424	320	316	378	172	220	198	175	...
	Rails and fastenings, 60 lbs. steel (including freight and laying, main line and sidings)	732	699	685	656	658	667	623	669	706	618	666	716	...
	Temporary station buildings (including platforms)	109	85	86	35	42	45	23	55	75	16	49	62	...
	Water supply, temporary	4	16	9	...	6	1	22	10	21	23	22	...	...
	Signals	2	3	...	6	2	...	2	2	...	...	...	12	...
	Telegraph	10	14	13	11	13	16	10	12	18	...	3	32	...
	Miscellaneous items	9	3	8	5	3	...	7	5	9	10	9	100	...
	Surveys	57	46	24	26	101	21	27	44	237	255	243	125	...
	Supervision { Head Office	55	84	53	54	74	80	46	63	255	287	269	357	...
	{ Local staff (including District Engineer)	122	98	117	60	97	90	47	84	216	282	244	447	...
5	Standard wages per day for navvies	6s.	6s.	5s.	5s.	5s.	5s.	5s.	...	5s.	5s.	...	6s.	...
6	† Average earnings of piece-work labourers on earthworks, &c.	No record.	5s. 7d.	4s. 8d.	4s. 2d.	4s. 7d.	4s. 7d.	4s. 7d.	...	5s. 2d.	5s. 2d.	...	5s. 10d.	...
7	Total number of men employed—Approximate	No. 450†	No. 600†	No. 350†	No. 500†	No. 680†	No. 550†	No. 500†	...	No. 550†	...	...	No. 1,170 §	5,350
8	Date construction started	5.3.92	3.3.92	18.5.93	18.7.93	26.4.93	15.7.93	2.4.94	...	2.5.93	17.4.93	...	6.3.95	...
	Date of opening for traffic	5.1.93	28.3.93	6.3.94	19.6.94	31.7.94	7.8.94	8.3.95	...	7.5.94	17.5.94	...	30.1.96	...
	Time occupied in construction	10 months	13 months	10 months	11 months	15 months	13 months	11 months	...	12 months	13 months	...	11 months	...

* See further information on attached sheet. —† The fact of the average earnings being below standard rates is due to the number of inexperienced and inefficient men employed. Efficient and industrious men earned the standard wage or slightly more. —‡ Not including men getting sleepers, timber, fence posts, &c. —§ Includes men getting sleepers and bridge timber.