

communication, and to erect, when thought desirable, a permanent Central Station for Passenger Traffic running both ways.

The Land for the Railway has been almost everywhere provided for a double line. The land at Stations, as detailed in Appendices M 1, and M 2, varies from 2 acres to 30 acres, the average of all being above 7 acres per station. At two Stations, viz, Kingston and the Don Station at Toronto, I consider the land provided to be insufficient, and the Contractors at once undertook to supply more at their own cost.

The widths of Cuttings and Embankments were altered by the Engineer to 22 feet for Cuttings, and 20 feet for Embankments; and as the Embankments, which were increased, are in excess of the Cuttings, this change was an expense to the Contractors, for which, however, no claim has been made. On many parts of the Line the Earthworks have suffered much from the effects of the weather, and these will for some time require the careful attention of the Contractors for Maintenance. The place which appeared to me to require most care, was along the high ground between Port Hope and Port Britain. There the Line runs near the cliff, and the ground, although extremely hard to excavate, has been so affected by frost, thaw and rain, that it will require careful draining, and probably some special protection, by covering the part most exposed to wet with dry material and faggots.

The Gradients of the Line are shown in Appendices N 1, N 2, and N 3. 260 miles, or 80 per cent. of the total length, are either level or under 20 feet per mile; and for 67 miles, or 20 per cent. of the length, they are of the maximum of 52.8 feet per mile. For the character of the country, this is not an undue proportion.

The Permanent Way has been executed generally according to the Specification, but there are certain deficiencies which have arisen from the somewhat premature openings of portions of the Line.

The first is a want of the proper quantity of ballast, which, although specified at 4 yards per lineal yard, was intended to be executed with  $2\frac{1}{2}$  yards, for the reasons already given, but in some places fell short of this latter quantity.

On the western portion of the Montreal and Kingston Division, I found the deficiency being made up by the Contractors. At various parts of the Line between Kingston and Toronto I observed a deficiency, which was most marked in the section between Belleville and Oshawa, where sand ballast was frequently used, from the difficulty in obtaining, within the limited time, a better material.

This deficiency the Contractors always considered they would have to supply, but I found the Company had begun to make it good. I was informed that this arose from some misunderstanding, owing to the absence of the Engineer-in-chief.

In explanation of this and other defects, I would remind you that the lengths where they occur were opened in haste in the autumn of last year; a length of 23 miles, from Grafton to Newtonville, being, as I was informed, constructed in about five months, although it comprised the Port Hope Viaduct, and about twelve miles of heavy work—an example of energy rarely surpassed. These portions so opened were not supposed to be complete, but the setting in of the winter put an early stop to all work which they might require.

Westward of Oshawa, I believe the line to have been for the most part fully ballasted, but some of the material used, (a sand which it was believed would stand,) has been wasted by the weather, and damaged by slips.

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