

Fortunately the difficult portion could easily be got over by adopting, temporarily, a steep grade, as indicated in the accompanying profile. Mr. Jennings is authorized to make this suggestion to the contractors, with the understanding that the undersigned will concur in its adoption, should the contractors desire it in their own interest. The line must, thereafter, be constructed with the permanent gradient before the completion of the contract, and the contractors will be paid for all now or hereafter executed, which forms any part of the permanent work. The cost of temporary track laying, and the small amount of excavation of parts A, B, C, D, etc., or any work of a merely temporary character, not necessary in the permanent works, will have to be borne by themselves.

5. For the guidance of Mr. Jennings, it may be mentioned that on some of the sections which have been under construction the contractors have found it convenient, with the modern explosives, to blast out rock cuttings considerably beyond the slope lines, as defined on the specifications. The Engineer-in-Chief directs that only the excavation within the slope lines be returned as rock. The material beyond the slope lines, if placed in embankments, may be returned and paid for as earth; but, if wasted it must not be returned as excavation under any class.

6. It may further be mentioned for the information of Mr. Jennings, that on some sections under construction, when muskegs prevail and the embankments have been formed from side borrowing pits and ditches, serious difficulties have arisen. The material so borrowed is reported to be, in many cases, vegetable matter of a spongy nature, holding much water, and when dry and compressed by a superincumbent weight, to have little solidity; it is consequently, unfit to be used in the formation of earth embankment. The undersigned accordingly disapproves of its use.

7. There is always more or less difficulty in forming embankments across muskegs or marshes. In some cases where a proper out-fall is available, so that ditches would have the effect of draining and consolidating the ground, it is advisable to form them parallel to the line of railway. But when the ditches, after being formed would simply remain full of stagnant water, their formation is of doubtful expediency, and under such circumstances, ditches are of little value. Indeed, in some special localities they may be a positive injury, and in all such cases it is advisable not to form them, but rather resort to a judicious use of the logging and brushing provided for under the contract.

This being done a thin covering of earth to form a foundation and bed for the ties may be added. Track may then be laid and thus allow material to be brought from any convenient distance by train. But if this expedient be resorted to, it will be necessary to bed the track sufficiently even and solid to prevent the rails from being bent or injured in any way.

8. These several points are brought to the attention of Mr. Jennings, but he will himself determine the best course to be pursued when he has specially examined each locality, and become acquainted with the depth of the muskeg, and all the circumstances. In arriving at a decision, Mr. Jennings will take into consideration the question of haul, for which a price is provided, and he will see that in no case the price of earth and haul together (when material is brought by train) shall exceed the price of ballast, as in such cases ballast would probably be the best and cheapest material with which to form the embankment.

9. There may be some exceptional case where it may not be impossible for the contractors to procure suitable material for the road bed and where it would be a very great advantage to them and expedite their operations, if they were permitted to use in part the spongy material found in Muskegs. This shall only be allowed sparingly, and in all cases when used, the solid contents of the spongy matter only is to be paid for. A log platform (clause 12) must invariably be laid on the surface before any of the muskeg material is deposited, and arrangements must be made to measure the solid cubic contents in the embankment after the water has had time to drain out of it. On these conditions as to measurement and payment and on these only, will the undersigned approve of the use in any form, of this peculiar material.