

Electric Railway Department

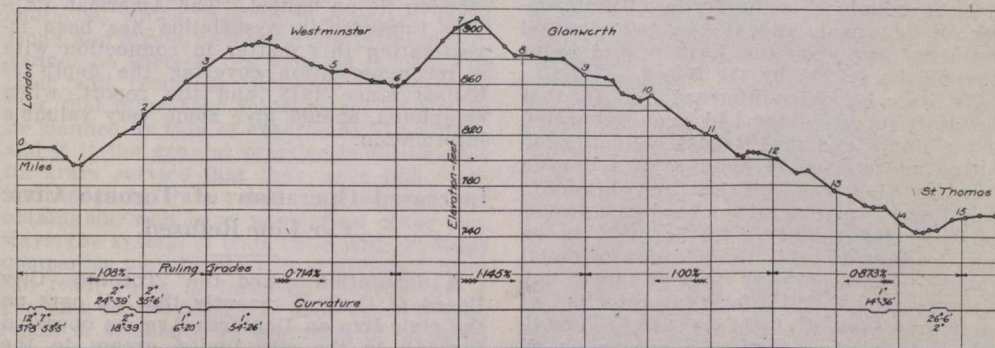
Electric Equipment for the London and Port Stanley Railway.

As mentioned in Canadian Railway and Marine World for September, rapid progress has been made in the renovation of the London and Port Stanley Ry., and track laying and reballasting are nearly completed by the Pere Marquette Rd., which has been operating the line for some years, under lease from the owner, the city of London. The city's interests were recently transferred to the London Railway Commission, and this body has arranged with the P.M.R. for a continuation of its services, pending the completion of the electrification. The engineering phases of the electrification are being developed by the engineering staff of the Hydro-Electric Power Commission of Ontario in its railway department, under F. A. Gaby, Chief Engineer.

Complete specifications have been prepared for the initial installation of electric locomotives, cars and trailers, and while specifically calling for 1,500 volt d.c. equipment, the tendering manufacturers are re-

quired to submit alternative propositions, one to use 3,000 volts d.c., and the other, 13,200 volts single, phase a.c., at 25 cycles.

The tenders were received up to Oct. 7. From the accompanying condensed profile, it will be observed that while the line is very short, slightly under 24 miles, the gradients are heavy, presenting a condition that is quite generally conceded to be better adapted to electrical than to steam operation. In developing the electrification scheme, the engineers have been materially guided by the existing traffic conditions. A considerable increase in traffic may be expected, especially in the number of passengers carried, as the nature of the district through which the line passes is such that a frequent service, which would prove unprofitable with steam operation, would increase the travel habit of the people in the district traversed.



Condensed Profile of London and Port Stanley Railway.

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Freight Traffic. — The freight traffic consists chiefly in hauling loaded coal cars from Port Stanley to St. Thomas and London, a car ferry, operating over 10 months in the year, delivering the cars to the line from the Pennsylvania coal fields across Lake Erie. Some additional traffic, consisting principally of loaded coal and merchandise cars, is delivered to the line at St. Thomas for London, being interchanged from the G.T.R., Michigan Central Rd., and the Pere Marquette Rd. The traffic from London to St. Thomas consists of loaded merchandise cars, and empty coal cars, while between St. Thomas and Port Stanley it consists almost entirely of returning empty coal cars for delivery to the car ferry. This ferry has a capacity of 30 cars on its four tracks, the two central tracks holding 8

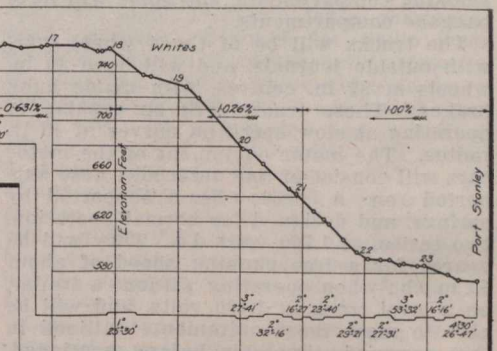
cars each, and the outer two 7 cars each. It can make two round trips a day, delivering to the line 30 loaded cars, and taking away 30 empties, each trip. The Port Stanley switching yard is practically level, and is approximately 1,000 ft. long.

For the purpose of specifying the capacity of the locomotives it has been assumed that the traffic will be handled in 800 ton trains, and that certain periods of time would be desirable in handling the switching and interchange at points along the line. For instance, immediately after unloading and re-loading the ferry, the locomotive would be required to classify the cars and make up the train in an approximate time of 45 mins., the maximum train to be moved being assumed at 15 loaded cars of 70 tons each. After this Port Stanley yard switching, the locomotive would haul the assumed loading of 800 tons up grade to St. Thomas, with power to stop and start again at Whites, where a car might be passed. In St. Thomas

there will be a master controller, air brake valves and all other equipment and meters to provide for complete double end control. Wooden floors will be laid in the operating sections of the cab.

The locomotive trucks will be of the swivel type, each with two driving axles and outside journals, and so designed as to be able to operate as single units without load on curves of 50 ft. radius. The wheels will have steel centres and M.C.B. rolled steel tires. The couplers are also to be M.C.B. standard.

Interpole motors, wound for a normal operating voltage of 1,500, will be used, and the locomotives will be furnished with double and non-automatic multiple unit control, so arranged that at least three locomotives may be operated as a unit from either end of any one, with provision for connecting the four motors of each locomotive in full series, series parallel and full parallel. As the locomotives will occasionally be employed for hauling excursion trains of from 8 to 10 cars, there will be a 600 volt bus extending through the train from the locomotive, supplied from a set consisting of a motor-generator, dynamo-motor or resistance, located in the cab. This will also supply power for the control.



Two pantographs per locomotive, preferably of the pneumatic type, will be arranged for operating from either operative position when operating singly or in multiple, each with a separate cut out to render inoperative any pantograph as desired. The normal trolley height will be 23½ ft. above the top of rail, with maximum and minimum heights of 24 and 16 ft., respectively.

The locomotives will be equipped for combined straight and automatic air brake operation, supplied from two motor driven air compressors, controlled from a governor, each compressor with a capacity of 40 cu. ft. of free air per min. at 110 lbs. per sq. in. The motors will be wound for 1,500 volts, but will also stand short periods of operation at 600 volts. The sanders will be pneumatic, with pipes leading to each of the leading driving wheels, and so arranged that the front and rear sand boxes may be operated independently of each other. They will have a capacity of 5 cu. ft. per pipe.

Passenger Traffic. — The passenger traffic on this line during the four summer months is very heavy, with the handling of the crowds to and from the beach at Port Stanley, while at other seasons of the year it is comparatively light. It is the present plan to handle it with 6 motor cars, with 6 trailers for use when the traffic demands. For the purpose of specifying the requirements of these 12 cars it has been assumed that during the summer an alternate limited