2 Passengers will in nearly all cases have to walk or obtain other means of transportation from the stations to their destinations-distance varying from a few hundred yards to three-quarters of a mile or more.

3 The present wagon road will fall into almost complete disuse excepting isolated sections which will still be required, and it is unlikely that anyone will be inclined to make and keep in repair.

4 The service will be limited to one train per day each way, probably giving very little time for people to come in, transact business, or look for work, and get out on the same day.

5. The train service will necessarily be slow, with the stops for picking up freight, etc.

6 Consignees will require to have representatives present on the arrival of trains to take delivery or pay for their freight just as they do now at Swastika.

7 The estimated cost of operating and maintaining the branch, aside from interest on capital, amortisation or depreciation, is \$100 per day, which would require say 130 tons at 60c. and 88 passengers at 25c. per day to break The average freight handled at present is 36 tons even. and the average number of passengers about 40 per day, so that it is clear the railway would operate at a heavy loss amounting to over \$20,000 per annum, which must ultimately come out of taxes.

8 The right-of-way covers a considerable area of the claim over which it passes and tends to cut such claims in two with its bank or cutting and fences.

Motor Road Advantages

1 Enable existing road freights to be reduced by means of motor trucks to about \$1.00 per ton for the full distance to the Tough-Oakes with proportionately lower rates for the shorter hauls, this being as low as the total cost of delivery with the steam road.

Enable passengers to be handled for about 5c. per 2 mile in motor 'busses or less than the steam road could charge.

3 Provide a flexible system of transportation at all necessary hours, delivering freight and passengers to or from their destinations on the various mines or the townsite.

Enable individuals to walk, 'bus or cycle to any point 4 along the field at all times of the day or night, thus permitting men to have fixed homes while moving their place of employment as they require.

5 Permit branch roads to start off at any point to outlying properties instead of only from the two stations on the steam road.

6 Save more than half the first cost of the steam road while providing ample facilities for the present time and the immediate future.

Disadvantages

1 In winter snow would have to be ploughed off or the vehicles run on the snow as in most cities in winter.

2 Heavy cost (12,000 per mile) in order to make a thoroughly permanent water-laid or tar-macadam road.

3 Difficulty in getting a railway built in addition to the road later on unless a further great expansion takes place.

There is every probability that the matter will soon be settled definitely by the government, and meanwhile if it is considered by those interested in the Kirkland Lake field that a motor road would serve the purpose best, provided,

(a) That the government authorized the work immediately under proper supervision and if possible agreed to maintain the road for say ten years-at a cost not exceeding the estimated cost of maintaining a railway road bed, and

That the mines would allow all available waste (b) rock on their dumps to be taken for the work free of cost there is good reason to believe that the government would readily adopt the latter plan.

Will you, therefore, please answer the following questions:-

1 Are you in favor of a steam railway?

2 Are you in favor of a first class motor road, more or less on the line of the old road with modified and improved gradients?

3 If you have any waste rock dumped are you willing to allow it to be used for the road free of charge?

SUPER-ELEVATION AND WIDENING OF HIGHWAY CURVES

BY F. N. HUDDLESON Consulting Engineer, Salt Lake City, Utah

THE necessity of super-elevating and widening curves of appreciable degrees of curvature was never given much consideration in Utah until the construction of the Beck Street section of the Salt Lake-Ogden Highway, immediately north of Salt Lake City, in September, 1917. This particular highway was built under the jurisdiction of both the State Highway and Salt Lake City Engineering departments.

The method outlined in the sketch proved very simple of construction and gives excellent results for relatively high

speed traffic. The super-elevation of the outside edge of the roadway starts on section the through P2C2 and increases uniformly to the P.C. of the outer curve, where its maximum value of 0.38 is attained, the gradient being 0.12 ft. in



length of the transitionary section measured along the tangent to the outside curve is a function of the difference of the radii lengths and the tangent of I. By making the inside arc just twice as long as the outside arc, there will be enough difference in radii lengths to produce a transitionary section of sufficient easement and at the same time not increase the width of the roadway beyond a reasonable limit.

The width of the surface increases from normal width of 18 ft. at the section through $\mathrm{P}_2\mathrm{C}_2$ to 28.36 ft. at the section through D-D. The widths are also shown at other sections.

The stretch of highway is 6-in. thick on the sides, 8-in. at the middle, and is not reinforced.

A special general meeting of the Toronto branch of the Engineering Institute of Canada will be held in the lecture room of the Engineers' Club, 96 King St. West, at 8.15 p.m., on Monday next, May 19th, for the purpose of considering and discussing the draft bill of the proposed legislation. It is desired to obtain an expression of opinion of the Toronto branch on this important question.

58.69 ft. The surface between the sections through