

mile which will require a small bridge. Except this, in the last four miles a few small culverts only are wanted. Following the shore northerly for $1\frac{1}{2}$ miles the north end of the Lake is reached. No work of consequence will be required over this portion. For another mile, by keeping at about 10 feet above the lake, the line will be level to the point where begins the descent to the Sea.

19. The distance to the Shore is about $4\frac{1}{4}$ miles. The height above the Sea, 200 feet. A descent of 180 feet is required. In order to obtain the easiest gradient, it is necessary to have a uniform one throughout the whole distance. As, however, it will be advisable to have a station about half way down, the gradient will be divided into two portions. This will give a descent of about 50 feet to the mile, with $\frac{1}{4}$ a mile of level between and $\frac{1}{4}$ mile at the foot. This is the best that can be done. To secure this it became necessary to follow the gorge which Big River has formed in the last two miles or so of its course. Over this portion, some sharp curves will have to be used and as the side-hill is, in some places, almost precipitous, rising above the bed of the river 150 feet to 200 feet, some heavy cutting will be necessary. The surface is covered with loose blocks of a coarse yellow sandstone, extremely friable. The indications are that deeper down it will be found harder, but, as in this case, it is likely to yield excellent building stone (some of the same stone being now quarried close by,) much of it may be utilised profitably. The bridge near the mouth of the river will be about 50 feet in span, and 20 feet above the water surface. Beyond this, to the sites of the shafts there will be very little work. A line was run and levelled over from the bridge site, up the small stream which joins Big River at its mouth, as far as the Post Road about $1\frac{1}{4}$ miles distant. This point is the same height as Lake Ainslie, and, if anything, farther away from it than the Mines are. The ascent would be nearly 140 feet to the mile. There appears to be no other practicable approach except by the gorge of Big River.

Descent to the Mines and description of approaches.

20. The heaviest works on the Line are as follows:—A cutting, 20 to 25 feet in greatest depth, and 1,000 feet long, near the head of Whycocomagh Bay; a bridge across Skye River 100 feet span, with flood openings; some rock cutting for about a quarter of a mile through McQuarrie's gorge; a cutting 30 feet deep at the top and sloping off to a base of 700 or 800 feet in length, at the 21st mile; side-hill work in the gorge of Big River for about two miles, of which half a mile may be nearly solid rock. It has been described where the few steep gradients are, and besides the other two bridges at Black River and Big River, which will not exceed spans of 50 feet each, the rest will be small bridges under 20 feet span, and small culverts. The soil is generally a light clay or clean gravel easily moved. There will be probably eight stations required at an average distance apart of from four to five miles. Also about twenty or twenty-five public road crossings.

Maximum works on the line are few.