

ing of the material requires, so as to avoid as far as practicable the necessity for making subsequent additions either to the heights or widths of the embankments, to bring them to the correct levels and dimensions.

Whenever the foundation of an embankment is on sloping ground, the Contractor, if required, must at his own expense cut steps and benches under the base of the embankment.

The top of embankment at formation level is to be 10 feet wide; the slopes to be trimmed off to an inclination of one and a half horizontal to one vertical, and to be maintained full and true until the completion of the contract.

The Contractor shall, unless otherwise directed by the Engineer, take care not in any way to interfere with or divert the existing drainage areas, and shall leave such stops or stanks in the side cuttings, and take such other precautions, as the Engineer shall think necessary for that purpose.

Behind and around culverts and abutments of bridges, the embankments shall be wheeled in and carefully rammed.

RETAINING WALLS.

Retaining walls.

8. At 1 mile 58.30 chains, and at 11 miles 75.50 chains retaining walls are to be built, to consist of 3 feet thickness of good rubble stone laid in lime mortar. It is to be substantially and well built, and in a manner specially directed by the Engineer.

DITCHES AND DRAIN.

Ditches and drains.

9. When the line crosses swamps of a peaty nature, catchwater drains, for a length not exceeding 24 chains in all, are to be cut on the upper side of the line obliquely across the valleys, so as to tap the surface water. These ditches shall not exceed, on an average, one and one-third cubic yard per lineal yard, and are to be made at the commencement of the work, and cleaned out from time to time as may be ordered.

STREAM DIVERSIONS.

Stream diversions.

10. All stream diversions are to be grubbed out as described for cuttings, and excavated with regular slopes and inclinations, as will be set out.

The stream at 1 mile 75 chains is to be intercepted as high up as may be necessary, and carried past cutting No. 21 in a ditch contouring the hill. This ditch to average 6 feet wide at top, 2 feet wide at bottom, and 2 feet 6 inches deep: to have a regular moderate fall.

ROAD ALTERATIONS.

Road alterations.

11. At the places shown on the plan and section, and wherever necessary, the present roads are to be diverted.

All such diversions and road approaches to the level crossings are to be completed in a convenient, substantial, and proper manner, with the necessary drains, water tables, and side slopes. Such approaches and road diversions are to be formed with an inclination not steeper than 1 in 30 for public roads, and 1 in 20 for private roads, except where the present inclination exceeds those rates, in which case the inclination of the new road shall not exceed that of the present road, unless, in the opinion of the Engineer, a steeper is unavoidable.

Metalling.

Public roads and approaches to first-class crossings are to be metalled with coarse river gravel or approved hard stone, laid on and spread as directed, so as to average 22 cubic yards per lineal chain of road. Private roads are to be metalled with coarse river gravel or broken stone of approved quality, laid on and spread as directed, so as to average 9 cubic yards per lineal chain. The whole of the metal is to be broken to pass through a two and a half inch ring.

Level crossings.

Ten first-class, and nine second-class, crossings, with two cattle-stops to each crossing, as per Drawing No. 5, shall be constructed at public and private roads where directed. They shall be carefully placed as to line and level, and finished in strict conformity with the drawing and the notes thereon. Each level crossing shall be metalled for a length of 66 feet on each side of the centre line, as above specified for the roads, and tile or timber box drains shall be put in the formation ditches where necessary for the drainage of line or road.