

The description of its mode of construction will probably sufficiently attest its high character as a work of art.

“Across the valley of the branch an excavation was made 52 feet deep, and say 400 feet in width. At the lowest place this was filled with good embankment earth having a puddle ditch of clay 60 feet wide at bottom, brought up with it, running across the valley below the middle of the excavation. On this base the embankment was carried up, together with the puddle ditch 75 feet above the level of the branch, the embankment having a slope of 4 to 1 on the up stream, and 2 to 1 on the down stream side of the dam. The puddle filling was regularly diminished from its base in the excavation to the top of the embankment where it had a breadth of 30 feet and occupied the whole top. The slope above the puddle ditch was made by depositing from waggons layers of earth one foot thick, well puddled and in succession.

The reason Mr. Jardine gave for digging so deep into the valley of the branch was that the natural soil being of so loose a texture it was not considered safe to base the embankment on a higher level.”

In the following estimates of the dams I have supposed the loose ground forming the immediate valley of the streams to be removed to the extent of the width of the puddle ditch, and of half of that portion of the base of the bank situate above the puddle ditch. The puddle dyke would extend below all loose stuff to a secure and water tight foundation—the puddle dyke to be from 40 to 50 feet wide at the bottom, varying with the height, diminishing to 25 feet wide at top. The portions of the bank on either side of the puddle dyke to be carried up simultaneously in layers. The width of the puddle dykes at top would form the top width of the embankment (25 feet.) On the upper side, the slope to be at the rate of 4 horizontal to 1 perpendicular, and paved throughout. On the lower side the slope to be at the rate of 2 to 1, and carefully soiled throughout. To supply the feeder, a culvert, very sufficiently built would be carried through the embankment; at the upper end of the culvert there would be an arrangement for a metallic guage with iron rods to work it, carried up the slope to the top of the embankment and terminating in a small house in which the machinery for moving them would be placed.

At that extremity of the embankment opposite to the feeder side, there would be a waste weir venting into a channel which should carry the waste water some distance beyond the bottom of the outer embankment slope and there discharge it.

In preparing the estimates I have been ably assisted by Mr. Samuel Power and Mr. Thos. S. O’Sullivan.

Which is respectfully submitted by

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