PRIVATE AND CONFIDENTIAL.

The University,
Edgbaston,
BIRMINGHAM.

July 25th, 1921.

To the Chairman & Directors of the
South Staffordshire Waterworks Company.

Gentlemen,

In accordance with a request, conveyed in a recent letter to me from your Engineer, Mr.Fred.J.Dixon, that I should investigate and report upon additional sites for Pumping Stations in the Company's Area of Supply, I have re-examined the geological evidence bearing on the whole question of your water-yield , which I had studied in preparation for the Bill promoted in 1915, whereby the sites at Slade Heath and Somerford were secured.

On July 22nd and 23rd, in company with Mr.Dixon, I inspected promising ground in the Lichfield - Sutton, Cannock Chase - Rugeley and Prestwood - Stourton areas.

Mr.Dixon now informs me that it is very desirable to have a summary of my opinion with respect to the sites in these areas to lay before your Board Meeting on Thursday next. As I am engaged on important work in London the whole of this coming week, and as there is much investigation yet to be done before I could prepare a full and detailed statement, I beg to submit herewith the following brief interim report:-

For many years past and more particularly in preparation for the 1915 Parliamentary Bill, I have studied the geology and water resources of the whole of your Area and its borders, with a view to fixing upon additional sites for Pumping Stations. In this work I have had the advantage of inspecting practically the whole area at various times with the late Professor Charles Lapworth and also with the former Engineer to the Company, Mr.Ashton Hill. Before the sites at Slade Heath and Somerford were finally chosen, several possible sites in the

Lichfield - Sutton area and the Cannock - Rugeley area were under consideration. I now deal with the more important sites which demand special attention.

(1) LICHFIELD - SUTTON AREA. In the area south of Shenstone and the Black Brook, with Little Hay as the centre, the Bunter Pebble Beds overlie the impervious Permian Marls. All the indications point to the water-logged character of the Bunter rocks; but there is a possibility that these water-bearing rocks are of no great thickness hereabouts. I am strongly of opinion that a trial boring should be put down to test the thickness and water-yield of these Bunter beds. If the result is favourable, it will probably be found advisable to sink a well and drive headings or adits to tap as much ground, horizontally, as possible.

A site at the Bogs I regard as the best for this purpose. South of that spot we are ascending the Little Hay Brook, with a diminishing underground yield, and getting nearer the Birmingham Corporation Watershed of Plants Brook, while north of the Bogs we are getting nearer the gathering ground of the Shenstone Well, and unpleasantly near Shenstone Park and Manley Hall.

(2) THE SANDHILLS SITE. The above area round Little Hay and the Bogs is bounded westward by impervious Permian marls which outcrop in a narrow strip from Little Aston north-westward to Muckley Corner. But between this strip and the Eastern Boundary Fault of the Coalfield, the water-bearing Bunter rocks again outcrop, the southern part of which is tapped by the Pumping Station at Bourne Vale. In the northern part round Sandhills and Ogley Hay, the Upper Bunter Sandstone overlies the Pebble Beds. The surface features are favourable, and I recommend that a trial boring be put down at Sandhills, which is near the centre of the available untapped area, and about midway

between the Bourne Vale and Pipe Place Wells.

The extension of the Coalfield in an easterly direction towards this site is a question which I intend to refer to at a later date, but I do not think that the Company should refrain from testing this ground on account of possible future mining in strata which would probably be far below the water-bearing rocks.

(3) THE CANNOCK CHASE - RUGELEY AREA.

In this area the Pebble Beds constitute an excellent water-bearing formation, but they rest upon a very irregular floor of impervious Coal Measures, and the water-yield at any given spot depends not only on the thickness of the Pebble Beds, but upon the proximity of underground channels of water which are characteristic of this area.

The most favourable part of this area is undoubtedly the north-east, between Moors Gorse Well and Rugeley. Some years ago, in company with the late Professor Lapworth, I closely inspected this ground, and my recent visit with Mr. Dixon has confirmed my opinion that there is a good chance of obtaining an additional supply of upwards of a million gallons a day in the vicinity of Birches Farm or the old Rolling Mill. I rather prefer the Rolling Mill site where the Pebble Beds are known to be over 400 feet thick, as it is farther away from Moors Gorse and the Rugeley Borings, and at a lower position in the underground streams, and therefore likely to yield a larger amount.

(4) PRESTWOOD - STOURTON AREA.

Of all the Company's Pumping Stations that at Ashwood has the greatest yield, and the combined topographical and geological conditions in the area readily explain the fact. These favourable conditions continue for some distance southward, and suggest the desirability of tapping an area at present

untouched, or only partly affected, by the Ashwood pumping.

The extreme southern limit of the Company's Area where the favourable geological conditions above referred to exist, is at the south-west end of Prestwood Park. I examined three possible sites at this locality with Mr.Dixon. They are close to each other, one in the loop of the Smestow River, another in the loop of the Canal at the south-west end of Prestwood Park estate, and a third just south of Stourton Gorse Cottages, but actually outside the Company's Area. Of these, the one east of the Canal is perhaps the best geologically, although from this point of view there is not much to choose between them.

It must be remembered, however, that these sites are less than 1½ miles from Ashwood, which I have good reason to believe draws its water from a considerable distance. It is probable that a pumping station at Prestwood might affect Ashwood, especially if authority is obtained to continue pumping 4 million gallons per day at that station. The combined yield of Ashwood and a new station at Prestwood would be greater than the maximum yield at Ashwood, but there would probably be some mutual interference, seeing that less than 1½ miles separate them, and this in spite of the alleged non-interference of Ashwood and Hinksford.

I should regard it as an advantage therefore if, keeping on the same geological belt, we could fix upon a site further south.

I visited with Mr.Dixon an excellent site, which satisfies these conditions. It is a field adjoining the Staffordshire and Worcestershire Canal, and just north of Dunsley Hall. The site is invisible from Dunsley Hall and Stourton Castle; it is very favourably placed from a geological point of view, and it is over 2 miles south of Ashwood, so that any interference with that station would be negligible.

The Whittington and Stourbridge Sewage Farms which

lie to the south-east are more than a mile away. The site is about half a mile south of the boundary of the Company's area, and if secured for a pumping station, some arrangement, doubtless, would have to be entered into with the Kinver Water Authority.

In conclusion, I have read Mr.Dixon's report of the 27th of June 1921 in which an additional supply of some 10 million gallons per day is mentioned as necessary to meet the requirements of the next 15 years. I do not anticipate that the yield from the sites referred to above will be much more than half that amount. But I strongly urge that enquiries and boring-tests with respect to these sites, with the purchase of land where necessary, should be undertaken as soon as possible.

Yours faithfully,

W. T. Boulton.