

South Cambridgeshire District Council

Kingfisher Pond – Northstowe Hydrogeological Assessment - Action Plan

1. This note provides an 'Action Plan' in response to the Northstowe Hydrogeological Assessment produced by Hydraulics Research (HR) Wallingford commissioned by South Cambridgeshire District Council on behalf of Longstanton Parish Council.
2. HR Wallingford proposed a three-phase approach to their assessment which was: i). Review the hydrology and hydrogeology of the Kingfisher Pond and surrounding area prior to concerns being raised about its condition (2015) and develop a conceptual model of the area; ii) Review the more recent hydrology and hydrogeology and determine if the Kingfisher Pond has changed since 2015 and, if there is a change then; iii). Determine the cause of the changes in the hydrology and hydrogeology of the Kingfisher Pond.
3. The report concluded that groundwater levels fell below normal conditions between autumn 2015 and winter 2020/21. By March 2021 groundwater levels had risen, but the water level in the Kingfisher Pond was below those experienced prior to 2015.
4. The Kingfisher Pond is situated in, and in hydraulic continuity with, the underlying River Terrace Deposit (RTD) aquifer. The water table is shallow and therefore changes to the RTD will have a large impact on the Kingfisher Pond's water levels.

Dewatering

5. The HR report concludes that dewatering that was undertaken during the early development of phase 1 of Northstowe initially reduced the groundwater level to 5 metres below the ground level. This dewatering took place to enable infrastructure to be put in place to serve development on phase 1. Large quantities of water were abstracted during two dewatering phases in 2015 and

2016. This reduction in the groundwater level caused an almost immediate and significant drying out of the Kingfisher Pond and the underlying River Terrace Deposits.

Post dewatering

6. The HR report concludes that the groundwater levels have not recovered, and this is for a number of reasons. Those reasons include –
 - a) Recharge to the groundwater has been affected by urbanisation.
 - b) The greenways that have been constructed in Northstowe might provide a preferential flow pathway for water from the River Terrace Deposits along the greenways and towards the ponds that have been provided along the eastern side of phase 1 of the new town. The report goes on to say that it is not clear whether the design of the greenways has been met, and that these greenways could then provide a mechanism for keeping the groundwater levels at below their pre-2015 levels. Note – by saying ‘not clear’, this means that HR have not surveyed the greenways to see whether they have been built in accordance with approved planning drawings.

Post 2020

7. The HR report states that groundwater levels mostly recovered during winter 2020/21, although the water levels in the pond were approximately 0.3m below those shown in historic photographs. This period coincided with regional high groundwater levels and above average rainfall that was recorded between December 2000 and February 2021. Rainfall in March 2021 was similar to the long-term average.
8. HR have stated that it is unclear whether the levels in Kingfisher Pond will return to their pre-2015 level and it is also unclear if the pond will be more susceptible during periods of low rainfall in the future.

9. The historically low rainfall in the region since 2015 has compounded the difficulty in understanding the various impacts on water levels. The River Terrace Deposit is shallow and responds quickly to rainfall so during periods of dry weather water levels will decline.
10. The report recommends approaches dependent on whether Kingfisher Pond recovers or not.

Recommendations

11. The report recommends the following, depending on either of two scenarios -

(i) If the pond recovers –

12. If the pond recovers, then regular monitoring will be required of Kingfisher Pond and other nearby ponds such as Nethergrove lake and Lady Walk Pond.
13. Regular monitoring of the groundwater elevation in the underlying River Terrace Deposits underlying Longstanton and Northstowe.
14. Regular monitoring of groundwater levels adjacent to and flows in the greenways to ensure that they have been constructed in accordance with the approved drawings and they are not dewatering the River Terrace Deposits.

(ii) If the pond does not fully recover –

15. It may be necessary to support water levels in the pond.
16. Deepening the pond.
17. Improving the greenways to ensure that they are in accordance with the approved drawings.

Action plan and timeframe

18. South Cambridgeshire District Council have formulated an approach to deal with the issues described in the HR report. The approach is based upon the following tasks. Each task will have a what / who / when against each.

TASK A

WHAT

Locate and assess the appropriate approved infrastructure / greenway plans.

WHO

Responsibility - SCDC Planning.

WHEN

This task has been completed. All the plans for each of the relevant planning applications have been collated into one location and will be transferred to this location, in process at the moment.

TASK B

WHAT

To investigate whether the appropriate Environment Agency permissions and licenses have been granted for dewatering and abstraction.

WHO

Responsibility - SCDC Planning.

WHEN

This task has been completed. Dewatering and abstraction is not a planning requirement. Permits to dewater are the responsibility of the Environment Agency. At the time, the applicant did not need to apply for any dewatering permits. Legislation now requires that such permits are sought from the Environment Agency.

TASK C

WHAT

To undertake a preliminary 'sample' survey of the approved infrastructure / greenway plans to determine whether the greenways have been built in accordance with the approved drawings

WHO

SCDC planning

WHEN

A preliminary informal survey from officers has indicated that the depth of the greenway is in accordance with the approved drawings.

TASK D**WHAT**

If the sampling survey suggests that there is a likelihood that infrastructure / greenway plans have **not** been built in accordance with the approved drawings, then consider serving a planning contravention notice requiring submission of an appropriate as built survey of the phase 1 greenways.

WHO

SCDC Planning / L&Q.

WHEN

Not applicable, see task C.

TASK E**WHAT**

Assess the implications arising from the survey and potential on and off site mitigations if required, having regard to the development plan and any other material considerations.

WHO

SCDC Planning.

WHEN

If the survey states that the scheme has been built in accordance with the approved drawings, then no mitigation required.

If mitigation is required, agree with developer an appropriate plan – together with any interim requirements to reduce any adverse impacts.

The sampling survey has shown that the scheme has been built in accordance with the approved planning drawings.

The Council recognises the local concern about groundwater and is continuing to work with key organisations to understand the causes of these issues and next steps.