



Brookgate Land Limited
Land North of Cambridge North Station, Cambridge

Proof of Evidence of Alison Caldwell
CEng MICE, MEng (Hons)

APPEAL REF: APP/W0530/W/23/3315611

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I Introduction

I.1 Qualifications and Experience

- 1.1.1 My name is Alison Caldwell. I currently lead the Water Sector within PJA, a consultancy specialising in the provision of transport planning, engineering and placemaking advice.
- 1.1.2 I hold an Masters Degree in Civil Engineering and I am a Chartered Engineer with the Institution of Civil Engineers (ICE), a licenced body of the Engineering Council.
- 1.1.3 I have 13 years' experience in the field of water.
- 1.1.4 The evidence which I have prepared and provide for this appeal reference APP/W0530/W/23/3315611 in this Proof of Evidence is true and I confirm that the opinions expressed are my true and professional opinions.

I.2 Background Information

- 1.2.1 Subsequent to the submission of the planning application, PJA have proactively engaged with the Environment Agency (EA) and Cambridge Water (CW), which has included a number of virtual and face-to-face meetings and preparation of additional supporting technical information.



I.3 Statement of Matters

1.3.1 The following matters are set out within this document, summarising any key points of dispute and setting out the updated position, where applicable:

- Climate Change (Flood Risk and Drainage); and
- Water Resources.

I.4 Format of the Proof

1.4.1 This Proof of Evidence comprises the following sections:

- Climate change (flood risk and drainage):
 - Planning Application Position; and
 - Updated Position.
- Water Resources :
 - Planning Application Position; and
 - Updated Position.
- Conclusions.



2 Climate Change (Flood Risk and Drainage)

2.1.1 Cambridgeshire County Council, in their role as Lead Local Flood Authority (LLFA), have objected to the development proposals on the basis of application of climate change allowances.

2.1.2 A supplementary Technical Note (dated 17/04/2023) has been prepared, by PJA, in response to this objection and a meeting held with the LLFA on 19th April 2023. A copy of this Technical Note is within Appendix 1 to the Statement of Common Ground with the LPA.

2.2 Planning Application Position

2.2.1 The planning submission comprises the following supporting documents relating to flood risk and drainage:

- Cambridge North Development Flood Risk Assessment and Drainage Strategy (document ref. 05425-R-03-C-FRA) dated June 2022; and
- Cambridge North Development Flood Risk Assessment Addendum (document ref. 05425-R04-D-FRA) dated October 2022.

2.2.2 The climate change allowances applied to the peak rainfall intensities currently, as detailed within these documents, are as follows:

- Residential Development 1% annual exceedance rainfall event (AEP) plus 40% climate change; and
- Commercial and Retail Development 1% annual exceedance rainfall event (AEP) plus 25% climate change.



2.2.3 It is my view that these allowances have been applied in accordance with national and local policy and guidance, specifically the Planning Practice Guidance (PPG) Flood Risk and Coastal Change¹ and Flood risk assessments: Climate Change Allowance²

2.2.4 Nonetheless, the LLFA consider that a climate change allowance of 40% should be applied to the entirety of the development.

2.3 Updated Position

2.3.1 PJA have undertaken additional works to refine the Surface Water Drainage Strategy and have confirmed that through an increase in provision of surface water attenuation volume the LLFA request for the increase in climate change allowance, in excess of policy requirements, may be accommodated.

2.3.2 It is my view that the information set out in the Technical Note demonstrates that the proposed surface water drainage strategy is capable of being easily updated to cater for the 1% annual exceedance rainfall event with a 40% allowance for climate change allowance across the whole development:

- Without increasing flood risk elsewhere; and,
- Ensuring the development will be safe from surface water flooding.

2.3.3 It was agreed, during the meeting on 19th April 2023, and followed with written confirmation from Cambridge City Council, on behalf of South Cambridgeshire District Council, on 25th April, that this

¹ [Flood risk and coastal change - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

² [Flood risk assessments: climate change allowances - GOV.UK \(www.gov.uk\)](https://www.gov.uk)



matter has been resolved noting '*The development proposed is **acceptable** subject to the imposition of the condition(s)*'.



3 Water Resources

- 3.1.1 This matter centres on the availability of sustainable ‘water resources’ (i.e. water supply) to support existing and proposed development within the Greater Cambridge (GC) Area. This is a highly complex, strategic matter encompassing many parties and associated regulatory and legislative processes. Paragraph 20(b) of the NPPF confirms that water supply is a strategic matter to be addressed through development plans.
- 3.1.2 A summary of the key parties and associated statutory duties and responsibilities have been set out within Appendix A, along with a summary of the key regulatory and legislative processes.
- 3.1.3 It is considered that the most important of these processes, is the requirement placed on water companies in England to produce Water Resources Management Plans (WRMP) as set out in sections 37A to 37D Water Industry Act 1991.
- 3.1.4 In this instance, CW’s existing WRMP was published in 2019 (WRMP19), with the draft version of its 2024 plan (dWRMP24) published for consultation on 24 February 2023. Since the publication of the WRMP19, and prior to the publication of the dWRMP24, the EA have issued details of licenced reductions associated with groundwater abstraction (i.e. licence caps) to CW which they consider to be a material change in availability of water supply.
- 3.1.5 At present, information regarding the nature, extent and timing for the respective licence caps has not been made available. The EA has indicated that the timing of when licence caps come into force is set out in CW’s Water Industry National Environment Programme (WINEP), but this has not been made available.



- 3.1.6 It is understood that the caps to permanent licences will come into effect in 2030, with caps to licences that have a time limited element being applied at the point of any application to renew those licence conditions, which may be before 2030.
- 3.1.7 The WRMP19 and the dWRMP24 are supported by Strategic Environmental Assessments (SEA), which assess the likely significant environmental effects (including cumulative effects) of the existing development and planned growth, along with the proposed demand management and supply side options.
- 3.1.8 The development proposals are allocated in the South Cambridgeshire Local Plan (SCLP) within Policy SS/4 'Cambridge Northern Fringe East and Cambridge North railway station' which has been subject to an integrated Sustainability Appraisal and Strategic Environmental Assessment (SA&SEA).
- 3.1.9 As an allocated site within the SCLP, the associated supply and demand of the development proposals have been allowed for within CW's WRMP19 and recently published dWRMP24, and assessed within the respective SEAs. The allowance for the development proposals has been further confirmed by CW in their letter (dated 18/04/2023) available in Appendix B.

3.2 Planning Application Position

- 3.2.1 The current planning submission comprises the following supporting documents relating to water resources:
- Environmental Statement Vol 1 – Main Report Chapter 10 Flood Risk & Drainage (June 2022)
 - Environmental Statement Vol 1 – Main Report Chapter 7 Climate Change (June 2022)
 - Environment Statement Vol 2 – Appendix 10.1 (Cambridge North Development Flood Risk Assessment and Drainage Strategy (document ref. 05425-R-03-C-FRA, dated June 2022)



- Cambridge North Development Flood Risk Assessment Addendum (document ref. 05425-R04-D-FRA) dated October 2022 2.1.2
- Cambridge North Water Resources Addendum Rev 1 (dated September 2022)
- Utility Statement (dated May 2022)
- Sustainability Strategy (dated June 2022)
- Addendum to Sustainability Strategy (dated August 2022)

3.2.2 The development proposes a water efficiency strategy with resilient water conservation measures to ensure that the development's water footprint is minimised and the potential impact on sensitive water bodies within the GC area is mitigated, in line with the requirements of Local Policies CC/4 and CC/7. These measures largely comprise:

- Specification of water efficient fittings and appliances to reduce water consumption and achieve a goal of 110 litres per person per day for residential units.
- For commercial buildings sanitaryware will be carefully selected to achieve a minimum of 3 credits under the WAT01 category of BREEAM
- Installation of water meters
- Rainwater harvesting to be used for the irrigation of communal landscaped areas
- Monitor and control water consumption during the construction phase of the development
- Specifying water tolerant native trees and plant species to reduce the requirement to irrigate
- Specification of multifunctional Sustainable Drainage Systems (SuDS) to provide blue hydrating infrastructure.

3.2.3 Through the provision of the ES Chapter, an assessment of the potential likely significant environment impacts of the development, and the cumulative impact of the development, was



undertaken in relation to flood risk and drainage, which identified no likely significant adverse impacts.

3.2.4 The EA has objected to the proposed development (Ref. AC/2022/131348/02) raising the following:

- In the EA's view, water bodies in the GC area are being adversely affected by groundwater abstraction.
- In the EA's view, there is a material difference in the availability of water supply between that available under the licence caps when they come into effect to that set out in CW's existing WRMP19.
- The EA have concerns that the dWRMP24 sets out proposed supply options that, in the EA's view, are not well developed to enable confidence that a balance in customer demands and available supplies may be achieved without over-abstraction (i.e. abstraction levels in excess of those set by the licence caps).
- The EA will maintain their objection until such time that evidence is made available by CW that it can meet demand of existing and future customers without needing to increase abstraction from groundwater source beyond the limits set by the caps.

3.2.5 It is my understanding, in advance of reviewing any evidence to be made available by the EA in due course, that the fundamental concern of the EA is the potential risk of deterioration to the waterbodies across the entirety of GC as a result of potential increases in groundwater abstraction. It is challenging to understand the scale, context and/or magnitude of this potential risk of deterioration, without evidence. At the time of writing, the EA has not published the evidence on which it relies to substantiate or quantify the risk to waterbodies.



3.3 Updated Position

3.3.1 Regardless of the strategic nature of water resources, PJA have actively, and positively, engaged with CW and the EA, through a number of virtual and face to face meetings, with the aim of addressing the concerns set out within the EA objection.

3.3.2 Through a number of meetings with CW, it has been confirmed that CW currently operate a complex network which balances abstraction across the entirety of the network. As such, in my view, it is not possible to determine the exact nature and/or extent of deterioration of a specific water body as a result of a specific development.

3.3.3 As an allocated site within SCLP, the associated supply and demand of the development proposals have been allowed for within CW's WRMP19 and recently published dWRMP24. This has been further confirmed by CW in their letter (dated 18 April 2023) available in Appendix B.

3.3.4 PJA have undertaken a detailed quantitative assessment to identify opportunities to further enhance the previously proposed water efficiency strategy. This has been set out within the Cambridge North Quantitative Assessment (CNQA) (PJA, April 2023), which is available in Appendix C, and demonstrates that by introducing further water efficiency and reuse measures the average consumption rate for the residential and commercial buildings, as set out below, may be further reduced, significantly in excess of the current policy requirements.

- Residential development will achieve a typical consumption rate of 89l/h/d; and
- Commercial development will achieve a BREEAM certification level of 'Excellent.'

3.3.5 While a BREEAM level of 'Excellent' only requires 2 credits to be achieved in the category of water efficiency (WAT01), the detailed quantitative assessment has demonstrated that the full 5 BREEAM



credits in the water efficiency category is achieved through the provision of a grey water recycling unit within each commercial building.

- 3.3.6 The CNQA was shared with the EA on 12th April 2023, with a meeting to discuss the findings held on 19th April 2023. The EA has welcomed, and commended, the development proposals on the level of water efficiencies proposed and the comprehensive and detailed assessment undertaken.
- 3.3.7 It is my view that the development proposals exceed the current requirements as set out by local policy and guidance, and in my experience are ‘over and above’ the typical requirements for a development of this nature. The proposed water efficiency strategy is ambitious, yet deliverable, ensuring confidence that the measures proposed will be effective in the long term.
- 3.3.8 Nonetheless, while the development proposals demonstrate significant commitment to mitigate and minimise any potential effects on water resources, in excess of local policy requirements, and beyond that typical of a development of this nature and scale, it is understood that the EA remain concerned with the wider strategic matter of water resources and, in their view, continue to be unable to withdraw their objection without further evidence from CW and the GC Authorities.
- 3.3.9 It is not disputed that the matter of water resources, in particular with regard to availability of sustainable water supplies, is of a strategic nature. In fact, given the operation of the CW network and the view of the EA that the risk of deterioration of water bodies encompasses the GC area in its entirety, this reiterates the need for a strategic approach to be undertaken by the respective responsible parties.
- 3.3.10 Given the strategic nature of this matter, it is most appropriate to place due weight and regard for the regulatory, planning and legislative processes, in particular the WRMP and development plan process, to suitably consider and address the potential risk of deterioration to waterbodies within



the Greater Cambridge area and rely upon the associated key parties, namely CW, fulfilling their statutory duties.

3.3.11 This issue needs to be viewed in the context of the existing statutory framework whereby CW has a statutory duty under the Water Industry Act 1991 to develop and maintain an efficient and economical system of water supply within its area. It is required to prepare, publish and maintain a water resources management plan which is to set out how it intends to achieve a secure supply of water and a protected and enhanced environment.

3.3.12 Nonetheless, in an effort to provide further context with regard to these development proposals, within the GC area, a detailed analysis of the supply and demand scenarios, as set out by CW within the WRMP19 and dWRMP24 has been undertaken. This analysis (available in Appendix D), paired with the conclusions of the CNQA, has identified the following total current and project peak water demands³:

- WRMP19

Household Demand

- Total peak household water demand in 2022/2023 is 58.60MI/d (mega litres per day)
- Total peak household water demand in 2044/2045 is 63.07MI/d

Non-Household Demand

- Total peak non-household water demand in 2022/2023 is 21.41MI/d
- Total peak non-household water demand in 2044/2045 is 21.65MI/d

Total Demand

³ Data has been extracted from the Final Planning (FP) solution for the 2019 WRMP & draft 2014 WRMP “Dry Year Critical Period”(DYCP) scenario, allowing for both measured and unmeasured demand.

- Total current (2022/2023) peak water demand is 80.01 MI/d
- Total projected (2044/2045) peak water demand is 84.72 MI/d
- dWRMP24
 - Household Demand*
 - Total peak household water demand in 2022/2023 is 61.16MI/d
 - Total peak household water demand in 2049/2050 is 60.32MI/d
 - Non-Household Demand*
 - Total peak non-household water demand in 2022/2023 is 28.18MI/d
 - Total peak non-household water demand in 2049/50 is 29.03MI/d
 - Total Demand*
 - Total current (2022/2023) peak water demand is 89.34MI/d
 - Total projected (2049/2050) peak water demand is 89.35MI/d
- CNQA
 - Total peak household water demand for the development proposals is 0.122MI/d.
 - Total peak non-household water demand for the development proposals is 0.0724MI/d.
 - Total peak water demand is 0.194MI/d.

3.3.13 Based on this analysis, it should be noted that the calculated water demand of the development proposals comprise less than 0.22% of the total current (2022/2023) water demand and the proposed (2049/2050) total water demand as set out in the dWRMP24, and less than 0.25% of the total current (2022/2023) water demand and less than 0.23% of the proposed (2044/2045) total water demand as set out in the WRMP19.



3.3.14 Furthermore, it should be noted that the CNQA considers a conservative, worst case scenario to estimate the total water demand from the development proposals, therefore the realistic typical water demand for the development will likely be lower.

3.3.15 Given that the development proposals comprise a negligible proportion of the overall water demand from CW and the strategic nature of the concerns raised by the EA regarding water bodies across the entirety of the Greater Cambridge Area, it is considered that the development proposals are unlikely to have any significant environmental impacts in terms of water resources.



4 Summary

- 4.1.1 Through provision of a supplementary Technical Note (dated 17/04/2023), PJA has demonstrated that the increased climate change request, made by the LLFA, can be accommodated. As such, the previous objection to the planning application on this matter has been withdrawn.
- 4.1.2 The matter of availability of sustainable 'water resources' (i.e. water supply) to support existing and proposed development within the GC Area is a highly complex, strategic matter encompassing many parties and associated regulatory and legislative processes. It is further confirmed within Paragraph 20(b) of the NPPF that water supply is a strategic matter to be addressed through development plans.
- 4.1.3 In terms of the regulatory framework, the most notable of these processes being the WRMP and local development plan process. As an allocated site within the SCLP, the associated supply and demand of the development proposals have been allowed for within CW's WRMP19 and recently published dWRMP24 and assessed within the respective SEAs.
- 4.1.4 The development proposes a water efficiency strategy with resilient water conservation measures to ensure that the development's water footprint is minimised and the potential impact on sensitive water bodies within the GC area is mitigated, in excess of the requirements of Local Policy CC/4 and in line with CC/7.
- 4.1.5 In excess of typical requirements, PJA have undertaken a detailed quantitative assessment (CNQA) that demonstrates through the introduction of efficiency and reuse measures the estimated water demand of the development, based on a conservative assessment, accounts for less than 0.22% of the current (2022/2023) water demand supplied by CW, and will be less than 0.22% of the projected (2049/2050) water demand.



4.1.6 Considering that the development proposals comprise a negligible proportion of the overall water demand from CW and the strategic nature of the concerns raised by the EA regarding water bodies across the entirety of the Greater Cambridge Area, it is considered that the development proposals are unlikely to have any likely significant environmental impact in terms of water resources.

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