LEAD LOCAL FLOOD AUTHORITY, OXFORDSHIRE COUNTY COUNCIL PROOF OF EVIDENCE

Town and Country Planning Act 1990

Proof of Evidence to the Planning Inspectorate on behalf of the Lead Local Flood Authority (LLFA) concerning the planning appeal Appeal by Great Lakes UK Limited against Cherwell District Council's refusal to grant planning permission for the Redevelopment of part of golf course to provide new leisure resort (sui generis) incorporating waterpark, family entertainment centre, hotel, conferencing facilities and restaurants with associated access, parking and landscaping at Land to the east of M40 and south of A4095 Chesterton Bicester Oxon

PINS reference: APP/C3105/W/20/3259189

Cherwell District Council ref: 19/02550/F & 20/00030/REF

EVIDENCE OF RICHARD BENNETT
ON BEHALF OF OXFORDSHIRE COUNTY COUNCIL

In support of
Cherwell District Council

January 2020

Dealing with matters relating to
FLOOD RISK & SUSTAINABLE DRAINAGE (Refusal Reason 5)

"5. The submitted drainage information is inadequate due to contradictions in the calculations and methodology, lack of robust justification for the use of tanking and buried attenuation in place of preferred SuDS and surface management, and therefore fails to provide sufficient and coherent information to demonstrate that the proposal is acceptable in terms of flood risk and drainage. The proposal is therefore contrary to Policies ESD6 and ESD7 of the Cherwell Local Plan 2011-2031 Part 1 and Government guidance contained within the National Planning Policy Framework."

Evidence Summary

My proof of evidence describes the views of the Lead Local Flood Authority (LLFA) in regard to Flood Risk and sustainable drainage which relates to refusal reason 5;

"5. The submitted drainage information is inadequate due to contradictions in the calculations and methodology, lack of robust justification for the use of tanking and buried attenuation in place of preferred SuDS and surface management, and therefore fails to provide sufficient and coherent information to demonstrate that the proposal is acceptable in terms of flood risk and drainage. The proposal is therefore contrary to Policies ESD6 and ESD7 of the Cherwell Local Plan 2011-2031 Part 1 and Government guidance contained within the National Planning Policy Framework."

The proof of evidence will cover the following:

- Existing drainage features and current drainage regime;
- Existing flood risk issues;
- National and Local planning policy and guidance;
- Proposed development and affect on the existing drainage regime
- The planning consultation history and further information submitted during the appeal process, and;
- The current position of the Lead Local Flood Authority (LLFA)

The structure of my proof is as follows:
Section 1 – Introduction

Section 2 - Sets out the roles of the LLFA, specifically as Statutory Consultee on Major Planning Applications regarding matters related to drainage.

Section 3 – Describes the existing drainage regime and flood risk issues related to the site and receiving catchment downstream.

Section 4 – Provides the key paragraphs and information from local and national policy and guidance that the LLFA uses to assess all major planning applications.

Section 5 – Describes the proposed developments drainage system and highlights the existing features to be removed.

Section 6 – Describes the correspondence and consultation process between the LLFA and appellant's drainage consultants.

Section 7 – Provides the current position of the LLFA regarding the aspects that are not acceptable or where adequate justification has not been provided.

Section 8 – Concludes the LLFA's position and main policy reasons for refusal.

The drainage strategy failed to take account of advice from the lead local flood authority, does not have appropriate proposed minimum operational standards and does not provide biodiversity benefit compared to the existing drainage features on the site that are to be removed. It is the therefore not in line with Local Plan Policies EDS6 and ESD7 and also Paragraphs 163 and 165 of the NPPF.

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Appendices

1. Introduction

1.1. My Name is Richard Bennett. I work for Oxfordshire County Council (OCC) as a Flood Risk Engineer. I hold a Bachelor of Science (Hons) degree in Civil Engineering and have 20 years' professional experience. I have worked for OCC for two years leading a team which focuses on responding to planning applications across Oxfordshire.

1.2. I also work for Swindon Borough Council on a consultancy basis where I lead on producing the adopted SuDS Vision Supplementary Planning Document for the New Eastern Villages which is an allocated strategic development area on the east of Swindon for 8000 homes and 40 hectares of new employment land.

1.3. I have worked in local government for 11 years, commenting on planning applications regarding sustainable drainage since 2009 as well as designing and implementing many flood alleviation schemes throughout Oxfordshire and the Cotswolds. Before this, I worked for water authorities and consultants on wastewater and surface water improvement schemes.

1.4. A number of the schemes involved flood defence bunds (embankments), swales, and pond creation/reinstatement, to reduce the risk of flooding to properties. Most notable schemes were at Bampton (20 properties), Shilton (17 properties) and Shipton-under-Wychwood (16 properties) in Oxfordshire, and Chipping Camden (100+ properties) and Moreton-in-Marsh (150+ properties) in Gloucestershire.

1.5. Between 2017-2019, I also worked for the Evenlode Catchment Partnership as the Natural Flood Management (NFM) Project Officer for an Environment Agency administered catchment based approach national pilot scheme, where I designed and implemented a number of NFM measures to monitor the benefits to downstream properties. This involved the installation of natural measures, the creation of a number of above ground attenuation areas, shallow ponds, swales and utilising existing drainage features to manage surface water and groundwater throughout the catchment.

1.6. I provided pre-application advice on the proposal for Great Wolf Resort and comment on the submitted planning application. My assessment has concluded that the proposals fail to demonstrate that groundwater will be managed appropriately, and that flood risk will not be increased elsewhere as required by policies ESD6 and ESD7 of Cherwell Local Plan 2011-2031 adopted July 2015.

2. Role of the Lead Local Flood Authority (LLFA)

2.1. The LLFA lead in managing local risks of flooding from surface water, ground water and ordinary watercourses under the Flood and Water Management Act 2010.

2.2. The Government issued the Sustainable Drainage Systems (SuDS) Policy, which came into force on the 6th April 2015 requires the use of sustainable drainage systems to manage runoff on all planning applications relating to major development. As well as dealing with surface water runoff, they are required to provide water quality, biodiversity and amenity benefits in line with national guidance. The Sustainable Drainage Systems (SuDS) Policy also implemented changes to the Town and Country Planning (Development Management Procedure) (England) Order 2010 to make the LLFA a statutory Consultee for major applications in relation to surface water drainage which was previously the statutory role of the Environment Agency.

Other duties of the LLFA are to;

- prepare and maintain a strategy for local flood risk management in their areas;
- carry out works to manage local flood risks in their areas;
- exercise powers under the Land Drainage Act 1991 to regulate ordinary watercourses (Carried out by Cherwell District Council under Agency Agreement) to maintain a proper flow by:
    - issuing consents for altering, removing or replacing certain structures or features on ordinary watercourses; and
    - enforcing obligations to maintain flow in a watercourse and repair watercourses, bridges and other structures in a watercourse

- maintain a register of assets – these are physical features that have a significant effect on flooding in their area such as the ditches and ponds on the site.

3. Site Description

3.1. The appeal site is part of the Bicester Hotel, Golf and Spa. The Site is located approximately 0.5m to the west of Chesterton, near Bicester. The site is bound by the M40 to the west and the A4095 to the north-eastern boundary.

3.2. The appeal site falls from north-west to south-east and drains via two main watercourses (Southern Ditch and Northern Ditch) to the south eastern boundary. The Curtins Flood Risk Assessment (FRA) and Drainage Strategy submitted with the planning application confirmed that the drainage from the site discharges via a culvert to an irrigation pond before discharging via a culvert to the ditch adjacent to the existing car park of the Bicester Hotel. This is shown in Figure 1 below.

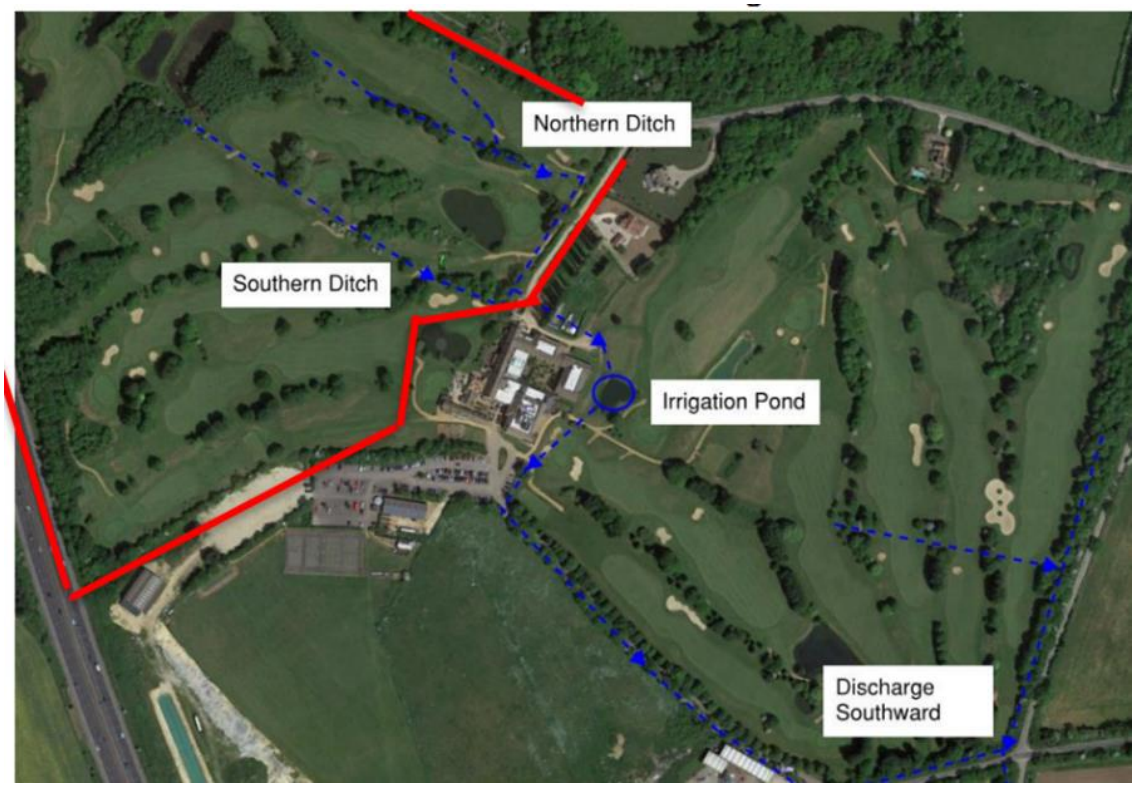

Figure 1 – Schematic from Curtins FRA (Application boundary shown in red)

3.3. The drainage from the golf course outfalls southward via a watercourse which is culverted in places, into the Wendlebury Brook (main river). The watercourse flows through the hamlet of Little Chesterton before merging with the Wendlebury Brook near the village of Wendlebury. Little Chesterton is identified to be at risk of surface water flooding and Wendlebury is highlighted to be at risk from river flooding. The watercourses and flood maps are shown in Figure 2 below.

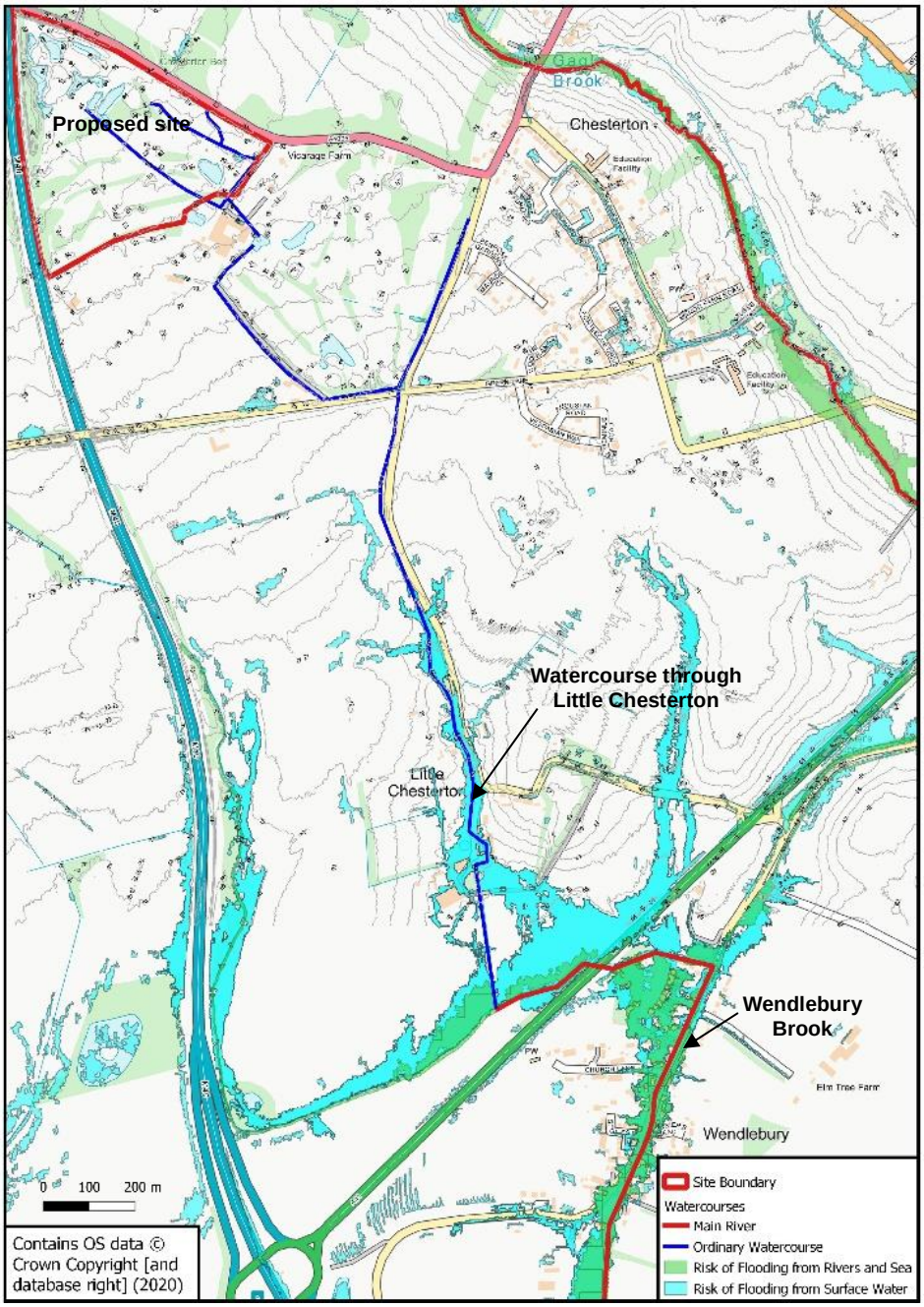

Figure 2 – Existing drainage catchment

3.4. The information provided in the Curtins FRA and Drainage Strategy suggests that the site is at high risk of Groundwater flooding. This is likely due to a change in geology across the site from freely draining soils to soils with impeded drainage. The geology in the area is highlighted by the British Geological Survey (BGS) maps to be predominantly,
"Forest Marble Formation - Limestone and Mudstone, Interbedded. Sedimentary Bedrock formed approximately 166 to 168 million years ago in the Jurassic Period. Local environment previously dominated by shallow carbonate seas" (impeded drainage) with the surrounding area highlighted to be,
"Cornbrash Formation - Limestone. Sedimentary Bedrock formed approximately 164 to 168 million years ago in the Jurassic Period. Local environment previously dominated by shallow carbonate seas." (freely draining).

3.5. The change in geology coincides with the UAV groundwater survey provided in the Curtins FRA and Drainage Strategy for the proposed development which demonstrated groundwater was within 0-0.5m of ground level within the proposed site boundary.

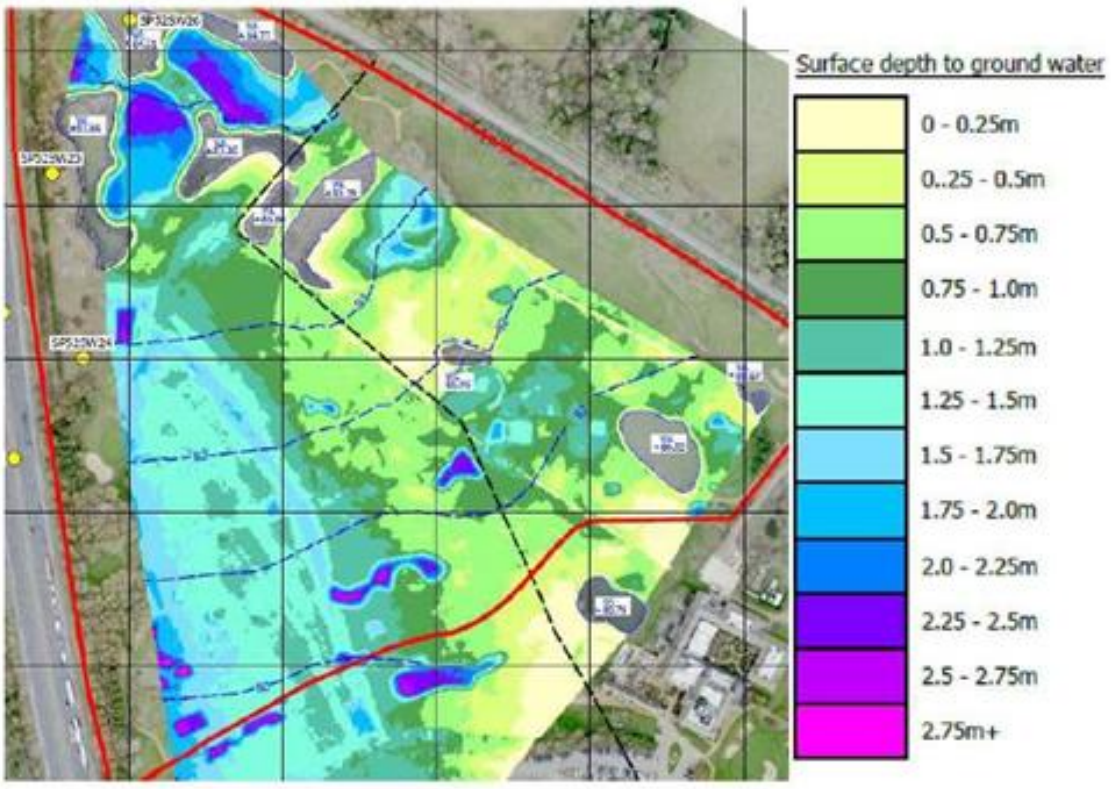

Figure 3 – UAV Groundwater Survey from Curtins FRA for the proposed development (Application boundary shown in red)

3.6. Surface water and groundwater on the site is managed by shallow swales/ditches which are on average 3-4m wide and 0.3-1m deep and a number of ponds, throughout the site. They take a number of land drains throughout the golf course and apart from one online pond, they not directly linked to the others but as acknowledged in the FRA, they are linked through groundwater flows.

3.7. The ponds and ditches in the south-east corner of the site (which are proposed to be removed) are the most important on the site as these manage the higher groundwater level in this area, which has been recorded to be within 0-0.25m of the existing ground level. The existing drainage features also manage surface water and groundwater from the land in the north-east corner of the proposed site. Due to the historic topography, it could potentially also take groundwater flows from the west of the M40.

4. Current Policy and guidance

4.1. National Planning Policy Framework (NPPF) key paragraphs

4.1.1. 163. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere.

4.1.2. 165. Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The systems used should:

(a) take account of advice from the lead local flood authority;

(b) have appropriate proposed minimum operational standards;

(c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and

(d) where possible, provide multifunctional benefits.

4.2. National Planning Practice Guidance (NPPG) key paragraphs

4.2.1. Local authorities and developers should seek opportunities to reduce the overall level of flood risk in the area and beyond. This can be achieved, for instance, through the layout and form of development, including green infrastructure and the appropriate application of sustainable drainage systems, through safeguarding land for flood risk management, or where appropriate, through designing off-site works required to protect and support development in ways that benefit the area more generally.

Paragraph: 050 Reference ID: 7-050-20140306

4.2.2. Sustainable drainage systems are designed to control surface water run off close to where it falls and mimic natural drainage as closely as possible. They provide opportunities to:

- reduce the causes and impacts of flooding;
- remove pollutants from urban run-off at source;
- combine water management with green space with benefits for amenity, recreation and wildlife.

Paragraph: 051 Reference ID: 7-051-20150323

4.2.3. Whether a sustainable drainage system should be considered will depend on the proposed development and its location, for example whether there are concerns about flooding. Sustainable drainage systems may not be practicable for some forms of development (for example, mineral extraction). New development should only be considered appropriate in areas at risk of flooding if priority has been given to the use of sustainable drainage systems. Additionally, and more widely, when considering major development, as defined in the Town and Country Planning (Development Management Procedure) (England) Order 2015, sustainable drainage systems should be provided unless demonstrated to be inappropriate.

Paragraph: 079 Reference ID: 7-079-20150415

4.2.4. In considering a development that includes a sustainable drainage system the local planning authority will want to be satisfied that the proposed minimum standards of operation are appropriate and that there are clear arrangements in place for ongoing maintenance. Information sought by the local planning authority should be no more than necessary, having regard to the nature and scale of the development concerned.
Paragraph: 081 Reference ID: 7-081-20150323

4.2.5. The technical standards provided by government relate to the design, construction, operation and maintenance of sustainable drainage systems and have been published as guidance for those designing schemes. In terms of the overall viability of a proposed development, expecting compliance with the technical standards is unlikely to be reasonably practicable if more expensive than complying with building regulations – provided that where there is a risk of flooding the development will be safe and flood risk is not increased elsewhere. Similarly, a particular discharge route would not normally be reasonable practicable when an alternative would cost less to design and construct.
Paragraph: 083 Reference ID: 7-083-20150323

4.3. Cherwell Local Plan 2011-2031 adopted July 2015. Key paragraphs

4.3.1. Policy ESD6 (Sustainable Flood Risk Management)

4.3.1.1. Flood risk assessments should assess all sources of flood risk and demonstrate that:

- There will be no increase in surface water discharge rates or volumes during storm events up to and including the 1 in 100 year storm event with an allowance for climate change (the design storm event)
- Developments will not flood from surface water up to and including the design storm event or any surface water flooding beyond the 1 in 30 year storm event, up to and including the design storm event will be safely contained on site.

4.3.1.2. Development should be safe and remain operational (where necessary) and proposals should demonstrate that surface water will be managed effectively on site and that the development will not increase flood risk elsewhere, including sewer flooding.

4.3.1.3. B.207 The above policy reflects government planning guidance on sustainable flood risk management set out in the NPPF and NPPG.

4.3.2. Policy ESD7 Sustainable Drainage Systems (SuDS)

4.3.2.1. All development will be required to use sustainable drainage systems (SuDS) for the management of surface water run-off.

4.3.2.2. Where site specific Flood Risk Assessments are required in association with development proposals, they should be used to determine how SuDS can be used on particular sites and to design appropriate systems.

4.3.2.3. In considering SuDS solutions, the need to protect ground water quality must be taken into account, especially where infiltration techniques are proposed. Where possible, SuDS should seek to reduce flood risk, reduce pollution and provide landscape and wildlife benefits. SuDS will require the approval of Oxfordshire County Council as LLFA and SuDS Approval Body, and proposals must include an agreement on the future management, maintenance and replacement of the SuDS features.

4.3.2.4. B.215 Policy ESD 7 sets out the Council's approach to Sustainable Drainage Systems (SuDS). Potential flooding and pollution risks from surface water can be reduced by reducing the volume and rate of water entering the sewerage system and watercourses. Managing drainage more sustainably in this way can ensure that developments are better adapted to the predicted impacts of climate change in the South East, which include more intense rainfall events. Policy ESD 7 is supported by the Flood and Water Management Act 2010 which presumes that

SuDS will be used for all new developments and redevelopments in order to prevent surface water run-off from increasing flood risk, and sets out that national standards be published to address SuDS design, construction, operation and maintenance issues at a national level.

4.3.2.5. B.216 SuDS seek to manage surface water as close to its source as possible, mimicking surface water flows arising from the site prior to the proposed development. Typically this approach involves a move away from piped systems to softer engineering solutions. SuDS are considered to be suitable for use in association with developments across the District. Where site specific Flood Risk Assessments are required to be submitted to accompany development proposals these should be used to investigate how SuDS can be used on particular sites and to design appropriate systems.

4.3.2.6. B.217 In considering SuDS solutions, the need to protect ground water quality must be taken into account, especially where infiltration techniques are proposed. Where possible, multiple benefits including for recreation and wildlife should be delivered. Proposals must include an agreement on the future management, maintenance and replacement of the drainage structures.

4.4. Local Standards and Guidance for Surface Water Drainage on Major Development in Oxfordshire

4.4.1. The Non-statutory technical Standards for sustainable drainage systems, referred to as the technical standards in the NPPG, were produced to provide initial principles to ensure developments provide SuDS in line with the NPPF and NPPG. Oxfordshire County Council published the “Local Standards and Guidance for Surface Water Drainage on Major Development in Oxfordshire” to assist developers in the design of all surface water drainage systems, and to support Local Planning

Authorities in considering drainage proposals for new development in Oxfordshire. The guide sets out the standards that we apply in assessing all surface water drainage proposals to ensure they are in line with National legislation and guidance, as well as local requirements.

4.4.2. The SuDS philosophy and concepts within the Oxfordshire guidance are based upon and derived from the CIRIA SuDS Manual (C753), which we expect all development to come forward in line with these principles.

4.4.3. In line with the above guidance, surface water management must be considered from the beginning of the development planning process and throughout – influencing site layout and design. The proposed drainage solution should not be limited by the proposed site layout and design.

4.4.4. Wherever possible, runoff must be managed at source (i.e. close to where it falls) with residual flows then conveyed downstream to further storage or treatment components, where required. The proposed drainage should mimic the existing drainage regime of the site. Therefore, we will expect existing drainage features on the site to be retained and they should be utilised and enhanced wherever possible.

4.5.CIRIA SuDS Manual C753

4.5.1. The CIRIA SuDS Manual C753 is the industry recognised best practice guidance of SuDS design. C753 states that SuDS are designed to maximise the opportunities and benefits we can secure from surface water management. It sets out four main categories of benefits that can be achieved by SuDS: water quantity, water quality, amenity and biodiversity. These are referred to as the four pillars of SuDS design.

4.5.2. The philosophy of SuDS is about maximising the negative impacts of surface water runoff from developed areas.

4.5.3. The SuDS approach involves slowing down and reducing the quantity of surface water runoff from a developed area, to manage downstream flood risk, and reducing the risk of that runoff causing pollution. This is achieved by harvesting, infiltrating, slowing, storing, conveying and treating runoff on site and, where possible, on the surface rather than underground. Water then becomes a much more visible and tangible part of the built environment, which can be enjoyed by everyone.

4.5.4. By adopting this approach, SuDS have the opportunity to deliver and enhance the green space within developments and link to wider green networks, supporting the provision of habitats and places for wildlife to live and flourish. The benefits to the community of using SuDS are also numerous, including improvements in health, well-being, and quality of life (liveability) for both individuals and communities, which in turn can increase the value of property and the prosperity of the local economy.

4.5.5. To maximise these benefits, surface water management should be considered from the beginning of the development planning process and throughout – influencing site layout and design, and the use and characteristics of open spaces. So, it is important that, where appropriate, an interdisciplinary team (including planners, landscape architects, architects and drainage engineers) should work together from the outset.

4.5.6. SuDS should not be thought of as an individual component (such as a filter strip, swale or detention pond) but as an interconnected system designed to manage, treat and make best use of surface water, from where it falls as rain to the point at which it is discharged into the receiving environment beyond the boundaries of the site.

4.5.7. Wherever possible, runoff should be managed at source (i.e. close to where it falls) with residual flows then conveyed downstream to further storage or treatment components, where required. The passage of water between individual components of the Management Train, the

components in a sustainable drainage scheme to deal with the water quantity and the water quality, should be, wherever possible, through the use of above-ground conveyance systems (e.g. swales and rills) although pipework and subsurface proprietary products may prove more efficient for specific schemes, especially where space is limited such as in a redevelopment. Pre-treatment (the removal of litter and sediment) and maintenance are vital to ensure the long-term and sustained effectiveness of all SuDS components. Overland flow routes will also be required to convey and control floodwater safely during extreme events.

5. Proposed Development

5.1. The proposed drainage strategy is set out in the Curtins Drainage & SuDS Strategy 068535-CUR-00-XX-RP-C-00002, Revision: P02, February 2020, submitted with the planning application which is included in Appendix D.

5.2. The site is proposed to discharge via the existing ditches and culverts to the south of the site at the existing greenfield peak flow rate for the mean annual return period of approximately 1:2.3 years (Qbar) 31.3l/s for all storm events up to and including 1 in 100 year +40%. This is explained in detail in Section 5.2.1 of the Curtins Drainage Strategy.

5.3. The ditches shown in the red line boundary on the plan in Figure 1 above are proposed to be removed. As well as these ditches, there is an online pond that is proposed to be removed on the northern ditch and two ponds to be removed adjacent to the southern ditch. A further larger pond is also proposed to be removed. The removed features are shown in Figure 4 in Section 7.

5.4. Although ditches are being removed, they are being diverted and further ditches are being provided which are shown on the General Arrangement Plan in Appendix E of the Curtins Drainage & SuDS Strategy. However, these are being reduced from the existing 3-4m wide ditches to 1m wide ditches.

5.5. The proposed strategy consists of permeable paving, offline ponds, underground attenuation tanks which provide much of the required storage and rainwater harvesting. A green roof is mentioned in the drainage strategy however, it has not been identified on the drainage strategy plan. The plan is included in appendix B.

5.6. A land drainage strategy is also being proposed which is to replace the existing land drainage at a lower level to try to control groundwater. The plan is included in appendix B.

5.7. Surface water is to be attenuated predominately by a large tank under the proposed car park where groundwater has been recorded to be within 0-0.25m of the existing ground level.

6. Planning History

6.1. On the 28th March 2019 we were asked to provide feedback on a planning performance agreement. We raised concerns regarding the proposal that drainage would not be discussed until the fourth meeting. We stated that the site must fully understand the existing drainage regime and flood risk issues at the site to inform the proposed layout. The required SuDS measures must not be limited by the layout or design.

6.2. We were then consulted on the pre-application for the site by Cherwell District Council and provided comments on the 5th June 2019

6.3. We were asked to provide comments on the proposed site on the 1st July 2019 by the applicant's drainage consultant, Curtins. We responded to Curtins on the 22nd July 2019 and stated we had already provided pre-app advice and we also informed them that in the absence of a proposed drainage layout, we are unable to provide any further comment. We also raised concerns regarding the proposed layout due to existing features being removed.

6.4. A drainage strategy drawing was provided on the 25th September 2019. We responded to the Cherwell District Council planning officer on the same day stating that the drainage strategy does not address our comments as the two open watercourses through the site are planned to be removed.

6.5. We were then invited to attend the 6th pre-application meeting for the site to be held on the 7th October 2019.

6.6. A technical note was provided by Curtins on the 1st October 2019. This was to identify the ditches on the site and confirm that they were not ordinary watercourses despite the fact that we had already confirmed that they were.

6.7. The LLFA sent a response to the LPA on the 4th October 2019 stating that we do not agree with the technical note and do not support the removal of the ditches.

6.8. I attended the meeting on the 7th October but only a few minutes were provided for drainage at the end of the meeting. I raised concerns with the current layout and the removal of the ditches and our frustration that our comments had not been taken on board and addressed.

6.9. I sent a follow up email on the same day to the LPA reiterating our frustration and concerns.

6.10. A further meeting was attended on the 23rd October 2019 where the LLFA confirmed that the ditches must be retained through the site and if diverted, adequate space must be provided for them.

6.11. Apart from the drainage strategy drawing, the FRA and Drainage Strategy document were not provided at this stage so the existing flood risk issues such as high groundwater were not fully revealed.

6.12. Rainwater Harvesting was mentioned at the pre-app meeting but was not demonstrated and still isn't demonstrated on the drainage strategy drawing and supporting calculations which demonstrate a conventional gravity system only.

6.13. The strategy was submitted as part of the full planning application with no changes to the strategy or proposed layout apart from the ditches shown to be diverted and culverted in a number of places within the proposed layout as provided at the pre-application stage.

6.14. The LLFA provided an objection to the application on the 8th January 2019 on the basis that a sustainable drainage scheme was not being provided. A number of concerns were raised with the tank and the effects of groundwater on the proposals. Concerns were also raised regarding the removal of the existing drainage features. A number of design principles were also questioned.

6.15. The responses provided on behalf of the applicant ignored the fundamental issues and reasons for refusal. They concentrated on the design principles of the tank. We have confirmed on a number of occasions that the tank must be designed out and existing features must be retained.

6.16. The fundamental comments were continued to be ignored and no effort was made to change the layout to accommodate an acceptable SuDS scheme. Therefore, the LLFA continued to object to the application. The correspondence explained in this section is included in Appendix C.

7. Lead Local Flood Authority (LLFA) Current opinion and objections

7.1. Outfall Levels

7.1.1. The proposed outfall of the surface water network is located to the south of the site as identified on the Drainage Strategy drawing (068535-CUR-00-XX-DR-C-92000 P05) included in Appendix B. The existing outfall in the calculations is shown to be 78.262m which is assumed.

7.1.2. The site falls from north west to south east, with the low spot being located in the vicinity of the proposed outfall from the site. The existing drainage outfalls via shallow ditches/swales to a manhole on the southern boundary of the proposed site. The level in the existing manhole MH EXSW1 shown on the Drainage Strategy drawing is not known but the ditch level adjacent to this manhole is shown to be 79.778m. The proposed level is 1.5m lower, which is likely to be significantly below the existing groundwater level and suggests a significant change in level to manage the drainage is proposed compared to the existing drainage regime.

7.1.3. The FRA and Drainage Strategy submitted for the application are misleading as they have not mentioned at all that this outfall level is assumed. Looking at the existing levels downstream, we cannot see evidence that demonstrates how the drainage will drain freely by gravity at the proposed level and this needs to be confirmed.

7.1.4. It is claimed that the approach adopted is consistent with Policy L9 in the "Local Standards and Guidance for Surface Water Drainage on Major Development in Oxfordshire" Policy L9 states *"It should be demonstrated that high water levels at the outfall for the design storm event would not affect the performance of the system. If the outfall of an attenuation facility is likely to be submerged in the design 1 in 100 year rainfall event, then this should be assessed within any hydraulic modelling".*

7.1.5. However, the outfall is assumed so there is no reliable evidence to support the claim that L9 is met and high water levels at the outfall will not affect the performance of the proposed system, especially when surface water is being proposed to be managed at over 1.5m lower than it is currently, completely submerged in groundwater, with no appreciation of water levels downstream. If the outfall is submerged, then the system would back up and would not operate effectively.

7.2. Groundwater

7.2.1. Groundwater is between 0-0.5m below ground level in places, especially where the tank is proposed. That is why the existing features are shallow to manage surface water above the groundwater which is in line with best practice. However, the proposed solution is proposing to manage surface water significantly lower with the proposed tank being below and completely submerged in groundwater.

7.2.2. The tank is proposed in a location that is at high risk of groundwater flooding. The proposed scheme to manage groundwater is to reinstate the land drains on the proposed site at a lower level. However, there is no evidence to demonstrate this will have a positive effect as this is controlled by the groundwater levels downstream, outside of the site boundary, which are not being altered.

7.2.3. There are three ponds to be removed and part of a further pond on the northern boundary is also shown to be removed. The largest pond is 2600m² in area with approximately 400mm of free depth recorded from the water level and lowest bank level on the topographical survey. The depth is unknown, but the water level currently takes up approximately 2000m² in area which will fluctuate with groundwater levels. There is a significant volume of water in this pond that will be lost post development. There is also a significant area of groundwater storage which will be lost by the introduction of the tank. This loss of groundwater storage has not been compensated for in the strategy.

7.2.4. The proposals have failed to demonstrate that groundwater will be managed appropriately, and that flood risk will not be increased elsewhere. Therefore, it is not inline with Paragraph 163 of the NPPF and Policy ESD6 of the Cherwell Local Plan.

7.3. Discharge Rate and Flood Risk

7.3.1. We do not agree with the appellant's consultant as concluded in the Existing Land Drainage Note, Appendix H of the Curtins Drainage and SuDS Strategy that the existing site drainage currently discharges greater than greenfield rates and we have repeatedly confirmed that we do not agree with this in our planning responses and during meetings. The existing drainage measures are mimicking natural measures that we promote, and they currently do not have any impermeable areas draining to them. They are managing both surface water and the groundwater level.

7.3.2. Whilst it is accepted that the proposed strategy is designed based on QBar, (existing runoff rate) and sized accordingly to manage surface water, it is based on an assumed outfall and attenuation at a significantly lower level than existing. It has not been demonstrated that it will manage groundwater appropriately.

7.4. Proposed Tank Design and Anchorage

7.4.1. The introduction of the tank and managing water underground is also introducing a significant increase in maintenance requirements and operational standards compared to the existing above ground features which are easier to maintain and easier to identify any blockages. In the event of blockage or failure, this will increase flows downstream where properties are already at risk of flooding. This is not in line with point b) of Paragraph 165 of the NPPF, and the NPPG.

7.4.2. The use of a deep underground tank would normally be rendered unfeasible due to the presence of high groundwater. Anchorage is proposed to hold the tank down and prevent it from floating due to the

high groundwater level. This can be in the form of a concrete foundation tied into the ground or robust ties to hold the tank down.

7.4.3. The design of this is not confirmed but it is the view of the applicant's consultant that this provides a more feasible solution. Anchorage is only required because of the current proposal. You would not have to anchor a pond but use other significantly lower cost measures to protect it from groundwater if required which will be easy to replace in the event of failure. It is common to have a clay lined pond proposed in a sustainable drainage scheme.

7.4.4. The tank will always be surcharged in groundwater which will have a significant effect on the structure of the concrete tank. It is best practice to manage surface water on the surface and for any features to be lined if necessary, to ensure their capacity is not affected by groundwater.

7.5. Proposed SuDS

7.5.1. We acknowledge the other proposed drainage measures provide some benefits in line with best practice, but we do not accept that biodiversity benefit arises part of the SuDS proposal, particularly when assessed against the impact of the loss of the existing ponds and wide swales/ditches.

7.5.2. We have been consistent in our responses, from pre-app and throughout the planning process, stating that these measures must be retained especially the ditches.

7.5.3. However, the more fundamental concern is regarding the suitability of the tank at the location and the proposed depth which the information provided throughout the planning process has failed to demonstrate it is in accordance with best practice guindance and Policy ESD7 of the Cherwell Local Plan.

7.6. Rainwater Harvesting

7.6.1. Rainwater harvesting is proposed in the drainage strategy. We promote the use of rainwater harvesting but the design of the rainwater harvesting needs to be carefully considered.

7.6.2. As stated in our guidance, "*rainwater harvesting volumes are not considered to contribute to the overall attenuation volume for a SuDS system as it cannot be guaranteed that the storage will be empty prior to rainfall. Rainwater harvesting would however be accepted as a means of removing the first 5mm of rainfall in terms of water quality protection."*

7.6.3. The SuDS system must be designed to ensure the required capacity is available in the system when the tank required for rainwater harvesting is full. At the moment it is has not been demonstrated how the proposed SDS rainwater harvesting system will be implemented appropriately in the design.

7.6.4. It is suggested that it will monitor the water levels alongside the forecast rainfall data and the tank will empty to ensure it has the free capacity in a storm event however, this will empty the tank immediately before a storm event, therefore doubling the volume of water being discharged downstream in a storm event where properties are already at risk of flooding. This is not inline with Policy S4 of the Technical standards, referred to in the NPPG, and included in the "Local Standards and Guidance for Surface Water Drainage on Major Development in Oxfordshire"

7.6.5. *"S4 Where reasonably practicable, for greenfield development, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event should never exceed the greenfield runoff volume for the same event."*

7.7. Existing Drainage Features

7.7.1. We have never approved the proposed replacement/realignment of the ditches as the applicant's consultant claims in the planning responses from Curtins, most recently in their response letter of 11th December 2020 which is included in Appendix C. The proposed ditches are not being reinstated appropriately. The existing ditches are on average 3-4m wide and 0.3-1m deep. The proposal has squeezed 1m wide ditches in the proposed layout which are culverted in many places. This is not an acceptable replacement. We have repeatedly stated in our responses included in Appendix C and during meetings that the existing drainage features must be retained. All ditches, no matter when installed are classed as ordinary watercourses.

7.7.2. It was suggested at the pre-app meetings that a tank was required due to the topography. We stated that we will expect the existing features to be retained and further above ground features to be integrated wherever possible and if a tank was felt to be still required, then it must be fully justified to why it is required over other SuDS measures.

7.7.3. The ditches, which are classed as ordinary watercourses, and ponds proposed to be removed are located in the area where ground water levels are recorded to be at their highest on the site. These are shown in Figure 4 below.

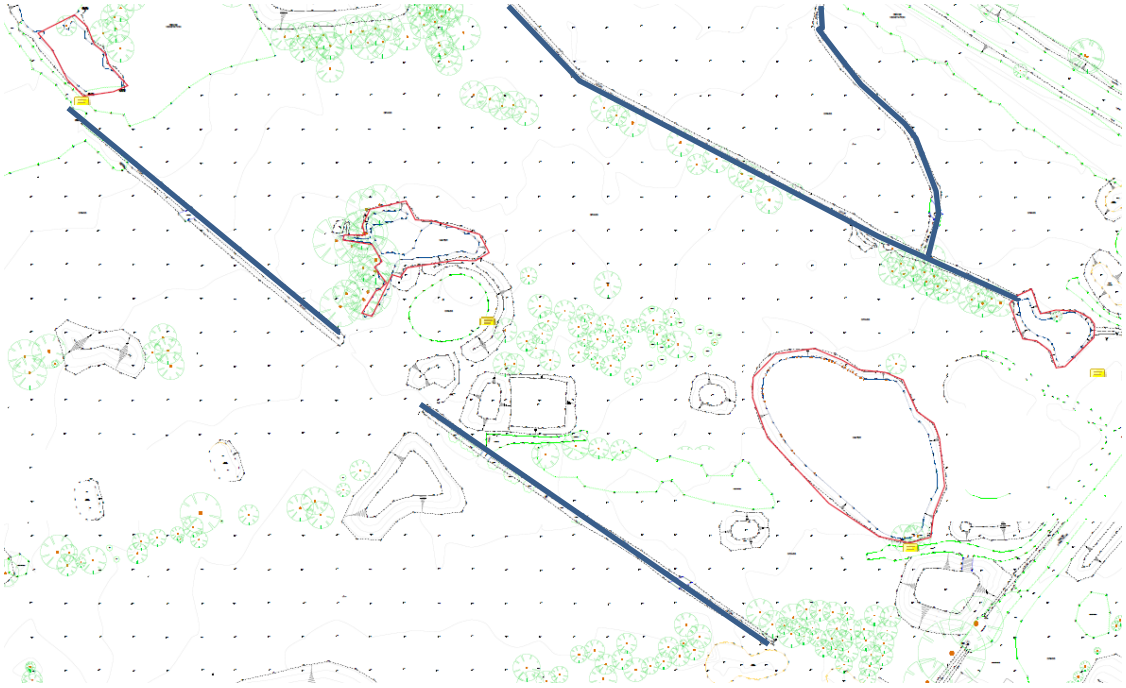

Figure 4 - Existing ponds (in red) and ditches (in blue) to be removed. Plan from the Curtins FRA for the proposed development

7.8. Recent approved development

7.8.1. It is the view of the appellant's consultant that the existing drainage features are not appropriate for the proposed development. However, the drainage strategy carried out by Lanmor Consulting for the 62-bed extension to existing Bicester Hotel in 2017, utilised and enhanced the pond stated to be the irrigation pond in the FRA for the proposed development. This utilised capacity above the natural groundwater and was acceptable to the LLFA.

7.8.2. The irrigation pond and outfall levels are provided in the drainage strategy for the discharge of condition application 17/00037/DISC for the 62-bed extension to existing Bicester Hotel. These levels are overlaid on the schematic from the Curtins FRA below. The original 2017 strategy is included in appendix D.

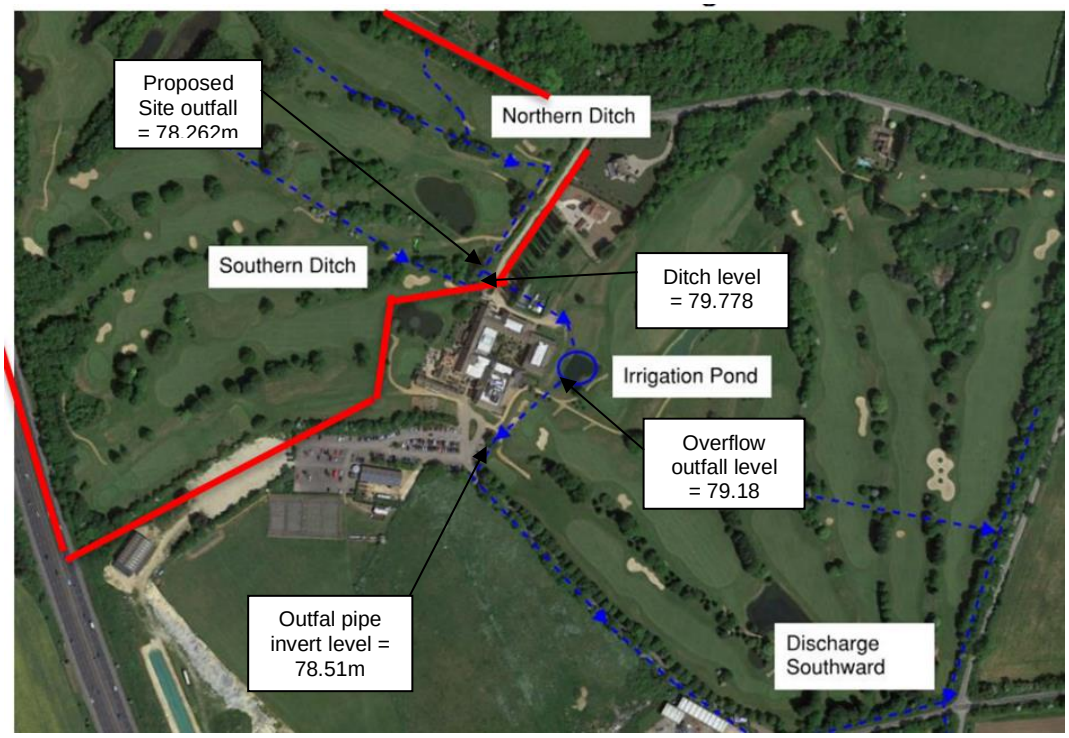

Figure 5 – Outfall schematic from Curtins FRA for the proposed development with existing and proposed levels shown (Application boundary shown in red)

7.8.3. The outfall level from the irrigation pond is higher than the proposed level for the drainage scheme which is 130m downstream. Therefore, the proposed drainage scheme at the assumed level will need to flow uphill, and therefore does not work hydraulically as claimed in the Drainage Strategy.

7.9. Summary of LLFA's position

7.9.1. At the pre-app stage, we were not provided with the FRA and drainage strategy documents until after these meetings so could not be fully aware of the issues such as high groundwater at the site.

7.9.2. Apart from design principles such as the QBar rate, we have never agreed to the scheme as proposed. This is apparent from our responses throughout the planning process which are included in Appendix C.

7.9.3. As stated in our comments on several occasions, surface water management must be considered from the beginning of the development planning process and throughout – influencing site layout and design. The proposed drainage solution should not be limited by the proposed site layout and design.

7.9.4. The LLFA advice has been consistent throughout but the fundamental points have continued to be ignored and no effort has been made to change the layout to accommodate an adequate drainage strategy to manage flood risk appropriately. The LLFA feels the current proposals completely alter the existing drainage regime and do not manage all flood risk elements appropriately.

7.9.5. The LLFA is willing to continue to work with the applicant to address the issues however, as stated above, we feel there needs to be a change to the layout, specifically in the area of high groundwater where the car park is proposed, to ensure an adequate sustainable drainage scheme can be implemented in accordance with Policies ESD6 and ESD7 of the Cherwelll Local Plan.

7.9.6. This Proof of Evidence considers information received up to the 11th December 2020. Further information has been received from Motion, acting as the appellants drainage consultant for the appeal including a letter dated 22nd December 2020 and revised calculations, based on the now confirmed outfall level, received on the 7th January 2021. This has yet to be reviewed but we will review this and continue to liaise with Motion and Curtins to try and overcome the outstanding issues before the Appeal hearing.

8. Conclusion

8.1. The drainage strategy has not confirmed a positive outfall can be provided downstream of the proposed site for the proposed drainage scheme.

8.2. Groundwater has not been appropriately accounted for in the proposed scheme and will be dispersed elsewhere post development. The proposed strategy of providing a land drainage scheme at a lower level is flawed by the existing groundwater levels downstream.

8.3. The tank will be completely surcharged in groundwater by more than 0.5m. It will also be affected by the water levels downstream.

8.4. As well as not dealing with groundwater appropriately, the proposed strategy has therefore not demonstrated that there will be no increase in surface water discharge or volume emanating from a site for any event up to and including the 1 in 100 year (plus climate change) Therefore, the scheme is not in line with Local Plan policy ESD6 and Paragraph 163 of the NPPF.

8.5. The introduction of the deep underground storage is significantly increasing the operational maintenance requirements compared to the existing features on the site and completely alters the existing drainage regime.

8.6. The drainage strategy has failed to take account of advice from the lead local flood authority, does not have appropriate proposed minimum operational standards and does not provide biodiversity benefit compared to the existing drainage features that are to be removed. It is the therefore also not in line with Local Plan Policy ESD7 and Paragraph 165 of the NPPF.

Appendix A – Existing Site information

Appendix B – Proposed Site information

Appendix C – LLFA correspondence

Appendix D – External reports