

THAMES FARM, READING ROAD, LOWER SHIPLAKE, RG9 3PH

PINS Refs: P24/S2642/FUL, APP/Q3115/W/25/3373696
P24/S2652/S73, APP/Q3115/W/25/3373700
P24/S2651/DIS, APP/Q3115/W/25/3373702

CLOSING SUBMISSIONS ON BEHALF OF THE THAMES FARM ACTION GROUP

Introduction

1. The Inspector's task now is a familiar one. To determine Appeal A in accordance with the development plan unless material considerations indicate otherwise. In Appeal C, to consider whether the details provided by the Appellant are acceptable so that Condition 11 may be discharged. For Appeal B, whether the proposed variation of conditions 1 (approved plans) and 3 (landscaping implementation) is acceptable on the planning merits.
2. In weighing the evidence and the numerous technical discussions heard by the Inspector, it may be thought that the essential and determinative issues in the Appeals are not as complex or difficult as they first appeared. The truth is that the issues on which the result of Appeal A and Appeal C turn are comparatively straightforward. At their heart lies the concise questions of whether it has been sufficiently demonstrated that the ground stabilisation works under Appeal A will not pose an unacceptable risk and under Appeal C, whether the details provided for the discharge of condition 11 are acceptable. The answer to both questions is "No". And it emerges unmistakeably from the evidence to the Inquiry on those main issues.
3. These closing remarks will concentrate on those main issues subject to the following preliminary submissions.
4. The groundwater beneath the Site is a precious resource with a PWS abstraction only a short distance away. The raw water is subject to minimal treatment via filtration and chlorination before being put into supply. The Site is within a Drinking Water Safeguard Zone for groundwater and surface water¹.

¹ 16.4 Hydrogeology Topic Paper, para 4, pg.6.

5. It is squarely within SPZ1 of the underlying aquifer, the inner protection zone, with SPZs 2 and 3 drawn more widely². SPZs form a key part of the Agency's approach to controlling the risk to groundwater supplies from potentially polluting activities against the background of its statutory responsibilities. No allowance or qualification is included in the Agency's designation indicating that there is any form of protective cover of low permeability above the aquifer, usually referred to as SPZ1c, or SPZ2c and so on³.
6. As we know, the Site at 5.59ha accounts for 4.4% of the SPZ1 area⁴. The Harpsden PWS itself only 130m away supplies 6.5Ml/d to the Henley WRZ but it is licensed to abstract up to 12.51Ml/d annually. Whilst Sheeplands PWS provides 11.2Ml/d to the WRZ, the Harpsden supply is needed for blending with that water to address nitrate contamination at Sheeplands⁵. Therefore, the Harpsden PWS contributes over one third of the potable supply for the WRZ. It is accepted by all parties that the Site is located in a sensitive location.
7. Of course this inquiry is not about the principle of whether residential development is appropriate. It is about the detail of how that development might take place and whether the risks of doing so are acceptable. It is of concern to the TFAG that since the original outline consent was granted on appeal in 2017 and it was subsequently discovered that karstic ground conditions exist, there has been no real attempt to design the layout of a residential scheme that is truly cognizant of the ground conditions and reflects the topography of the site. Instead the Appellant has doggedly pursued the original layout and concept for the development and then turned to face the reality of Site conditions and constraints.

Appeal A - P24/S2642/FUL

Ground conditions and grouting process

8. The starting point to assessing the acceptability or otherwise of the works are the inherent risks in the underlying geology. The essential layers are agreed to comprise superficial deposits of sand, gravel, clay and silt in different proportions, upper weathered chalk and then moderately weathered chalk⁶.

² 20.2 BP Proof, Figure 1, pg.5.

³ 7.35, para 3.5.4, pg.30.

⁴ 16.4 para 7, pg.7.

⁵ 20.2, Ms Parrish Proof, para 13, pg.5-6.

⁶ 16.4, Hydrogeology Topic Paper, para 9, pg.7.

9. The evidence of Dr Edmunds (and Ms Fraser) sought to fundamentally change the narrative that has existed since the HIAs were prepared in connection with the applications⁷. Dr Edmunds' evidence was the unstructured chalk was highly weathered and because of its essential geology it was not really possible to have secondary permeability via fractures and only 'matrix dominant permeability' existed (the space between rock grains).
10. Firstly, if that is the case, the unstructured chalk is characterised by high primary porosity (c.35%) in any event⁸.
11. Secondly, that is now contrary to the evidence from the ground investigations, relied upon by the Appellant prior to the Appeals⁹. Mrs Parrish's unchallenged evidence is that the evidence points to inherent heterogeneity within the weathered chalk generally, with fractures, fissures and voids present in unpredictable locations.
12. Fractures are recorded in the unstructured chalk according to the logs for the HF series of borehole investigations in January 2023¹⁰. The Inspector will recall how the Council referred Dr Edmunds to the following borehole information:
 - 12.1. A subvertical fracture logged at 13.80m (HF2);
 - 12.2. Subhorizontal 'discontinuities' (fractures) logged at 9.80 to 10.00m (HF3); and
 - 12.3. Inclined to subhorizontal discontinuities logged at 9.50 to 9.90m (HF5).
13. Dr Edmunds explanation (relied upon by Ms Fraser) is that there had a been a misdescription of what was there, or the features had been mis-logged. Dr Edmunds evidence was also that the unstructured chalk may have become puttified over time limiting its permeability and potential for complete recovery in the cores. However, he agreed with the logs so far as the unstructured chalk at those locations was recorded as 'Dc', indicating a clast dominated matrix (a granular coarse mixture where clasts dominate > 65% primary porosity). Quite apart from the fact that Dr Edmunds wasn't there at the time to assess the cores recovered, it is disappointing that the Appellant asks the Inspector to disregard items within the logs that don't assist their primary case on Appeal A, yet is content to accept information that points in its direction.

⁷ 7.2 and 7.3.

⁸ 19.2 Ms Fraser Proof, para 4.7.1, pg32.

⁹ 20.2, as summarised by Mrs Parrish Proof, para 32 – 51, pg12-17.

¹⁰ 7.2, Appendix C, pg.121 onwards.

14. On the description of Dc chalk, Dr Edmunds explained that unstructured and structured chalk could be found together, and that fragments of the structured chalk could be found within the unstructured chalk. Although the Appellant's case was that all grouting would take place in the unstructured chalk, it follows some may potentially take place in the structured chalk, where fractures and fissures may be found at various angles and subangles.
15. The properties of the chalk has allowed solution pipes to form. The superficial deposits have undergone solution subsidence into the pipes over time, becoming less stable and creating areas of disturbed ground, particularly in the eastern part of the Site. Those pipes can take slightly different shapes but they are vertically oriented solution features that generally have an inverted cone-shape¹¹. The pipes extend into the structured chalk below 15m/bgl in depth and into the structured chalk¹². At the same time the superficial deposits within the pipes are permeable and remain hydraulically active. During the process of the soakage testing, Terramech observed that overnight two small areas (approximately 1m in diameter) of ground had collapsed to a depth of 1m at trial pit SA4 and SA6. In the following days they saw both features grow in size¹³. It led Terramech to conclude that further collapses were inevitable and the soakage tests were enough to upset the tentative equilibrium on Site¹⁴.
16. At these appeals it is now explained on behalf of the Appellant through Dr Edmunds that the outer edges of the solution pipes will be dissolved and discoloured (black, chocolate colour), acting as a residue restricting permeability (the 'meniscus'). However, that feature will generally be only 300 - 500mm wide and is no more than a radial zone of weak chalk, shaped around the cone-like pipe. Either way, solution features cannot be realistically described as low permeability structures – even with a meniscus.
17. The overwhelming evidence is that solution features on Site have developed into voids, whether water-filled or air-filled space. It is submitted that the ground investigations are conclusive as to their likely prevalence on Site, see: logs from boreholes Z1 - Z10 from 2019, in particular Z5 and Z7¹⁵ (following the geophysical survey by Zetica identifying the deep seated voids delineated by the green outlined areas, C1 to C12). On Terramech, the

¹¹ 2.18, TN01RA, Dec 2024, para 4.5, pg2.

¹² 8.9, Stantec Ground Stability Assessment, Section 4 Ground Conditions.

¹³ 8.2, Terramech 4072D/19, para 1.4, pg.4.

¹⁴ 8.2, As above, para 4.20, pg.14

¹⁵ 8.2, As above, Appendix C, pg.52.

evidence shows that they were diligent in their work. They returned to Site with a sonic rig specifically to address the loss of structure or layering from the two, light percussive boreholes they had drilled previously. The resulting cores were of superior quality and allowed a proper examination of the strata¹⁶. Swallow holes were also identified¹⁷.

18. The Appellant has had every opportunity to correct any errors or mis-logged evidence since 2019. The issues with the Z1 – Z10 logs was first raised in earnest by Dr Edmunds' in his Rebuttal. Ms Fraser said that none of her team imagined that the Z1 – Z10 logs accurately recorded voids, rather it was a 'no recovery' situation. Not a word of correction or explanation of that critical reasoning is found anywhere in any of the iterations of the HIAs. It is a typical example of the Appellant's enthusiasm to disregard parts of the evidence that no longer fits its narrative at Appeal. The Inspector is asked to prefer the contemporaneous logs of those on Site at the time, rather than an assessment as to their accuracy at a later stage. In summary, voids are present and should not be underestimated.

19. In terms of the grouting to follow, although a 3 – 5m spread from dynamic probing was said by Dr Edmunds to allow for an engineering judgment to be made, we now know from Mr Dunhill that the 6m spread was chosen for cost reasons as opposed to whether the information would be sufficient. The 6m spread was not Dr Edmunds decision, and he accepted that:

19.1. The proposed Drill and Grouting Plan¹⁸ is not to be taken as a precise proposal as you may be grouting at the yellow points outside the green shaded areas (whether the Appellant should be held to those details if the Appeal succeeds is a matter for your consideration of conditions; if it is not reliable that in itself undermines the Appellant's case on the merits of Appeal A);

19.2. You would rely on feedback in the process and react as drilling takes place and may have to go into the white areas where there is no information at present;

19.3. Whilst not the aim of the works, grouting may take place outside the target feature in the structured chalk, more accuracy would be gained as the drilling takes place;

¹⁶ 8.2, As above, para 3.8 - 3.11, pg.8.

¹⁷ 8.2, As above, para 4.13, pg.12.

¹⁸ 1.14 and see Drawing D1827_60, BP Proof, Figure 8, Pg.18.

- 19.4. It was possible that grouting will take place in the structured chalk while trying to stabilise a feature but Dr Edmunds said that “*you will get the feel of the rhythm of the ground*” and “*you will get the feel for it*”;
- 19.5. Monitoring of pressure and grout volumes would provide an indication that the feature is stabilised as it resists.
20. It is submitted that while there will never be absolute certainty over ground conditions, the mitigation of the risks to groundwater should not be left to site operatives and an undefinable *feel* for the conditions beneath the surface that only they might appreciate on the day, perhaps as they are trusting the velocity of the drill and/or losing quantities of grout at the same time. Daily worksheets are not an adequate or practical measure that effectively minimise risk and the groundwater as we know, is not at a constant level, varying over time, seasonally, influenced by pumping at the PWS, and across wet or dry conditions. Even measuring groundwater levels on the day, drilling may occur in the unstructured and fractured structured chalk - Dr Edmunds agreed that “*in certain circumstances it is possible*”.
21. Mrs Parrish’s evidence is that there is a reasonable likelihood that the grouting activity will reach the water table¹⁹. It is also recognised in the HIA for Appeal A that grout flowing into voids in the disturbed ground will have a route to the structured chalk²⁰. Another straightforward piece of evidence that the Appellant’s ask the Inspector to discard.
22. The area now to be grouted on the Appellant’s case is estimated at 16,500m²²¹. It is disappointing that Appellant asks the Inspector to rely upon careful contractors at the injection stage, mixing and loading the grout, measuring groundwater, observing the proposed 2m stand-off, howsoever that was arrived at²², and then carrying out the injection process itself. But as Dr Edmunds said, you “*get a feel for it*” regarding the extent and how often you are likely to come across solution features. That is the dizzying heights of the Appellant’s case – that it will be contractors that will be the final arbiters of whether physical disturbance occurs to the aquifer or whether there is contamination of groundwater. Those are matters over which the Appellant cannot give any guarantee at the time of these appeal decisions. With Dr Edmunds 45 years of experience and Mr

¹⁹ 20.2, BP Proof, para 58. Pg.18.

²⁰ 7.2, HIA, para 54, pg.20.

²¹ 19.2, Ms Fraser, Proof, para 4.13.2, pg.38.

²² 2.5, Outline Project Method Statement, pg.8.

Dunhill's boldness apparently those contractors won't make mistakes - in stark contrast to Terramech who have rather conveniently done so in their core logging.

23. One contractor (Kelleher) provide 12 year warranties but those will be private law matters between the Appellant and the injection contractors based on the commercial climate existing at the time. Not something that the Inspector, or the Council can rely upon, much less the residents whose groundwaters are at risk. No contractor would in fact warrant that all solution features and all disturbed ground had been stabilised anyway. *[whoever is at fault - the designer or the contractor – the warranties take matters no further in advancing the Appellant's case]*
24. Turning briefly to Appeal C matters, and the shallow refusals to the west in Phase 2²³. It is now clear that it is not possible to exclude that all solution features have been identified. Isolated solution features in the area of the proposed western detention basin and infiltration blanket beneath, cannot be ruled out. The Vertase FLI letter of 17 April 2020 states that there may be over 16 potential solution features to the west, in the red hatched area on their plan²⁴ and that it was quite common to investigate using a 3m grid. The information on ground conditions to the west are described as limited. Moreover, the ground conditions generally at Site are said to be quite similar to an example where a burst water main resulted in over 70 solution features opening up over a 0.2ha area. The photograph in that letter of the outcome is startling.
25. TFAG support the Council's position on the behaviour of the grout and the associated engineering risks over the 8 months or so of operations, as explained in Mr Brinkworth's evidence. Based on the ground investigations and proposed grouting and drilling design, there remains a risk that residual solution features will be left untreated, even if there is to be 'split-spacing' small diameter solution features between the currently identified grouting locations won't all be identified. There is also a risk that solution features will not be completely grouted where they continue to depths below the stand-off from the groundwater. Equally, there is still a risk that grout will be injected into features such as a void that extend into the structured chalk and the water table itself.
26. And finally on the 6m grid, that has been chosen for cost reasons. As Mr Brinkworth stated there is always more that could be done - it is fine to be pragmatic but it often comes back and bites you. TFAG's view is that the 6m grid shows that the Appellant has been putting

²³ 8.9, pg.25 and BP proof Figure 7, pg.16.

²⁴ 7.37, pg.2

costs at the centre of its approach. It is an identifiable feature in these appeals that the overall economic benefit of the outline planning permission is being protected at all costs to the detriment of providing full and detailed information sufficient to satisfy the Inspector on the first main issue.

Hydrogeology and Impact Assessment in Appeal A

27. Mrs Parrish's unchallenged evidence confirmed that there was a good correlation between the ground conditions and the features described at the Site and the typical examples shown in Figures, 2, 3 and 4 of her Proof²⁵. In summary, her review of the ground condition investigations is that they reflect the regional karstic features, including voids, deep seated solution features and fracturing, likely to result in the rapid flow of groundwater and potential contaminants above and below the water table.

28. TFAG's evidence on the shortfalls in both HIAs still stands and may be summarised as follows:

Appeal A

- 28.1. The CSM significantly underestimates the potential for preferential pathways beneath the Site;
- 28.2. Voids are underplayed and there is no meaningful input based on their likely presence across the Site - not all such features will have been identified by the ground investigations so far;
- 28.3. Solution pipes where they have been subject to subsidence of superficial deposits will remain hydraulically active where they contain loose, unconsolidated material such as the sand and gravels above the unstructured chalk at the Site. The superficial deposits are variable and may contain clay-type materials but infill will be unpredictable and highly variable;
- 28.4. The final conceptual site model cross-section²⁶ illustrates how solution pipes can extend below the water table and this is almost certainly the case here;

²⁵ 20.2, pg10-11.

²⁶ 19.2, Fraser Proof, Figure 6.2, pg.54.

- 28.5. Despite this, the HIA does not address the aquifer itself as a receptor, based on the source, pathway, receptor model;
- 28.6. The width of fractures in the underlying chalk is underestimated and based on observations made on cores recovered within the structured chalk from boreholes HF4 and HF5²⁷, located at depths that are not representative of where grouting is likely to take place;
- 28.7. The core logs from HF4 and HF5 show apertures from 5mm up to 70mm. Tables 4.5 and 4.6²⁸ of the HIA record much wider fractures than the scale of <1mm to >10mm even taking into account how fractures may open up on core recovery;
- 28.8. Therefore, the HIA underplays the connectivity between the disturbed ground within the unstructured chalk, the unstructured chalk itself, and the structured chalk; and in fact
- 28.9. Flow is assisted by fractures and solution widened fracture networks, plus a few larger flow routes or conduits, including voids;
- 28.10. No DQRA undertaken for the proposed ground stabilisation works.

29. On groundwater levels and flow:

- 29.1. groundwater level variations and gradients have still not been adequately assessed;
- 29.2. The latest baseline information does not take matters any further, given the limitations identified in Mr Dodds' Rebuttal²⁹;
- 29.3. The evidence on vertical hydraulic gradients in Figure 6.2 of Ms Fraser's proof is incoherent³⁰;
- 29.4. T FAG support the Council's case on levels and flow encapsulated in Mr Dodds' improved CSM, itself collaborated by the ground investigations and the

²⁷ 7.2, HIA, Appendix C, pg.121.

²⁸ 7.2, HIA, pg.30 – 33.

²⁹ 21.7, Para 3.20 – 3.32, pg.14 – 17.

³⁰ 19.2, Fraser Proof, pg.56.

conceptual understanding of karst features in the Chilterns contained in the Journal article referred to by Ms Fraser, *Maurice et al*³¹ whereby rapid flow through unstructured chalk is possible and can be expected³².

30. The real world chemistry data illustrates the deficiencies in the assumptions made by the Appellant. Samples were taken on 6 occasions during 2022 and 2024, and 6 further occasions in 2025 across the HF and MW series of boreholes. E. coli and total coliforms were detected in at least one sample in all 6 monitoring rounds in 2025. E.coli concentrations were highest at HF2 at the upper, western boundary of the Site towards residential properties.
31. In fact, the analysis demonstrates that E.coli and total coliforms were consistently found across the Site in September, October and November 2025³³ at boreholes MW1, MW2, MW3, MW4, MW5, and HF2.
32. The MW boreholes are at a depth of between 13.3m and 19.5m/bgl in the unstructured chalk³⁴ and HF2 is at 25.1 m/bgl³⁵. The Appellant's latest groundwater levels from the manual dip data on the dates shown in Figure 5.1³⁶ are between 19.6m to 21.4m in the west at HF2, and 9.4m and 11m at MW4 in the east³⁷.
33. Whatever the depth the chemistry monitoring samples were taken at, it shows that residential land use at or just below ground level, upgradient of the boreholes on site, is able to influence the chemical constituents of the groundwater. As Ms Fraser pointed out, the superficial deposits feather out further west. With E.coli having a limited life in the natural environment, the chemistry data confirms the very features that the Council and TFAG have been describing. The groundwater is capable of being affected by surface and subsurface contamination and subject to rapid flow through the superficial deposits, fracture flows via the unstructured and structured chalk, with contamination shown to be consistently present in the topographic flow showing the likely recharge (with attenuation further east). The E. coli and total coliform chemistry data acts like a tracer test.

³¹ 7.32, 2020 BGS Karst in the Chilterns.

³² 7.32, Rapid flow of contaminants in the unsaturated zone is shown to be possible in the Chilterns at approximately 25m, Chapter 5, Summary, pg.42.

³³ 7.31, at pgs. 27 - 29, 47 - 50, 74 - 79, 94 - 99, 114 - 119, and 134 - 139.

³⁴ 7.31, pg.157.

³⁵ 7.2, HIA, pg.24

³⁶ 19.2, Fraser Proof, pg. 42.

³⁷ 19.2, Fraser Proof, para 5.5.6, pg.46.

34. The suspected leaking septic tank is a consistent source of contamination that is not framed in geological time but is a present day source transported via rapid flow. It coincides and confirms the hydraulic gradient below the site as contended for by Mr Dodds on behalf of the Council.

Appeal B/C

- 34.1. The DQRA is predicated on the same mischaracterisation of the ground conditions as above. There is a lack of recognition of the potential for the presence of solution features beneath the area where the Western Detention Basin and infiltration blanket is planned³⁸;
- 34.2. The DQRA, while identifying the chalk aquifer as a receptor, the risk assessment itself only considers the PWS, using the chalk aquifer for the purposes of dilution and attenuation of contaminants³⁹;
- 34.3. The location of the western detention basin is above approximately 18-23m/bgl of unstructured chalk. In order to fulfil its design function there must be good permeability in order to allow the infiltration blanket to effectively carry out all the recharge of the aquifer equivalent to the entire site;
- 34.4. That proposition must proceed on the basis of good permeability in the unstructured chalk at that location. There is also the unidentified solution features and associated vulnerability indicated by dynamic probes AO12, AN13, AN14, AO14 and AP14⁴⁰.

Potential adverse effects

35. Therefore, based on the presence of solution pipes that could extend from the base of the superficial deposits, with vertical connections through to the groundwater at the water table, and the unstructured chalk possessing features of both primary and secondary porosity, there may be an increase in turbidity from the grouting operations. Secondary porosity may allow particles to increase turbidity and allow microorganisms to be carried by way of adsorption.

³⁸ 7.3, HIA, Appendix A, Technical Note 30438TN3, pg.24.

³⁹ 20.2 Mrs Parrish Proof, paras 111 – 113, pg.32 – 33.

⁴⁰ 7.3, HIA, Appendix D, Technical Note, 30438TN1, pg.81 and Mrs Parrish Proof, paras 103 – 110, pg.29 – 32.

36. There may also be increased alkalinity and pH. There is no difference in alkalinity between Sulphate Resistant Portland Cement and the 'CEM1 Type' Ordinary Portland Cement referred to in the ES Addendum (paragraph 3.23, Chapter 3AA), which is potentially corrosive.
37. In addition, there is uncertainty arising from the unknown additives that might be used in the grout. And the ingredients have changed yet again in the evidence and in the ES Addendum from February 2026.

The Environment Agency's approach to groundwater protection⁴¹

38. The policies are addressed to developers, planners and anyone whose current or proposed activities have an impact on, or are affected by groundwater. As stated in Opening, they are a material consideration in the Inspector's consideration of the main issues on acceptability of risk to the aquifer from the appeal proposals, both now, and in the medium and long-term.
39. The Agency's general approach and overarching principles are set out in Part A. The development must be appropriate to the sensitivity of the site and the precautionary principle will be adopted to manage and protect groundwater. The same principle will be applied where there is an absence of adequate information with which to conduct an assessment, such as an HRA (A2 – Precautionary Principle). The responsibility is on the developer to assess and mitigate the potential impact (A4 – Responsibility for assessments).
40. As set out in these submissions the Appellant has not provided adequate information so that the risks may be properly assessed. Even on the evidence provided, there is an unacceptable risk of least physical disturbance of the aquifer (N8 - Physical disturbance of aquifers in SPZ1, cf. 'adverse effect' includes physical disturbance within N7 – Hydrogeological risk assessment)). The proposed grouting operations are of a different character to other groundworks such as piling where the exact depth and materials are entirely under control from the surface and there will be no risk of a groundwater discharge activity eventuating. Boreholes and trial digs for site investigations do not require a Permit as they are small scale and they too would not amount to a groundwater discharge activity.

The Environment Agency's position

⁴¹ 7.23.

41. Mrs Parrish's evidence summarises their final representations⁴². They say that the works are only acceptable in their eyes if a SPS is required by condition, providing for the submission and subsequent agreement of further details (now set out in draft condition 3B, following the suggested trial grouting works in condition 3A). However, the basic information as to how the SPS would be accurately informed, on monitoring locations and gradients, is simply an unknown at these Appeals, despite the period of time within which the Appellants have had to prepare a draft SPS for the Inspector's consideration. The only information is the headline information provided by Ms Fraser⁴³.
42. Without the proposed condition the Agency would have maintained its objection to the proposal in line with the NPPF because it could not be guaranteed that the development would not present an unacceptable risk to groundwater resources. That is some distance from a glowing recommendation and it is not a gold standard 'no objection' response.
43. The works may well need an Environmental Permit and that position is still outstanding under Appeal A⁴⁴. The Agency stated that they would "*welcome a joint discussion with the applicant and planning authority to discuss this further*" but that has not taken place. It is almost certainly the case that the Agency have not been informed that the Appellant categorically considers that a Permit will not be required⁴⁵. It is in fact a complete unknown. One thing for certain is that the Agency themselves have not been so categoric.

Drainage Strategy and Flood risk

44. Under Appeal A, there are still uncertainties and concerns over the proposed surface water containment bunds proposed as the temporary surface water drainage strategy⁴⁶.
45. The Site surface water will be subject to some settlement in the containment bunds but the Appellant's evidence is either that the Site will be stripped of its top soil in one go⁴⁷ or it will be sequenced in stages as the stabilisation works move from area to area. Either way the 'silt-buster', now said to be the first line of defence against sediment in site surface water, is mentioned only in passing in the Outline Project Method Statement⁴⁸. It is

⁴² 20.2, section 6.2, pg.34.

⁴³ 19.2, para 7.7.2, Table 7.2, pg.66.

⁴⁴ 4.15.

⁴⁵ 19.2, Fraser Proof, para 7.10.1, pg.67.

⁴⁶ 2.3, FRA&DS, Part 4, Appendix 3, pg.91.

⁴⁷ 2.5, Outline Project Method Statement, pg.6.

⁴⁸ 2.5, As above, pg.11.

essentially a piece of plant or equipment that will have to be moved and is not itself an intrinsic part of the overall strategy. Whilst it is being used in one part of the Site, the rest of the surface will drain without any ‘busting’ of silt and that will flow to the temporary containment bunds.

46. The baseline flood risk of the Site is agreed⁴⁹ but Mr Eccelston remained concerned over the ability of the containment bunds to retain site surface water and the consequences of a 1 in 100yr storm event where climate change had not been allowed for. that might result in an increase in flooding in the future, with implications for the south east corner of the Site and potentially Reading Road at that point. Should the Site be left in its state after the stabilisation works for any lengthy period of time, essentially nature would catch up. There is no set time frame from completion of the stabilisation works for the houses to be built. Without the climate change uplift, the robustness of the design life of the containment bunds is uncertain and adequate resilience should be included now. Also, Figure 1 in Ms Philpott’s Rebuttal takes us only so far on the appropriateness of the bunds and did not show how the retained surface water is to be controlled when leaving the bunds⁵⁰ once it had been captured and at what rate.
47. Those matters should be dealt with now at the appeal stage rather than leave them to be dealt with by way of condition.
48. Having identified the Site as having a Medium hazard level in SuDS Manual terms⁵¹ (an ‘*appropriate selection*’ as opposed to a ‘*conservative*’ one), the mitigation indices must be equal to or exceed the pollution hazard index for Medium sites of 0.7. At the appeal, the bunds and associated features meet a mitigation index of 0.5 for suspended solids and 0.5 for hydrocarbons, as opposed to 0.7. Water quality management remains of concern, therefore.
49. Other aspects regarding settlement, rainfall modelling and capacity are important points raised on behalf of the Council.

⁴⁹ 16.2, Topic Paper, Flood Risk.

⁵⁰ 21.3, Ms Phillpott Rebuttal, pg.6.

⁵¹ 11.4, pg.596.

Appeal C - P24/S2651/DIS – Condition 11

50. In the context of this Site, the condition should be read as requiring a comprehensive design with a level of detail and precision that reflects Site sensitivity such that, for example, the Inspector is able to accept that adoption is a realistic prospect. T FAG continue to have concerns over that question and other matters as evidenced by Mr Eccleston. They may be summarised as follows.

51. Sustainability. The Drainage Strategy reflects the Appellant's main objective to maximise the housing on Site and pumping the surface water drainage, including the highway drainage from the s.278 HA 1980 scheme, to the upper western detention basin is simply an unsustainable approach. The ongoing energy to power pumps, carbon costs and emissions are contrary to the principles of sustainable drainage⁵². The Site is moderately sloping and a gravity lead system is possible. Mr Eccleston stated that 'exceptional circumstances' included where a site is very flat with no gradient, or no infiltration capacity, and that might well indicate the need to 'lift' the drainage up to a higher part of the site. The site gradient is the key that should drive drainage considerations. Instead, the layout has not informed the requirements of the Drainage Strategy, rather the strategy has been forced to fit around the layout. A less intensive form of development would potentially relieve the strain on having to engineer and over-engineer the strategy.

52. Adoption. It is now clear that for the public highway surface water to be carried by the Site surface water drainage system, the Drainage Strategy and the relevant constituent components will have to be adopted by a New Appointments Variation ('NAV') or a statutory undertaker. The Highway Authority made that plain in November 2024⁵³ and the LLFA reiterated that position in February 2025⁵⁴.

53. The s.278 Agreement appears to be in some form of limbo ('*on maintenance*') with no further explanation provided. The works are currently maintained on behalf of the Appellant. It has not yet been concluded even after completion of the works in late 2020.

54. Mr Eccleston has applied the Sewerage Sector Guidance⁵⁵ on behalf of clients and those are the standards to be applied by a NAV and statutory undertakers alike. Taking into account the western detention basin arrangement and the contrived nature of the drainage

⁵² Mr Eccleston Proof, para 31, pg.16.

⁵³ 4.67, Transport Development Control consultation response, pg.4.

⁵⁴ 4.10, pg.2, final paragraph, 21 February 2025.

⁵⁵ 11.3.

scheme, his view was that there is a low probability that the Drainage Strategy would be capable of being adopted⁵⁶. On behalf of the Council, Dr Clothier did not consider that there was a realistic chance of adoption either and that the statutory undertaker or equivalent should have been engaged at the earliest stage as the design is developed, an approach that shines with common sense.

55. This unresolved position on adoption is centrally relevant to Appeal C. Firstly, while certain issues over maintenance might not be insurmountable with a lot of care, for example, working in confined spaces at depth in the western detention basin could be dealt with by specialist contractors - overall, the scheme has too many unresolved details for there to be sufficient confidence that the adoption process will be successful.

56. Secondly, based on the proposed connection with the highway drainage there is no scope for critical aspects of the system to be operated or maintained by a management company or similar.

57. As for Thames Water, their interest in adoption has gone no further than an earlier layout from 2019 when, for example, the rising main was running off-site under a bitumen road, surface water was to be discharged to ground in the north east corner of the Site, an infiltration basin was proposed in the south east corner, with no permeable pavements or surface water pumping station⁵⁷. At that stage, there was no intention of accommodating the highway drainage into the Site system (there was a soakaway proposed).

58. On the current state of play regarding adoption under s.104 WIA 1991, the Appellant's evidence really takes the matter no further and should be afforded little weight. The latest on negotiations between the Appellant and ICOSA Water / Last Mile⁵⁸ is all subject to '*technical approval*', or subject to all SuDS and foul/surface water networks meeting the Sewerage Sector Guidance and heavily caveated at what is on any view a preliminary basis. They do not have full sight of the facts and nothing to suggest that any safe conclusions can be reached on whether the strategy will be capable of adoption. That has not been sufficiently demonstrated so that Condition 11 can be discharged.

59. Western detention basin. TFAG take the same point on freeboard as the Council. The 300mm provided for the design event of 1 in 1000yrs may be overtopped should infiltration rates drop or capacity be exceeded. The SuDS Manual⁵⁹ recommends a 300mm freeboard

⁵⁶ Mr Eccleston's experience is set out at his Appendix A.

⁵⁷ 11.20, pg.3 when previous layout drawings are referred to (also contained in Mr Abley Proof, Appendix C).

⁵⁸ 21.3, Mr Abley's Rebuttal, Appendix A, pg.29.

⁵⁹ 11.4, Section 23.4, pg.519-520.

for larger ponds but where risks are '*particularly high*' a further allowance should be agreed. It also became clear that the 400 – 600mm freeboard suggested in the Sewerage Sector Guidance would be eroded as designed even if a factor of safety of 10 was used for the infiltration calculations as part of the model for the basin. The guidance also states that '*the maximum water level in any basin shall be at least 500 mm below the lowest floor level of any adjacent properties*'.⁶⁰ In the Drainage Strategy before the Inspector the maximum water level at 54.0mAOD is greater than 4m above the floor levels of adjacent units⁶¹ a situation bringing about risks that are particularly high.

60. Surface water flooding on Reading Road. A summary of the relevant flood events and incidents that have occurred over the last 10 years or so is included in Mr Eccleston's Appendix B⁶². The photographs and scenes they depict speak for themselves and having considered the evidence and the Drainage Strategy, Mr Eccleston is unable to say whether the proposed Drainage Strategy would make the situation better or worse. It might have been expected that the s.278 highway scheme would improve the situation but it hasn't. At present it may be that the on-site soakaway currently dealing with surface water is not effective or is in need of maintenance. The gradient of the land is shallow at that point on Reading Road and the highway drainage could be suffering from sediment loading from run-off or transport. Either way, the flooding events seem to have increased since the s.278 works have been completed in late 2020.

61. Other aspects of the Drainage Strategy are raised on behalf of the Council and are important points taken together with the well-understood concerns over implications for the viability of the Appeal B layout.

62. The Council raise further issues, including:

- 62.1. the stability of the embankments for the western drainage basin (in accordance with guidance in Eurocode 7 on Geotechnical Design (EC7)) that should not be left to post-consent discharge of condition 11 and 13;
- 62.2. the inclusion as an impermeable surface in the calculation of run-off and co-efficient values for the Site (thereby indicating that the basin may be undersized);

⁶⁰ 11.3, pg.68, C7.7, item 5.

⁶¹ 2.88, cross-section.

⁶² Pg.B-27.

- 62.3. the potential for overtopping given the freeboard available at the western detention basin as currently designed, whereby even that provided using a factor of safety of 10 would be eroded;
- 62.4. there would be a lack of emergency storage at the foul pumping station, in addition the longitudinal alignment of the rising main off-site under a lined permeable-paved road cannot lead to adoption (viz, lack of space around pipes for maintenance and the statutory undertaker not adopting infiltration features⁶³); and
- 62.5. on the issue of the design of the infiltration blanket, an important comparison was made by the Council between the infiltration rates applied in the design model for the ground beneath the infiltration blanket⁶⁴ and deficiencies in the BRE365 soakaway tests used to assess the suitability of strata for such discharges. The soakaway tests were not undertaken at the correct invert level (i.e. the same depth as anticipated for the full-size soakaway blanket)⁶⁵. The actual invert level is at 47.7 AOD shown on the infiltration blanket cross-section drawing⁶⁶. There should be no place in the future to correct or rationalise the approach to permeability tests in respect of what is a critical part of the drainage infrastructure. That should be capable of being acceptable at this stage before the Inspector⁶⁷.
63. The Drainage Strategy fails in a number of important aspects therefore and it has not been shown to be functionally operational so that condition 11 may be discharged.

Appeal A - Source Protection Strategy (SPS) – Condition 3B

64. Despite the need for a SPS being centrally relevant to the representations of Thames Water and the Agency, no draft strategy had been prepared for consideration and analysis. Method statements as to grouting and groundworks are one thing, but in order to draw a safe conclusion on the main issues it would have been helpful for the Inquiry to have seen a draft of a clear set of rules as to how monitoring is going to take place, identifying what

⁶³ 21.5, pg.27, Dr Clothier Rebuttal, Appendix A.

⁶⁴ Cf. 2.151, FRA&DS, paras 5.31, 6.43 and 6.71 and 7.3, HIA, Appendix D, technical note 3048TN1.

⁶⁵ 7.3, Section 5, pg.87, cf. 11.5, BRE365, para 3.2.

⁶⁶ 2.94.

⁶⁷ The SUDS Manual factor of safety should not be seen in effect as a cure for any defect or incongruity in the infiltration or permeability rates used.

might go wrong, how the possibility of things going wrong might be reduced and what happens when things do go wrong. The best effort is a summary of its proposed contents in Ms Fraser's proof⁶⁸.

65. The Council take the view that it is questionable why the SPS is needed at all based on the Appellant's case. If the Appellant is correct in that it will adhere to a 2m stand-off from the groundwater as now contained in draft Condition 8A (Depth of Grout) then the requirement for a SPS is unnecessary.

Conclusions

66. In summary, the risk to the groundwaters from contamination have not been adequately assessed and it has not been sufficiently demonstrated that the stabilisation works under Appeal A would not pose an unacceptable risk.
67. The HIA baseline is deficient, for example, the steepness of the hydraulic gradient between the Site and the PWS has not been properly assessed and the CSM does not adequately consider fracture flow within the chalk.
68. Grouting might be the best solution for this layout of 84no. houses but there are significant uncertainties that remain over the risk of residual untreated features being present both in between grout injection locations and/or below the level that grout injection is to cease in order to mitigate the risk of contamination.
69. Figure 3.2 of the HIA in relation to Appeal A is the closest we have to a 3D representation of the Site's underlying geology and hydrogeology; it is accompanied by the comment at paragraph 55 that *'The disturbed ground extends below the top of the structured Chalk, this means that grout flowing into voids in the disturbed ground will have a route to the structured Chalk, even if grouting boreholes don't extend this far. Similarly, the disturbed ground extends below the water table in some places, therefore the grout may have a route to intrude below the water table'*. We remain in agreement with that statement.
70. As for Appeals B and C, the Drainage Strategy simply can't be left to *'mild reworking'* as Mr Abley said might be required after all the further meetings etc. with those concerned. The technical approval process under s.104 WIA 1991 is simply an unknown at this point

⁶⁸ 19.2, Fraser Proof, section 7.7, Table 7.2, pg.66-67.

given the distance the strategy has to go. The stakes are too high to allow the journey to continue on that uncertain course.

71. Overall, T FAG appreciates that the economic gain may not be obvious at this stage but by maximising the layout to 84 houses, it is at least conceivable that there has been a missed opportunity for adjustments above and below the surface of the Site that might have allowed for a more cogent and persuasive Drainage Strategy.

72. Therefore, the risk and uncertainty looms over the potable water supply for the area. There is no incontrovertible evidence that the risks are categorically acceptable. The Appellant's entire case has been to state that there is no such risk, a negligible risk or one that is vanishingly small.

73. They suggest that if it is left in their hands everything will be alright on the night. Unfortunately, an *inconvenient truth* has emerged: that the Inspector does not have sufficient information to conclude that the Appellant has satisfied you on the main issues at these Appeals.

74. The Inspector is respectfully requested to dismiss the three appeals.

RICHARD BANWELL
9th April 2026

**Six Pump Court
Temple
LONDON
EC4Y 7AR**