

Permitting decisions- Refusal

We have decided to refuse the variation for Ugley Landfill Site operated by Biffa Landfill Solutions Limited.

The decision was issued on 02/09/2026

The variation application is to add a new deposit for recovery (DfR) activity to the existing permit for a closed non-hazardous landfill. The applicant proposes to re-cap the closed and restored landfill by removing and stockpiling the restoration soils then reprofiling the site with imported waste on top of the existing cap. A new engineered linear low density polyethylene (LLDPE) cap is then to be installed with further imported waste placed on top and the previously removed and stockpiled growth layer to be replaced.

The applicant states that the purpose of this work is to improve environmental management controls relating to the leachate system and associated improvements in gas control. Various revisions to the permit's operating techniques have been submitted for assessment.

The recapping works will involve the importation of approximately 412,000m³ of waste and is anticipated to take approximately three years to complete.

As part of the project a 2.4MW solar array will be installed. The recapping scheme and the associated solar farm were granted planning permission (ESS/66/22/UTT) on 31/05/2023.

We consider that in reaching that decision we have taken into account all relevant considerations and legal requirements.

Purpose of this document

This decision document provides a record of the decision making process. It:

- highlights [key issues](#) in the determination
- gives reasons for refusal
- summarises the decision making process in the [decision considerations](#) section to show how the main relevant factors have been taken into account.

Unless the decision document specifies otherwise, we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the refusal notice.

Key issues of the decision

We consider that the documents submitted in support of the application, that are required to be assessed by the Environment Agency in order to be included as operating techniques in the permit, are deficient in technical detail. If approved in their current form, these operating techniques are likely to result in pollution by leachate and landfill gas.

The applicant has failed to demonstrate that the proposal is a recovery activity. A Waste Recovery Plan (WRP) was assessed by the Environment Agency as a pre-application recovery versus disposal (RvD) assessment on 13/03/2023 and we provided advice at the time, subject to the information to be included in the application, that the proposed scheme was a recovery activity. However, through technical assessment of the application (in particular, the aspects relating to leachate), we have established that the proposed benefit of the scheme is not justified by the works that are proposed to be carried out. Therefore, we have made the decision that the proposed scheme is not a recovery activity and is a disposal activity. Therefore, a DfR activity cannot be included in the permit for the proposed scheme.

Summary of our decision

The Environment Agency has decided to refuse the application for a permit variation (Ref: EPR/PP3735SW/V009) from the applicant.

The permit application (“the application”) is refused on the basis that the applicant has not demonstrated that:

- the likelihood of pollution has been mitigated as the operator has provided inadequate, incomplete and insufficiently supported information required for the Environment Agency to complete a full technical assessment; and
- the proposed work would be a waste recovery activity and therefore, it is a disposal activity.

The address is Ugley Landfill Site, Cambridge Road, Ugley, Essex CM22 6HT.

Description of the facility

Overview of the site

The site plan¹ provided by the applicant illustrates the area and extent of the proposed site. Ugley Landfill Site is a former sand and gravel quarry which has been restored through landfilling of household, commercial and industrial waste. The landfill is a closed non-hazardous landfill. The site is located in the county of Essex and district of Uttlesford, approximately 1.7km north of Stanstead Mountfitchet, and is accessed directly from the B1383 situated to the west of the main restored landform. The approximate centre of the site is at grid reference TL 51864 27781 and the site extends to approximately 14.5 Ha. The village of Ugley Green lies approximately 600m to the south-east. A public footpath (PRoW 11) runs parallel to the southern boundary of the site.

The site is within a Source Protection Zone 3 (SPZ3) which is considered a sensitive groundwater setting. There are surface water receptors (ponds) 170 and 380 metres west, 240 metres east and 440 metres northeast of the site.

There are residential properties situated to the west of the site boundary, the closest being around 50 metres west of the site and a further residential property is located approximately 120 metres to the south-east of the site. The surrounding land is predominantly agricultural farmland, which is characterised by mature trees and hedgerow boundaries defining the field pattern. Stanstead Airport is situated approximately 4km to the south-east of the site.

Site history

Waste acceptance for disposal ceased at Ugley Landfill Site in 2011. Restoration was fully completed by the end of 2013. However, some additional restoration soils were placed across the site during 2015 – 2016 to address differential settlement.

The permit was varied (application references EPR/PP3735SW/V006 and EPR/PP3735SW/V007) on 21/12/2018 to increase leachate levels, remove carbon dioxide compliance limits, revise and remove methane compliance limits, relocate a surface water monitoring point and replace one of the groundwater monitoring parameters.

The permit was varied (application reference EPR/PP3735SW/V008) on 25/03/2021 which placed the landfill into definitive closure and aftercare.

The permit was transferred (application reference EPR/PP3735SW/T010) from Biffa Waste Services Limited to Biffa Landfill Solutions Limited on 13/01/2026. This permit transfer took place during the determination of the permit variation application (application reference EPR/PP3735SW/V009). Biffa confirmed that the determination of the application should continue with the applicant as Biffa Landfill Solutions Limited.

¹ Appendix 1: Proposed site plan

The proposed scheme and reasoning

The proposed scheme includes the addition of a deposit for recovery activity to the non-hazardous landfill permit to address differential settlement. This is uneven settlement of the landfill cap resulting in surface water from precipitation pooling on top of the landfill. The applicant explains that differential settlement has reduced the integrity of the landfill cap resulting in increasing infiltration of surface water into the waste mass of the landfill and increased leachate generation.

The current landfill capping system consists of a 0.3m regulating layer above the waste mass, a Geosynthetic Clay Liner (GCL) overlain 1m of restoration soils placed on top of the cap with an additional 1m of restoration soils as a growing layer.

The proposed works consist of removing the restoration soils that exist on the landfill cap down to the current GCL cap and reprofiling the site using imported restoration materials under the recovery scheme². The current GCL will remain in place, and the landfill waste mass will not be exposed during the works. The proposed landform will not exceed the current approved restoration levels of maximum height 107.5 metres above ordnance datum (mAOD). The original contours are shown on drawing U3233500¹⁰.

The waste to be placed as part of the proposed scheme will consist of additional material above the existing landfill cap as shown in cross section drawings on U3234400¹¹. Comparison of the proposed and existing (as shown on drawing U3233600¹²) topographic levels indicates that the thickness of the deposited material would vary across the site and would reach up to approximately 8m in some locations.

The reprofiling of the site will consist of the layers, including a new LLDPE (Linear Low-Density Polyethylene) capping system as shown in the supporting statement.³

The landfill site containment engineering comprises of 14 cells, with the specifications set out on drawings U3230501¹³ and U3230601¹⁴. The containment engineering is summarised in the table shown in appendix 4⁴.

An intercell bund is present between the boundary of each engineered cell and the composite liner system has been extended over the intercell bunds and the

² Appendix 2: Cross section drawing B - B

¹⁰ Proposed vs Pre-settlement Contours, ref: U3233500

¹¹ Cross Sections C, D and E, ref: U3234400

¹² Proposed vs Existing Contours, ref: U3233600

³ Appendix 3: Schematic of the proposed new cell structure

¹³ Engineering cross sections, ref: U3230501

¹⁴ Engineering cross sections, ref: U3230601

⁴ Appendix 4: Landfill containment engineering for each cell

perimeter side slopes. The depth of each cell is presented in the table shown in appendix 5⁵.

The engineering features were considered during the assessment of the potential effects of the proposed additional loading and construction activities.

The applicant's case is that the reprofiling and recapping works will reduce infiltration through the landfill cap and thereby reduce leachate generation over the lifetime of the site. The determination therefore considered:

- whether the claimed environmental benefit had been adequately demonstrated; and
- whether the scale of the proposed works was necessary to achieve that benefit; and
- whether the works could be undertaken without creating an unacceptable risk of pollution.

The conclusions from the determination were that each of these points were not substantiated and justified.

Recovery versus disposal assessment

It is a requirement of all permit applications involving the deposit of waste for recovery that applicants must submit a Waste Recovery Plan (WRP) with their application or at the pre-application stage. The Environment Agency can only issue a DfR permit if we agree that the WRP demonstrates that the applicant's proposals will meet the definition of recovery as set out in the Waste Framework Directive 2008 and explained in relevant Regulatory Guidance:

<https://www.gov.uk/government/publications/deposit-for-recovery-operators-environmental-permits/waste-recovery-plans-and-deposit-for-recovery-permits>

Reasoning for recovery advice provided at pre-application

The stated function of the proposed scheme is to improve the performance of the landfill by reducing the volume of surface water infiltration into the waste mass, which will reduce leachate levels over the lifetime of the permit. The site has historically had high leachate levels which has been attributed to the poor performance of the existing GCL cap. The proposal is to add an additional cover layer of waste material over the existing cap, then lay down a new LLDPE cap

⁵ Appendix 5: Depth of cells table

and then additional restoration soils. The additional material will not exceed the pre-settlement contours as defined through planning at the site.

The volume of material is around 412,000m³ and will include cover for the existing GCL cap and cover material for the LLDPE cap, with associated restoration material to achieve the final levels.

The applicant has stated that the work would proceed with non-waste as the lifetime costs of managing leachate levels at the site are significant at >£13,000,000 over a fifty year period. Following a request for information the applicant provided information on the financial viability of the scheme over a number of infiltration scenarios from 10mm/year to 50mm/year. The scheme would not be financially viable at 50mm/year but the breakeven point is ~35mm - 34mm/year.

We considered whether this level of reduction in leachate production was achievable and were satisfied in principle that this reduction could be achieved. We provided advice to the applicant that we agreed that the proposed scheme was recovery. This advice was based on the information provided for the pre-application RvD assessment and does not guarantee that a permit will be granted or a variation issued. Our decision as to whether an activity is recovery or disposal and subsequently, to grant a permit or issue a variation, will always be made following completion of the determination and consideration of the relevant information available.

Reasons we do not agree during determination that the claimed benefit will be achieved by the proposed scheme (why we do not agree this is recovery) and what has changed during determination since our pre-application advice of recovery was provided

1. Part of the applicant's justification for the scheme is that infiltration through the landfill cap has increased, resulting in increased leachate levels. The information supplied in the application failed to support those assumptions because it includes evidence that surface water is pooling on the top of the landfill rather than infiltrating into the waste mass and recent evidence of the rate of leachate removal has not been provided. Therefore, it is not possible to substantiate the cause of the increased leachate levels.

The information provided in the application does not support that the scheme is required to reduce leachate levels and that the scheme will deliver the stated benefit. Cap failure has not been substantiated and the application includes insufficient information on the rate and volume of leachate extraction and removal. The applicant's case for recovery is insufficiently supported.

This is discussed in detail in the section 'Environmental issues: likelihood of pollution'.

2. An activity cannot be recovery if it poses an unacceptable risk of pollution. The application fails to demonstrate that the scheme is fit for purpose and that pollution is not likely to occur due to:
 - the risk to the environment from leachate in response to surcharging the waste mass in the landfill as no quantitative assessment of waste surcharge is provided; and
 - failure to demonstrate how works will be undertaken in a phased manner with leachate and gas systems /management being interrupted as the proposed works proceed and the resulting impact from temporary cessation of these systems is mitigated.

This is discussed in detail in the section 'Environmental issues: likelihood of pollution'.

Following our review of information provided as part of the permit application, we are no longer satisfied that recovery has been demonstrated. The pre-application advice previously provided was not a decision but merely advice based on the information we received at the time of the pre-application assessment.

The legal framework

1 – Legal definitions of Waste ‘Recovery and ‘Disposal’

In assessing proposals to permanently deposit waste on land we apply the legal definitions of waste ‘recovery’ and waste ‘disposal’ as set out in the Waste Framework Directive (2008/98/EC) (“the Directive”). We are assisted in doing so by online guidance we have developed – ‘Waste Recovery Plans and Permits’, available at:

gov.uk/government/publications/deposit-for-recovery-operators-environmental-permits/waste-recovery-plans-and-deposit-for-recovery-permits.

Article 3(15) of the Directive defines ‘recovery’ as meaning:

“any operation the principal result of which is waste serving a useful purpose by replacing other material which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II sets out a non-exhaustive list of recovery operations”

Article 3 (19) of the Directive defines ‘disposal’ as:

“any operation that is not recovery even where the operation has a secondary consequence the reclamation of substances or energy. Annex 1 sets out a non-exhaustive list of disposal operations”

Annex I of the Directive includes, for example:

“D1 Deposit into or on to land (e.g. landfill etc.)”.

Annex II includes, for example:

“R5 Recycling/reclamation of other inorganic materials”

which includes recycling of inorganic construction materials and

“R10 Land treatment resulting in benefit to agriculture or ecological improvement”.

The proposal for the site could potentially fall within D1, R5 or R10. That being the case, we are required to categorise the activity into one of the Annex I or II operations and to examine the principal objective of the operation and whether it meets the recovery definition.

For that definition to be met, an operator must demonstrate that waste is being used in substitution for non-waste, i.e. that its proposed activity would go ahead with non-waste if waste could not be used. The operator has not provided

sufficient evidence to demonstrate that this would be the case, as described in the Key Issues section of this decision document.

Article 6 (1) of the Directive also states:

“(d) use of substance will not lead to adverse environmental or human health harm.”

For the definition of recovery to be met, the waste deposit must not cause pollution.

2 – Refusal on grounds of likelihood of pollution

The Environmental Permitting (England and Wales) Regulations 2016, Regulation 13 states:

Grant of an environmental permit

Regulation 13.

(1) On the application of an operator, the regulator may grant the operator a permit (an “environmental permit”) authorising—

(a) the operation of a regulated facility, and

(b) that operator as the person authorised to operate that regulated facility.

(2) Regulation 17 applies in relation to the grant of a single permit authorising the operation of more than one regulated facility by the same operator.

(3) Part 1 of Schedule 5 applies in relation to an application for the grant of an environmental permit.

Under Regulation 13 the Agency has a discretionary power when determining an application for a permit, to grant a permit to an Applicant.

When exercising that discretion, the Agency must have regard to all the circumstances relevant to the grant. This may include circumstances concerning the current state of the site. The Agency’s duty is to determine the application by granting or refusing the application.

3 - The Water Framework Directive (WFD)

For the purpose of the duties in regulation 3 of the WFD Regulations, the regulator must, in exercising its relevant functions, take all necessary measures—

(a) to prevent the input of any hazardous substance to groundwater, and

(b) to limit the input of non-hazardous pollutants to groundwater so as to ensure that such inputs do not cause pollution of groundwater

4 - The Landfill Directive

To ensure that the activities continue to meet the requirements of the landfill directive.

Environmental issues: likelihood of pollution

Information requested during validation (subsequent to submission of application)

A meeting was held with the applicant at the validation stage of the variation application on 10/07/2024 and a follow up email was sent to the applicant on 11/07/2024⁸. This email summarised the main points from the meeting and identified incomplete information from the variation application which would need to be submitted before we would be able to complete a full determination assessment of the application. The purpose of this validation work was to provide an opportunity for the applicant to provide the outstanding information while the application was waiting on our queue to be allocated. We requested updated management plans and risk assessments for the proposed scheme. We have no record of this information being submitted to us, either prior to, or subsequent to the application being allocated to a permitting officer for determination. Our initial technical assessment at determination highlighted that this information had not been provided.

Information for technical assessment

A second formal request for the same information previously requested was sent to the applicant on 06/02/2026, once the application was duly made⁹. A response was received on 06/03/2026, although it remained technically inadequate because it failed to demonstrate how the scheme will proceed or be managed, such that any disruption to leachate and gas environmental control systems is managed and minimised.

The permit variation application is inadequate and insufficiently supported:

Groundwater monitoring borehole logs – the logs provided in the application have a naming convention inconsistent with the naming convention used on the site monitoring plan. This prevents us being able to establish the geology encountered in each of the site's groundwater monitoring boreholes, and the groundwater system(s) the individual boreholes monitor. Consequently, we cannot reliably determine which groundwater units are being monitored and a clear understanding of this data is critical for reliable assessment of the current baseline groundwater conditions and of the impact the proposal may have on these.

⁸ Appendix 8 – Application validation meeting feedback relating to information missing from the application dated 11/07/2024

⁹ Appendix 8: Pre-application meeting feedback relating to information missing from the application dated 11/07/2024

Waste types/ characterisation - The proposed waste types⁶ consist of those within the waste recovery guidance with suitable limitations where appropriate and generic waste acceptance procedures have been provided. However, it is not clear from these generic procedures whether landfill inert Waste Acceptance Criteria (WAC) (as set out in Council Decision Annex 2003/33/EC) or a site-specific WAC is proposed for the recovery soils. The waste acceptance procedures provided with the application are the applicant's generic BIFFA waste acceptance procedures for inert soils and therefore, the WAC has not been clearly defined specific to this site.

Leachate levels – The site has a history of compliance issues related to leachate levels. The application states that the leachate levels are very reactive to rainfall events and that the GCL cap is not working as designed. Therefore, the applicant has proposed to reprofile and deposit additional waste as a recovery activity on the pre-existing landfill cap to reduce infiltration into the landfill.

The application is insufficiently supported to substantiate these statements. Importantly, the application does not include a comparison assessment between daily or monthly:

- precipitation events;
- leachate removal rates; and
- leachate levels unaffected by leachate extraction.

The application is inadequate because it does not include data for leachate levels and this prevents us from being able to validate the accuracy of the graphical plots of leachate levels presented within the application and interpreting the data.

The application is inadequate because it does not include an assessment to show the impact on leachate levels from the compression of the additional waste (up to 8 metres of additional depth) on the landfill waste mass (waste surcharging). Published information and research is available to show that an average increase of 1 m in leachate level can occur as a result of the placement of a 2 m lift of material on a capped landfill (A geotechnical and hydrogeological assessment of the effects of the post-closure surcharge of Mountsorrel Landfill (UK), C. Dussek, N. Walker, J. Molyneux – in Proceedings Volume IV Sardinia 99, - Environmental impact, aftercare and remediation of landfills, Seventh International Waste Management and Landfill Symposium – T.H.Christensen, R.Cossu, R.Stegmann; CISA) (Sardina 99 paper).

The compression of the waste has the potential to increase leachate levels further, which will not achieve the aim of the scheme. The proposed deposit of 8

⁶ Appendix 6: Waste table

metres of waste in some areas of the landfill could result in up to an additional 4 metres increase in leachate levels.

Hydrogeological risk assessment - The applicant has made no assessment of the risks from the proposal on the superficial geological deposits. The confined sand and gravel bands within the clay have not been considered within the HRA. Therefore, we are not satisfied that the applicant has assessed all groundwater systems the proposal has the potential to affect.

The stated infiltration value of 9.8mm/year is lower in relation to what we would expect a landfill capping system to achieve. We identify from our assessment of the data that this infiltration value does not account for the potential deterioration of the proposed LLDPE cap or changes in rainfall patterns, such as wetter winter months. This value has not been validated in the application or a sensitivity analysis using a range of long-term values provided.

The application is inadequate because leachate quality data is not included. Therefore, we are unable to determine how leachate quality at the site varies within each cell, and if the statistics are appropriate.

Stability risk assessment – This risk assessment is insufficiently supported because it does not include an assessment of the additional loading on the landfill including impact on leachate and gas infrastructure, side-wall engineering, leachate levels and the integrity of the existing GCL capping.

The insufficient supporting evidence is explained in further detail in the section 'Geoscience technical assessment' below.

At this point in the determination, we decided to request no further information from the applicant for the following reasons:

- during our consideration of the geoscience technical assessment, it became clear to us that the proposed scheme was not a recovery activity; and
- the information submitted during determination does not demonstrate that the activity can be undertaken without unacceptable pollution risk; and
- the missing information has been requested on two previous occasions⁸.

⁸ Appendix 8: Application validation meeting feedback relating to information missing from the application dated 11/07/2024

Geoscience technical assessment

Leachate levels, management and associated risk to groundwater

Monitoring and Infrastructure

The applicant infers that increased infiltration through the landfill cap is occurring, to justify the proposal for the reprofiling works and to deposit up to 8 m thickness of waste on the pre-existing landfill cap. To validate the assessments and conclusions would require assessment using robust site-specific leachate level data obtained from suitable monitoring points using appropriate methods.

‘Table S3.1 – Leachate level limits and monitoring requirements’ of the extant permit requires leachate level monitoring using the methods presented in GOV.UK technical guidance [‘Monitoring of landfill leachate, groundwater and surface water: LFTGN 02 - GOV.UK’](#) (LFTGN02) at:

- 14 extraction (pumped) wells (1 per landfill cell); and
- 24 remote monitoring points (2 per landfill cell).

The number of leachate monitoring wells (pumped vs. un-pumped) satisfies the number of leachate level monitoring points which LFTGN02 indicates the site requires. However, LFTGN02 requires that routine leachate level measurements from monitoring points should record the rest leachate levels in wells which themselves are subject to leachate extraction (‘pumped-wells’).

Although leachate level data is presented in graphical format for a 7-year time range between January 2017 to May 2023 (a time range we can, for this application, consider suitable to show ‘long-term’ leachate data trends), the data presented is only for pumped-wells, data which LFTGN02 says can be misleading. GOV.UK technical guidance [‘Monitoring of landfill leachate, groundwater and surface water: LFTGN 02 - GOV.UK’](#) states: ‘Routine groundwater or leachate level measurements from monitoring points should record the rest water level. If pumping is being carried out from either the monitoring point to be measured or an adjacent monitoring point, this could produce misleading level measurements.’

Although the site includes remote leachate monitoring wells from which no leachate extraction takes place (‘un-pumped wells’), and the extant permit requires leachate level compliance monitoring of them, no graphical data is presented in the application for these or has been used in the assessments. There is also only extremely limited leachate level data for the remote leachate monitoring points provided in the application. This is limited to one leachate reading per monitoring point for the monitoring points in the ‘Leachate Management and Action Plan, Rev 3’ (LMAP). This data is of limited use as it does not allow ‘long term’ trends to be compared with long-term leachate level data presented by the applicant for the site’s pumped-wells. However, the one

data point provided shows the levels in the remote points differ from the pumped wells in the majority of landfill cells, indicating that the leachate levels presented may be misleading. We conclude from this that leachate levels recorded using manual dip method have not been obtained under the following conditions:

- when leachate extraction pumps are switched off; or
- after sufficient time has elapsed since leachate extraction pumps have been switched off to allow leachate levels in the monitoring point to have stabilised at rest levels.

We conclude from the observation summarised above, and our guidance LFTGN02, that the leachate levels recorded from the pumped wells do not show reliable rest leachate levels because only pumped leachate level data is provided. As explained in LFTGN02, there is a possibility that the leachate level data measurements may be misleading, especially within the context of other key data absences such as the rates and volumes of daily and monthly leachate extraction data.

Inadequate data and assessment has been provided in the application to show how pumped leachate levels correlate to un-pumped leachate rest levels. We would expect the application to include data obtained from the site's un-pumped wells for an equivalent timeframe to the data presented from the wells that are subject to leachate extraction. No reason is included in the application to justify the leachate level monitoring data provided.

This means we are unable to assess the 'long-term' leachate level data trends for the un-pumped wells and we cannot perform interpretive or comparison assessments on how the long-term leachate level trends in remote un-pumped wells vs pumped wells differ or compare across each of the site landfill cells over time. The comparison assessments referred to here are typical assessments necessary for us to understand the changes to the site's leachate levels that may result from the proposed scheme. In addition, these assessments are required to understand the potential risks from these changes to the sensitive groundwater environments beyond the landfill's waste containment infrastructure.

Without this assessment we cannot be satisfied that changes to leachate levels resulting from the scheme will not result in pollution to groundwater. We are unable to grant a variation to the permit on this basis.

Leachate Level Data

The applicant has provided inadequate leachate level data because it has not been provided in a raw and auditable format (such as Microsoft Excel). This prevents us validating the accuracy of the graphical plots of leachate levels provided within the application, and their interpretation.

Notwithstanding the concerns we have with the validity of the applicant's leachate level data, the leachate levels presented in the graphical data plots suggest a sudden significant leachate level increase in all cells at the start of 2020⁷. The reasons for this sudden increase are not adequately explored or explained in the application.

Although part of the justification for the proposal is that infiltration through the landfill cap has increased, we consider it unlikely that a single event occurred to cause this increase in leachate levels⁷ at the start of 2020. The applicant has not provided any evidence of such an event occurring or provided a suitable explanation for the sudden leachate level increase.

The data provided in the application shows that leachate levels have exceeded the permitted limits since March 2020. For this data to be valid, the following would need to have occurred:

- a catastrophic failure of the landfill cap combined with a massive rainfall/precipitation event; or
- a significant, or sudden, reduction in leachate extraction and removal from the site; or
- a combination of the two events above.

The applicant has failed to substantiate either one or more of these events occurring at the time of, or immediately prior to, the increase in leachate levels. In addition, the application fails to demonstrate that these events have a reasonable likelihood of occurring. The application does not include the daily and monthly:

- leachate extraction rates and volumes⁷; and
- rainfall occurring during the time range presented on the leachate level graph (Graph 1)⁷.

Changes to leachate levels can result from changes to the rate at which extracted leachate is removed from the landfill for disposal. This is usually carried out by removing from site using a tanker. Therefore, the rate at which leachate can be removed from the site is, in part, governed by the tanker capacity available to an operator. The application does not include data to show the rate and volume of leachate removed from the site (over the same time range as the

⁷ Appendix 7: Graph 1: leachate sump levels at leachate extraction wells

leachate level data supplied) to demonstrate that this is not the cause of the increase in leachate levels. This means we cannot fully assess and determine the cause(s) of the changes to the leachate levels.

Based on the information available to us we believe the most likely cause of the raised leachate levels from 2020 onwards is a reduction in leachate removal from the site.

In addition, our view is supported by there being:

- No sudden catastrophic failure of the landfill cap being reported to have occurred at the site - the applicant's explanations show a gradual deterioration in the landfill cap integrity in consequence of differential settlement of the waste;
- The presence of surface water pooling on the landfill cap indicating that the existing GCL landfill cap maintains a low permeability sufficient to create a barrier to infiltration through the landfill in those areas; and
- The sudden increase in the leachate levels in the landfill cells shown by the data to have occurred between January and March 2020 coinciding with the start date of the COVID-19 pandemic restrictions in the United Kingdom. We are aware that during this time period the waste industry had some capacity issues resulting in a reduced ability to remove leachate away from landfill sites.

Where there is a reduction in leachate extraction/removal from a landfill which leads to increased leachate levels above those permitted, a volume of 'legacy' leachate is created that requires removal. This is a leachate volume in addition to the leachate needed to be removed to keep pace with the sites' predicted daily, monthly and annual leachate generation. The applicant's data shows that a legacy leachate volume has been created due to reduced leachate extraction from the site. We would expect the applicant to provide data to show not only the rate of leachate removal to keep pace with its ongoing production but also clear evidence to demonstrate the removal of legacy leachate.

The most likely cause of the raised leachate levels from 2020 onwards is a reduction in leachate extraction and removal from the site. The application failed to show adequate leachate removal of both legacy leachate and ongoing leachate production. Therefore, the applicant has failed to demonstrate that leachate levels will not result in pollution to groundwater and we are unable to grant a variation to the permit on this basis.

Water ingress and the need for remedial works

Water ingress and seepage into the landfill have previously been observed on site by the Environment Agency. A water control system was installed and comprised a sub-liner toe drain and side-riser pumping main as a result of a slump on the sidewall in Cell 1, which is located next to the old Essex County Council Site. The applicant's Hydrogeological Risk Assessment (HRA) states that 'the cause of the slump was identified as surface water penetrating the liner between the clay and geomembrane, not groundwater.'

'A similar but completely independent system was installed from the eastern side slope of the site following the intersection of water emanating from Cell 6. The origin of the water has been confirmed to be from the farmer's surface water land drains, which was captured and diverted below various cells (following discussions and agreement with the Environment Agency at the time) to ultimately be piped beneath Cell 14 and extended to the western side slope to ground level.'

The Geological Conceptual Site Model (CSM) shows the site is constructed in superficial geology comprised of glacial clay which contains bands of sand and gravels that can provide a pathway for groundwater migration through the sides of the side-slope engineering. Geological borehole logs have been provided for the groundwater monitoring boreholes; however, these show that the boreholes monitor groundwater within the chalk geology layers rather than the superficial geology horizons. The borehole data therefore, does not allow the determination of groundwater presence and flow within the sand and gravel bands in the superficial geology in which the site is constructed.

The applicant has concluded that there is no leachate created from groundwater ingress on the basis that the groundwater levels are recorded consistently below the base of the site, and that there is a correlation between the way in which groundwater levels and leachate levels respond to rainfall events. We agree that this is the case for the confined chalk horizon monitored in the site's groundwater monitoring boreholes. However, the absence of any monitoring boreholes solely in the superficial deposits means that the presence of water and levels in this horizon cannot be assessed, and its potential influence on leachate in the site determined. The absence of comparison assessments of daily and monthly leachate level to daily and monthly precipitation and leachate removal volumes/rates in the application means we are not able to validate the applicant's conclusion regarding correlations between leachate level and groundwater level.

The leachate quality graphs included in the application show no evidence of significant leachate dilution in any areas of the site, which indicates that there is no surface water or groundwater entering any part of the site. However, these graphs are insufficiently supported by the raw and auditable data from which have been produced, which prevents us from assessing leachate quality for each cell in detail. Therefore, we are unable to validate:

- the applicants' justification that the proposal is needed to remediate the increased infiltration of precipitation into the waste mass of the landfill resulting from the reduced landfill cap integrity, and
- the applicant's conclusion that no significant dilution is occurring in any areas throughout the site due to surface water or groundwater ingress.

Water balance and leachate extraction

The leachate compliance limits have been increased over the life of the permit and are currently set at 5 metres above the base of the cell in remote leachate level monitoring wells, and 6 metres above the base in the sumps of the leachate extraction wells. Therefore, there are no longer any hydraulically separate cells, as leachate can overtop the 2-metre high intercell bunds.

The water balance presented in the LMAP estimates the amount of 'legacy' leachate the applicant concludes requires extraction from the site as well as the volume and rate of infiltration generated leachate that needs removing from the site. The volumes calculated are as follows:

- The total legacy leachate volume is 45,684 m³, based on the average leachate level reported in the leachate level data from 2023. This total includes leachate level data which was not compliant with the leachate level compliance limits of the extant permit.
- Infiltration generated leachate was set at 5% of total rainfall, which equates to 4,699 m³/year.

The response to our request for further information, submitted on 06/03/2026, included a document 'Ugley infiltration calculations 2023-02-17 Issued' which states:

"the current volume of leachate required to be removed to reduce leachate levels exceeds the 4699 m³/year calculated, however is less than the no capping scenario (equates to 45,995 m³/year predicted leachate for no capping scenario). This has resulted in a 'corrected infiltration flux' being added to the Ugley water mass calculations based on an additional flux through the GCL cap which equates to ~16,700 m³/year and would require 12-13 tankers per week to maintain stability."

The applicant has failed to demonstrate if this equates to the number of tankers used. Without knowing how many tankers are currently used, or how many have been used in the time period for which the applicant has provided leachate data, we cannot assess whether this number of tankers removes sufficient quantities of leachate to maintain leachate levels at or below the required compliance limits.

Insufficient justification and evidence has been provided by the operator to show how their extra flux value was calculated, only saying it reflects the actual site

conditions and site-specific reactions through the cap. Data on actual daily and monthly leachate extraction rates and volumes for the time range used (leachate sump levels – 2017 to 2023), together with detail technical interpretive assessment of that data would be required to explain, and substantiate the following:

- the relationship between their extra flux value and the increase in leachate levels in the site, and
- the potential origins of their additional flux.

The applicant has set the long-term infiltration rate following the placement of the proposed LLDPE cap and additional restoration soils at 5% of effective rainfall, which equates to 1417 m³/year (9.8 mm/year). The total legacy leachate that requires removal in addition to this has been calculated by the operator at 45,684 m³ based on the leachate levels reported in 2023 above the compliance limits.

Waste surcharging

The applicant has provided no assessment to show the potential impact on leachate levels in the site from loading of the proposed waste onto the current landfill (waste surcharging). We conclude that the effects of compression of the pre-existing landfill waste mass by the addition of up to 8 m of waste on top has the potential to:

- significantly increase pre-existing leachate levels should leachate extraction from the site remain at its current rate; and
- make leachate compliance in these areas of the site more challenging due to compression of the waste mass (reducing waste porosity and forcing leachate heads higher).

Published information and research is available to show that it is possible that an average increase of 1 m in leachate level can occur as a result of the placement of a 2 m lift of material on a capped landfill (A geotechnical and hydrogeological assessment of the effects of the post-closure surcharge of Mountsorrel Landfill (UK), C. Dussek, N. Walker, J. Molyneux – in Proceedings Volume IV Sardinia 99, - Environmental impact, aftercare and remediation of landfills, Seventh International Waste Management and Landfill Symposium – T.H.Christensen, R.Cossu, R.Stegmann; CISA) (Sardina 99 paper).

The potential surcharge from up to 8 m of additional waste could result in up to an additional 4 m increase in leachate levels. We conclude this additional increase is significant and is one the applicant has not adequately risk assessed to demonstrate that the leachate management infrastructure is sufficient.

To maintain the environmental risk at an acceptable level in relation to the design of the site would require a higher volume of leachate being managed and

removed than is currently happening. To determine the volume of additional leachate extraction which is required to maintain leachate levels at the pre-waste surcharge levels, would need robust and reliable leachate level data. We are not satisfied that the applicant has provided and used robust leachate level data in the application.

The site infrastructure includes remote leachate monitoring points and the extant permit requires these to be monitored for leachate levels. However, the applicant has not provided or used data from the remote leachate level monitoring points within the assessments supporting the application. This has the following impacts on the application:

- the rest level leachate level within the site cannot be assessed; and
- the volume of legacy leachate in the site may exceed the volumes that the applicant has predicted in the water balance, which is based on the extraction well level data; and
- the risk from increased leachate levels resulting from the waste surcharging to groundwater environments immediately outside of the landfill containment engineering cannot be reliably or robustly assessed.

Hydrogeological risk assessment (HRA)

The HRA states the following:

“although the superficial deposits are lithologically distinct from the underlying Chalk Formation, the unsaturated layer of these deposits is in hydraulic continuity with the unsaturated chalk and it is assumed that they will behave as a single hydrogeological unit.”

However, the applicant has made no assessment of the risks from the proposal to the superficial geological deposits.

The confined sand and gravel bands within the clay have not been considered in an assessment and therefore, we are not satisfied that all groundwater systems the proposal has the potential to affect have been assessed adequately to prevent harm or at all.

The ‘Hydrogeological Risk Assessment (HRA) report (August 2023, version 2)’ incorrectly states in sections 1.4 and 5.1 that the site is not located within a Source Protection Zone (SPZ). We confirm that the site is located in an SPZ3 which GOV.UK explains is a [sensitive groundwater setting](#).

An updated LandSim model has been provided using the long-term infiltration rate from the proposed new capping and restoration system at 9.8 mm/year. The model parameterisation has largely been kept the same as the previous model

presented in 2017 and we agree that it remains appropriate. The following changes were made from the model provided in 2017:

- updated leachate source term based on the current leachate quality data; and
- updated infiltration rate at 9.8 mm/year based on the long-term infiltration rate; and
- thickness of the unsaturated zone amended based on current groundwater level information; and
- leachate head set at 6 m in line with the current compliance levels.

We conclude that the infiltration value of 9.8mm/year is relatively low compared to what we would expect a landfill capping system to achieve and we identify from our assessment of the application data that this infiltration value does not account for the potential deterioration of the proposed LLDPE cap or changes in rainfall patterns, such as wetter winter months. Inadequate justification has been provided in the application to validate this value and a sensitivity analysis which uses a range of long-term values is not included.

The HRA is inadequate as it does not include a risk assessment from the loading of soils and surcharging (waste surcharging) on the leachate levels. Additionally, no failure scenario or sensitivity analysis has been modelled to address the potential risk from the reported pre-existing high leachate levels in the site above the compliance limit, or from the potential increase in these leachate levels in consequence of the waste surcharging of the pre-existing waste mass.

The applicant's assessment of the leachate quality is averaged across the whole site and based on the large range of data presented which is very varied. Both the minimum and maximum values for ammoniacal nitrogen modelled are outliers for most of the dataset and should not be included in the average calculation. In addition, graphical data for leachate quality has been provided rather than raw data. We would require the raw data in order to determine:

- how leachate quality at the site varies within each cell; and
- if the statistics are appropriate.

Ammoniacal nitrogen leachate quality modelling results are higher than the Environmental Assessment Level (EAL) at the site boundary and these results are consistent with the previous HRA.

Gas management

The gas risk assessment is considered to remain valid for the site as the waste types proposed for the scheme are not considered to have a high gassing

potential. However, inadequate information has been provided in the application to explain how the current in-waste gas wells will be managed during the works. Similarly, inadequate information has been provided to explain how the disruption to the gas management system as additional waste is deposited and gas infrastructure is extended and/ or reconfigured will not cause pollution. This information is required to satisfy us that in-waste gas monitoring of the landfill waste mass can continue as required by the extant permit which will include conditions to protect human health and the environment.

Stability risk assessment

The AECOM stability risk assessment and accompanying calculation sheets “Ugley Landfill Stability Assessment for Modified Capping” dated 19/06/2023 provides a sufficiently robust assessment of the stability of the proposed capping.

Although the modelling results demonstrate that the proposed cap has an adequate factor of safety (is strong enough to withstand the expected load), the report does not assess a key aspect of the proposed capping. Given the proposed thickness and volumes of waste intended to be placed on the landfill, an analysis of this loading (waste surcharging) on the underlying landfill is required. This assessment should provide detail of the impact of the additional load and any associated settlement on the landfill including, but not limited to, the following:

- leachate infrastructure;
- gas infrastructure;
- side-wall engineering;
- leachate levels; and
- the integrity of the existing Geosynthetic Clay Liner (GCL) capping.

The stability risk assessment provided in the application is deficient because it does not assess the impact of additional load on several aspects of the landfill infrastructure and engineering.

Summary of geoscience technical assessment

We acknowledge that there are issues of differential settlement occurring on the landfill which may be contributing the deterioration in the GCL cap. However, the application is insufficiently supported to validate the claims about the extent of cap deterioration. This includes, but is not limited to, data showing the leachate extraction rates over time to show how this correlates to the leachate levels and water balance.

The evidence presented demonstrates that the existing GCL cap maintains a low permeability and that infiltration of water through it is not as prevalent as the applicant asserts. A sudden dramatic increase in leachate levels between January and March 2020 is evident in the reported leachate level graphical data but this has not been adequately investigated in the application. This data trend reflects reduced leachate removal from the site, rather than cap deterioration or failure. Additionally, the application includes inadequate waste surcharge or loading assessment to show how the loading of additional waste may impact the leachate levels further or impact the site's infrastructure.

To accurately assess the impact of the proposed DfR scheme on the landfill infrastructure and leachate levels, additional information would be required. This information was requested however, the information provided in response was not adequate.

Conclusions

The Environment Agency has two major concerns, namely:

- environmental impact; and
- the applicant has failed to demonstrate that the proposed activity is a recovery activity and therefore, we are not able to grant a variation to the permit to include a DfR activity.

Information in support of the permit application is inadequate, including groundwater monitoring borehole logs, waste types/ characterisation, leachate levels, HRA and SRA.

Concerns remain relating to the impact on leachate levels of the deposit of additional waste on the landfill and the potential further increase in these leachate levels. The current leachate levels are already a concern and the information provided has not demonstrated that environmental risk will be reduced or will not increase.

The applicant has not substantiated the justification for the proposed reprofiling works through the deposit of up to 8 m thickness of waste on the landfill cap. The information provided in the application does not utilise robust site-specific leachate level data obtained from suitable monitoring points using appropriate methods. The applicant has not demonstrated that the proposed benefit will be achieved and therefore, the applicant has not demonstrated this is a recovery activity.

Decision considerations

Section 108 Deregulation Act 2015 - Growth Duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 100 of that Act in deciding whether to grant this permit variation.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Appendices

List of Appendices

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Appendix 10 – Proposed vs Pre-settlement Contours, ref: U3233500

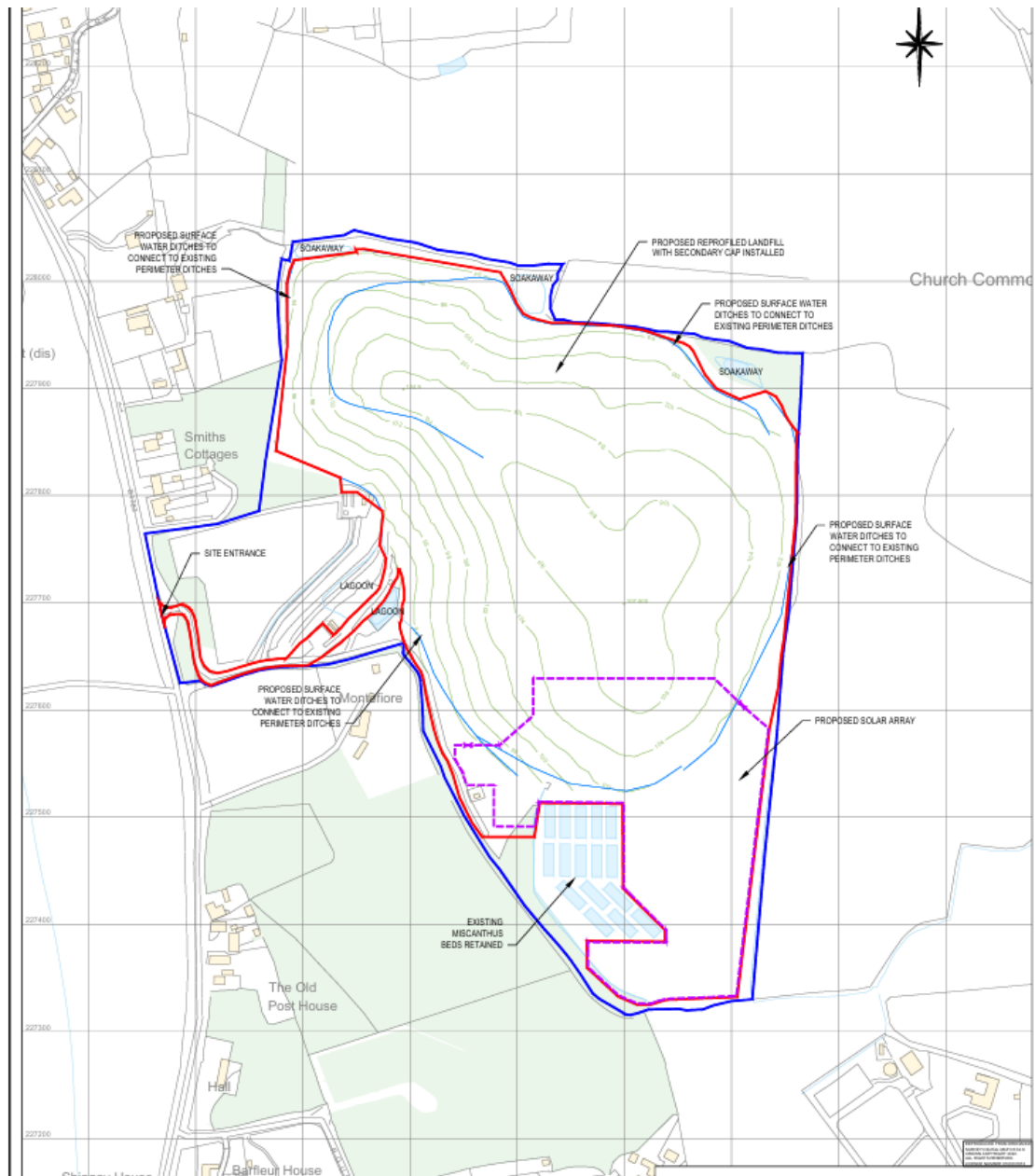
Appendix 11 – Cross Sections C, D and E, ref: U3234400

Appendix 12 – Proposed vs Existing Contours, ref: U3233600

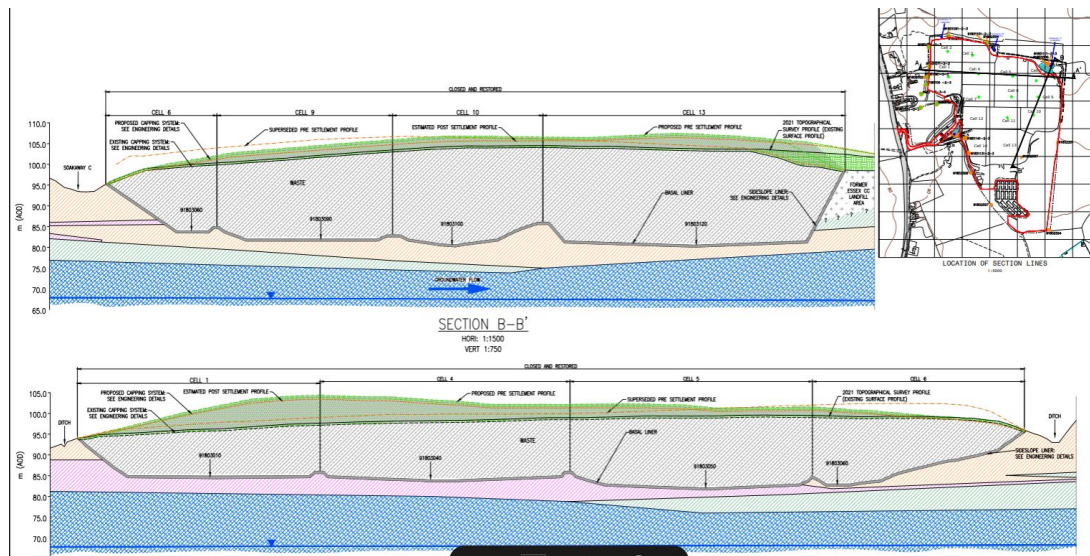
Appendix 13 – Engineering cross sections, ref: U3230501

Appendix 14 – Engineering cross sections, ref: U3230601

Appendix 1 – Proposed site plan



Appendix 2 – Cross section drawing B – B U3Z3350



Appendix 3 – Schematic of the proposed new cell structure

Existing stripped Growing Layer reinstated - approximately 74,000 m ³
Proposed Imported Restoration Material - approximately 138,000 m ³
Proposed LLDPE Capping System - including protection geosynthetics
Proposed Imported Reprofilling Material - approximately 274,000 m ³ - to achieve the required gradients within the existing permitted levels
Existing Restoration Material - locally reprofiled to achieve the required gradients where imported reprofiling material is not required
Existing Deteriorated GCL Capping System - to be left in-situ
Existing Waste - this will not be exposed during the works
Existing Basal Liner System

Appendix 4 – Landfill containment engineering for each cell

	Cells 1 to 10	Cell 11	Cells 12 to 14
Status	Closed	Closed	Closed
Geological Barrier	1m of Clay with $K = 1 \times 10^{-9}$ m/s	0.85m of Clay with $K = 1 \times 10^{-9}$ m/s	0.75m of Clay with $K = 1 \times 10^{-9}$ m/s
Artificial Sealing Liner	2.00 mm HDPE	2.5 mm HDPE	2.00 mm HDPE
Leachate Drainage Liner	300mm piped blanket	300mm piped blanket	500mm piped blanket
Capping	GCL	GCL	GCL

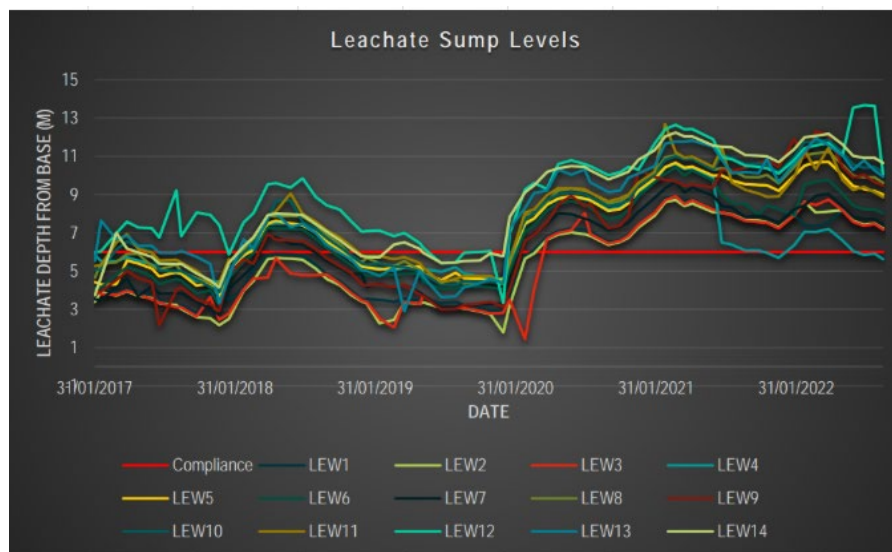
Appendix 5 – Table to show depth of cells

	Cell Depth	Well Depth 80% or 3m from base.	Leachate Depth	Solid Pipe	Open Pipe Perforations (m)
Cell 1	13	10	5	3	5
Cell 2	13	10	5	3	5
Cell 3	13	10	5	3	5
Cell 4	14	11	5	3	6
Cell 5	18	14.4	5	3	10
Cell 6	17	13.6	5	3	9
Cell 7	15	12	5	3	7
Cell 8	21	16.8	5	3	13
Cell 9	20	16	5	3	12
Cell 10	23	18.4	5	3	15
Cell 11	22	17.6	5	3	14
Cell 12	22	17.6	5	3	14
Cell 13	19	15.2	5	3	11
Cell 14	18	14.4	5	3	10

Appendix 6 – Waste table

Waste Code	Description	Comment
01	WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS	
01 01	Wastes from Mineral Excavation	
01 01 02	Wastes from non-metalliferous excavation	
01 04	Wastes from Physical And Chemical Processing of Non-Metalliferous Minerals	
01 04 08	Waste gravel and crushed rocks other than those containing dangerous substances	
01 04 09	Waste sand and clays	
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)	
17 05	Soil Stones and Dredging Spoil	
17 05 04	Soil and stones (topsoil, peat, subsoil and stones)	Material deposited in place of non-waste topsoil must meet the British Standard for Topsoil - BS3882:2015.
17 05 06	Dredging spoil	
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFFSITE WASTEWATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE	
19 12	Wastes from the Mechanical Treatment of Waste Not Otherwise Specified	
19 12 09	Minerals (such as sand and stones) from the treatment of waste aggregates that are otherwise naturally occurring minerals (see specific guidance for further limitations)	"It does not include residual 'fines' from mechanical treatment of mixed waste at transfer stations. Source materials must be: (a) properly classified as hazardous or non-hazardous (b) accurately described (characterised)"
19 13	Wastes from soil and groundwater remediation	
19 13 02	Solid wastes from soil remediation other than those containing dangerous substances	
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS	
20 02	Garden and Park Wastes (Including Cemetery Waste)	
20 02 02	Soil and stones (topsoil, peat, subsoil and stones)	Material deposited in place of non-waste topsoil must meet the British Standard for Topsoil - BS3882:2015.

Appendix 7 – Graph 1: leachate sump levels at leachate extraction wells



Appendix 8 – Pre-application meeting feedback relating to information missing from the application dated 11/07/2024

Hi Neil,

As a follow up from our meeting about the Ugley Landfill variation application, I have summarised the main points we have identified from the variation application below. Although an outcome from the meeting is to look at using a route through the existing permit, the concerns about the need for updated management plans and risk assessment of the proposed scheme is still relevant.

Site Boundary / Area of Scheme

We discussed that the DfR application boundary extends beyond the Biffa landfill boundary around / along the southern / southeastern boundary of the application. This was clarified in the meeting by Biffa that this will not be a waste deposit.

Infilling Scheme

There is a need for a comprehensive waste deposit management plan to take the EA through how the works will be undertaken in detail to minimise the disruption to leachate and gas management (which will occur through the nature of the project) and how management systems would be modified to enable temporary disconnection of wells and lateral lines, raising of wells and then reconnection of wells and lateral lines etc.

The current proposal is to divide the site re-restoration up into 3 areas / phases. We believe that each phase could be too large to practically manage all temporary works required within each phase re: temporary changes required to leachate and gas systems. It would be recommended that each of the 3 phases is subdivided into 3 – 4 sub areas (potentially the plan projection of each engineered cell when the site was developed) so that when over-tipping in phase, the timings for the temporary disconnection of gas and leachate wells, well raising (in 2m lifts?) and then reconnection of wells is planned for – in order to keep systems “on” for as long as is possible. It is likely that, on a daily basis, temporary lateral lines will be need to be removed and then placed back in at the end of each working day to try to keep systems on line over a 24 hr period. No detailed information has been provided by Biffa on how the DfR scheme will proceed / be managed, such that any disruption to environmental control systems is managed and minimised.

Engineering (re)Capping Proposals

There is currently insufficient technical detail within the application about how the LLDPE capping layer will be installed and protected (both above and below the geomembrane).

Leachate Management (Proactive / Reactive) and Associated Risk to Groundwater

Biffa's LMP (dated 2019, in an excel workbook) does not reference the overtipping works or meet many of the key criteria we need to be included in a contemporary LMP.

No proposals have been presented by Biffa to evaluate the impacts of surcharging through the DfR scheme on the underlying waste mass and how further compression of the waste mass will result in further increases in leachate levels within the site. Previous surcharging of aged landfill waste (for example: Mountsorrel Landfill by Cleanaway: 1997 – 2000) has indicated that leachate level rise of between 1m and 2m can occur for each 2m lift of the site surface through soils deposition.

Proposals are needed describing measures required to reduce leachate levels within the site ahead of commencement of the DfR scheme nor as to when leachate levels will be reduced to compliant elevations. We discussed our concern that the current leachate system is not being operated at its maximum capacity and that there has been a significant downward trend in leachate removal from site.

A first review of the site's supporting HRA (by Consultants Hydrogeologica) dated August 2023 indicates this report has significant omissions and does not present any impact assessment of the risks associated with the overtip/reprofiling. Areas of concern are:

- Identifying the correct CSM for the existing landfill (to recognise the presence of groundwater in the superfcials)
- Need to integrate the findings of the HRA / CSM with the site's Leachate Management Plan
- Assumption that the site risks (to underlying chalk) will be limited to site compliant leachate heads (at 6m) when the site has been managed with an extended period of non-compliant leachate heads exceeding 12m.
- Consideration of additional risks from compression of the waste mass from loading of the site is required
- Consideration of lateral leakage from the DfR soils sandwiched between the new LLDPE cap and the existing aged GCL cap
- Reliance on assumed long-term infiltration rate of

The HRA – when linked to the whole application – fails to present / reflect how works will be undertaken in a phased manner with leachate systems /management being interrupted as the DfR works proceed.

Environmental Monitoring

Underlying the DfR scheme is whether Biffa have the correct understanding of the site's CSM. With a long-standing very strong focus on the protection of groundwater quality in the underlying Chalk – there has been little focus on the presence and significance of groundwater present in the superfcials. We know that groundwater in this strata resulted in construction issues/failures when the site was developed.

We discussed that Biffa will look at using existing suitable shallow monitoring points in the superficial geology to address our concerns about shallow groundwater monitoring at the site. We consider that these wells are “essential” to ensuring that – with very high leachate heads in the site – (a) shallow groundwater is monitored and that (b) the interaction between leachate within the waste mass and external shallow groundwater is defined.

I hope this is helpful. I am on leave now and will pick any queries up when I return at the beginning of August.

Regards

Julian

Julian Ingram BSc (Hons) MSc CGeol FGS

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Appendix 9 – Request for further information dated 06/02/2026

Good afternoon Neil,

We have completed an initial assessment of the Ugley Landfill variation application, EPR/PP3735SW/V009. We have not been able to complete a full assessment due to some missing information.

A meeting was held about the Ugley Landfill variation application on 10/07/2024 and a follow up email was sent to you on 11/07/2024 by Julian Ingram (Geoscience Operations Team Leader). This email summarised the main points from the meeting and identified information missing from the variation application which would need to be submitted before we would be able to complete a full determination assessment of the application. This was meant as an opportunity to provide the required information while the application was waiting on our queue to be allocated. We made it clear that updated management plans and risk assessment for the proposed scheme would be required. We have no record of this information being submitted to us and our initial assessment has highlighted that this information is still missing.

We realise that this application should not have been duly made without this information highlighted in the early stages of the application and we were unfortunately mistaken in duly making this application. In light of this, we assume that this information has been prepared and would now request that it is provided to us.

This is the summary of the main points from the meeting and the missing information identified from the variation application (taken directly from Julian Ingrams's email):

Site Boundary / Area of Scheme

We discussed that the DfR application boundary extends beyond the Biffa landfill boundary around / along the southern / southeastern boundary of the application. This was clarified in the meeting by Biffa that this will not be a waste deposit.

Infilling Scheme

There is a need for a comprehensive waste deposit management plan to take the EA through how the works will be undertaken in detail to minimise the disruption to leachate and gas management (which will occur through the nature of the project) and how management systems would be modified to enable temporary disconnection of wells and lateral lines, raising of wells and then reconnection of wells and lateral lines etc.

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Engineering (re)Capping Proposals

There is currently insufficient technical detail within the application about how the LLDPE capping layer will be installed and protected (both above and below the geomembrane).

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Biffa's LMP (dated 2019, in an excel workbook) does not reference the overtipping works or meet many of the key criteria we need to be included in a contemporary LMP.

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Proposals are needed describing measures required to reduce leachate levels within the site ahead of commencement of the DfR scheme nor as to when leachate levels will be reduced to compliant elevations. We discussed our concern that the current leachate system is not being operated at its maximum capacity and that there has been a significant downward trend in leachate removal from site.

A first review of the site's supporting HRA (by Consultants Hydrogeologica) dated August 2023 indicates this report has significant omissions and does not present any impact assessment of the risks associated with the overtip/reprofiling. Areas of concern are:

- Identifying the correct CSM for the existing landfill (to recognise the presence of groundwater in the superfcials)

- Need to integrate the findings of the HRA / CSM with the site's Leachate Management Plan
- Assumption that the site risks (to underlying chalk) will be limited to site compliant leachate heads (at 6m) when the site has been managed with an extended period of non-compliant leachate heads exceeding 12m.
- Consideration of additional risks from compression of the waste mass from loading of the site is required
- Consideration of lateral leakage from the DfR soils sandwiched between the new LLDPE cap and the existing aged GCL cap
- Reliance on assumed long-term infiltration rate.

The HRA – when linked to the whole application – fails to present / reflect how works will be undertaken in a phased manner with leachate systems /management being interrupted as the DfR works proceed.

Environmental Monitoring

Underlying the DfR scheme is whether Biffa have the correct understanding of the site's CSM. With a long-standing very strong focus on the protection of groundwater quality in the underlying Chalk – there has been little focus on the presence and significance of groundwater present in the superfcials. We know that groundwater in this strata resulted in construction issues/failures when the site was developed.

We discussed that Biffa will look at using existing suitable shallow monitoring points in the superficial geology to address our concerns about shallow groundwater monitoring at the site. We consider that these wells are “essential” to ensuring that – with very high leachate heads in the site – (a) shallow groundwater is monitored and that (b) the interaction between leachate within the waste mass and external shallow groundwater is defined.

I can call you on Monday to discuss, if needed – please let me know if there is any particular time that would be convenient.

Please provide this information within 10 days, by 23/02/2026.

Kind regards,

Selina Franklin BSc (Hons)

Senior Permitting Officer (Waste Deposit)

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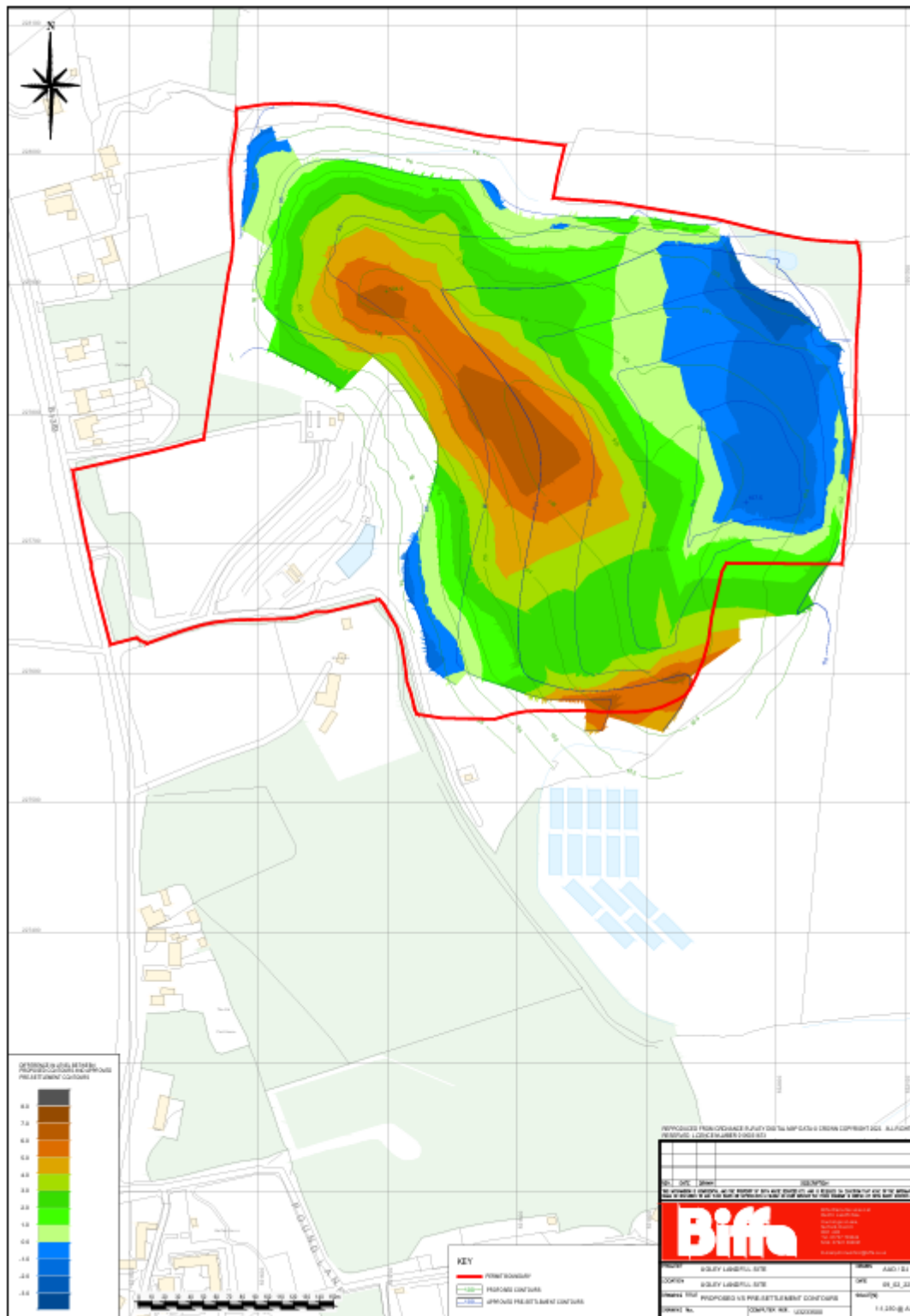
Mobile: 07880 780 031

Working days: Monday to Wednesday and Friday

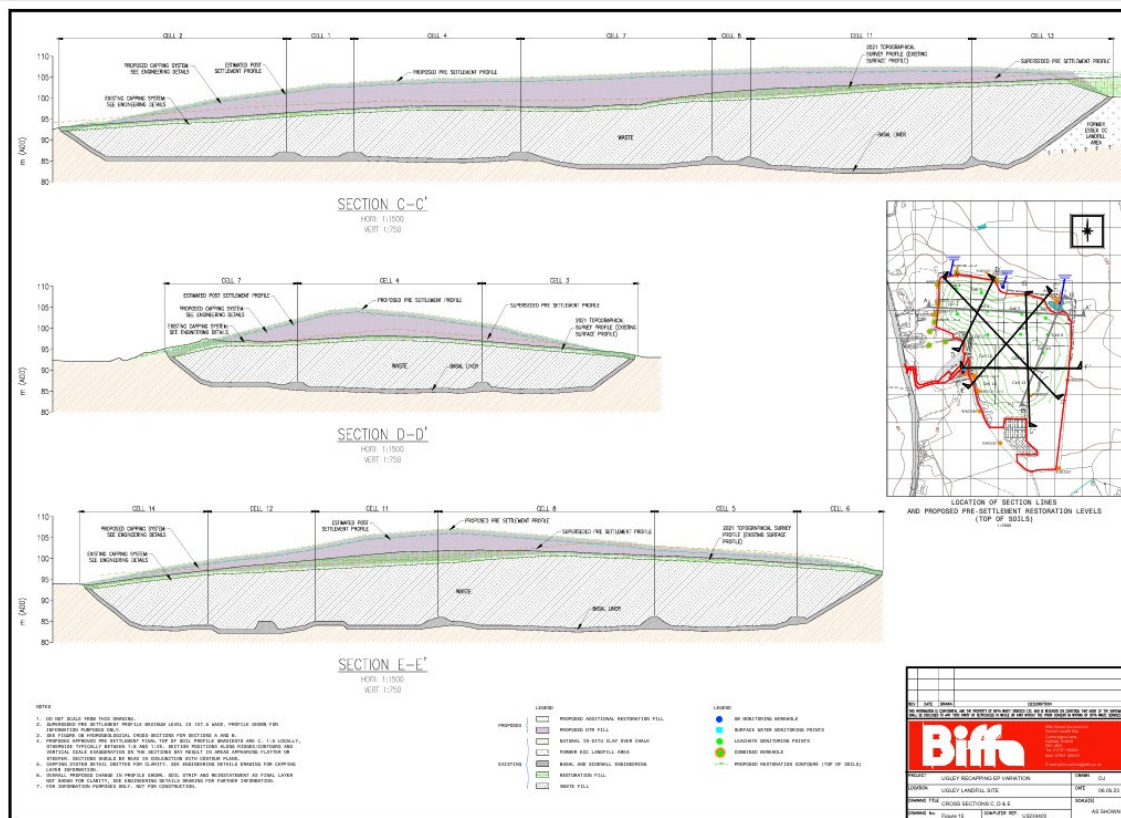
Assistant Flood Warning Duty Officer | Yorkshire, South and West



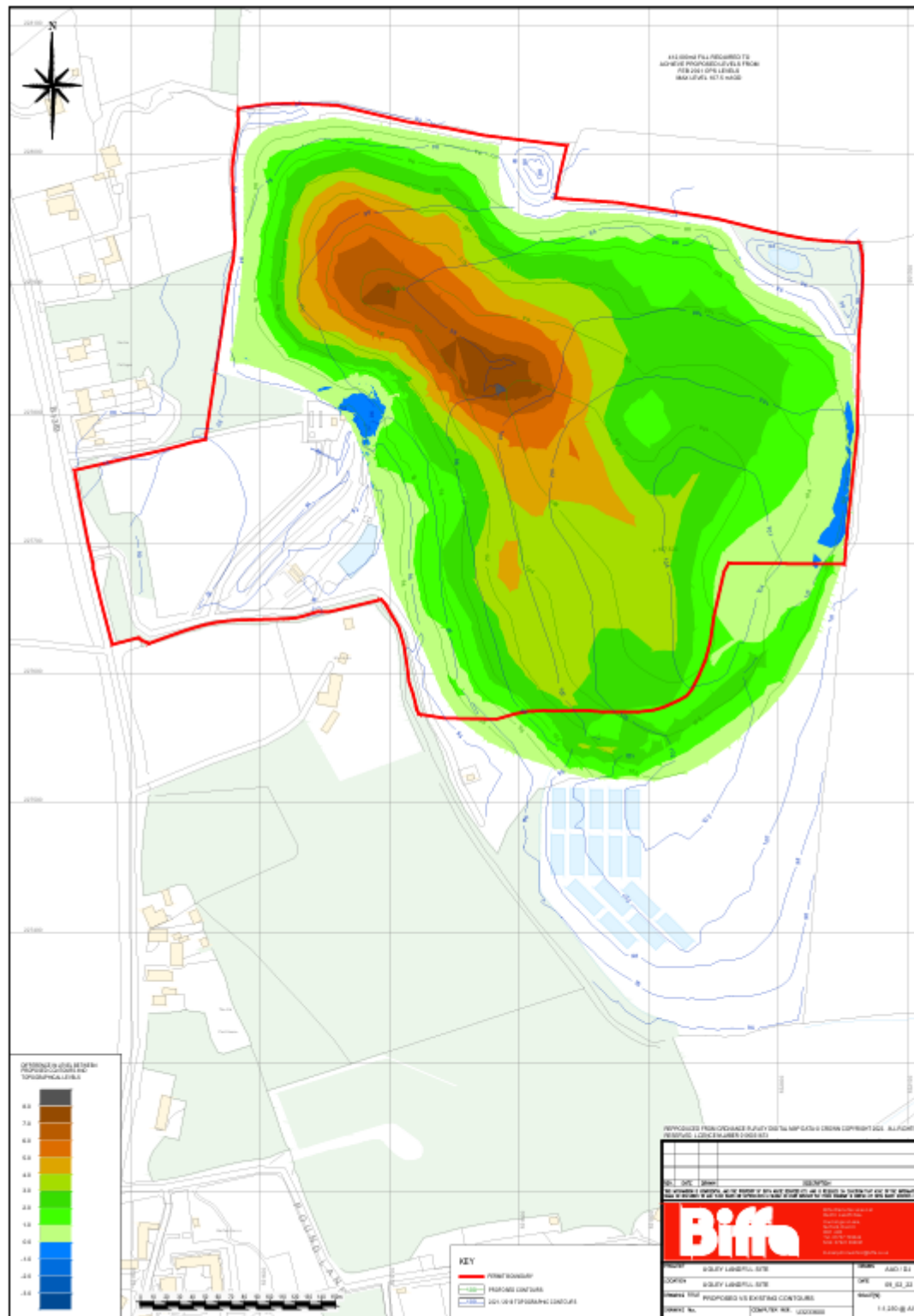
Appendix 10 – Proposed vs Pre-settlement Contours, ref: U3233500



Appendix 11 – Cross Sections C, D and E, ref: U3234400



Appendix 12 – Proposed vs Existing Contours, ref: U3233600



1) BASAL LINING SYSTEM CELLS 1 - 10

- 200mm THICK STONAGE BLANKET
- GEOTEXTILE PROTECTIVE REINFORCED BY COMBINATION
- 2mm THICK HDPE HOPE GEOMEMBRANE REINFORCED BY WOODS 100 TO 1000GSM
- CLAY LAYER
- 100mm THICK CLAY MINERAL LINER (MINIMUM PERMEABILITY $< 1 \times 10^{-10}$) AND ARE COMPACTED TO AVOID ANY AIR TRAPPED FORMATION SURFACE
- PERMANENT FORMATION SURFACE

2) BASAL LINING SYSTEM CELL 11

- 200mm THICK STONAGE BLANKET
- GEOTEXTILE PROTECTIVE REINFORCED BY COMBINATION
- 2mm THICK HDPE HOPE GEOMEMBRANE REINFORCED BY WOODS 100 TO 1000GSM
- CLAY LAYER
- 100mm THICK CLAY MINERAL LINER (MINIMUM PERMEABILITY $< 1 \times 10^{-10}$) AND ARE COMPACTED TO AVOID ANY AIR TRAPPED FORMATION SURFACE
- PERMANENT FORMATION SURFACE

3) BASAL LINING SYSTEM CELLS 12 - 14

- 200mm THICK STONAGE BLANKET
- GEOTEXTILE PROTECTIVE REINFORCED BY COMBINATION
- 2mm THICK HDPE HOPE GEOMEMBRANE REINFORCED BY WOODS 100 TO 1000GSM
- CLAY LAYER
- 100mm THICK CLAY MINERAL LINER (MINIMUM PERMEABILITY $< 1 \times 10^{-10}$) AND ARE COMPACTED TO AVOID ANY AIR TRAPPED FORMATION SURFACE
- PERMANENT FORMATION SURFACE

4) SIDEWALL LINING SYSTEM CELLS 1 - 10

- 200mm THICK STONAGE BLANKET
- GEOTEXTILE PROTECTIVE REINFORCED BY COMBINATION
- 2mm THICK HDPE HOPE GEOMEMBRANE REINFORCED BY WOODS 100 TO 1000GSM
- CLAY LAYER
- 100mm THICK CLAY MINERAL LINER (MINIMUM PERMEABILITY $< 1 \times 10^{-10}$) AND ARE COMPACTED TO AVOID ANY AIR TRAPPED FORMATION SURFACE
- PERMANENT FORMATION SURFACE

5) SIDEWALL LINING SYSTEM CELL 11

- 200mm THICK STONAGE BLANKET
- GEOTEXTILE PROTECTIVE REINFORCED BY COMBINATION
- 2mm THICK HDPE HOPE GEOMEMBRANE REINFORCED BY WOODS 100 TO 1000GSM
- CLAY LAYER
- 100mm THICK CLAY MINERAL LINER (MINIMUM PERMEABILITY $< 1 \times 10^{-10}$) AND ARE COMPACTED TO AVOID ANY AIR TRAPPED FORMATION SURFACE
- PERMANENT FORMATION SURFACE

6) SIDEWALL LINING SYSTEM CELLS 12 - 14

- 200mm THICK STONAGE BLANKET
- GEOTEXTILE PROTECTIVE REINFORCED BY COMBINATION
- 2mm THICK HDPE HOPE GEOMEMBRANE REINFORCED BY WOODS 100 TO 1000GSM
- CLAY LAYER
- 100mm THICK CLAY MINERAL LINER (MINIMUM PERMEABILITY $< 1 \times 10^{-10}$) AND ARE COMPACTED TO AVOID ANY AIR TRAPPED FORMATION SURFACE
- PERMANENT FORMATION SURFACE

7) TIE IN DETAIL OF INTER-CELL SIDEWALL LINING

- EXTERNAL RETICULATED GEOTEXTILE
- 200mm THICK HDPE HOPE GEOMEMBRANE
- INTERNAL CLAY MINERAL LINER (MINIMUM PERMEABILITY $< 1 \times 10^{-10}$) AND ARE COMPACTED TO AVOID ANY AIR TRAPPED FORMATION SURFACE
- CLAY LAYER
- 100mm THICK CLAY MINERAL LINER (MINIMUM PERMEABILITY $< 1 \times 10^{-10}$) AND ARE COMPACTED TO AVOID ANY AIR TRAPPED FORMATION SURFACE
- PERMANENT FORMATION SURFACE

8.) TYPICAL TIE IN DETAIL OF INTER-CELL SIDEWALL LINING CELLS 1 - 10 (CELL 11 HAS 800mm CLAY MINERAL LINER OVERLAIN WITH 2.5mm HDPE GEOMEMBRANE); CELLS 12 - 14 750mm CLAY MINERAL LINER OVERLAIN WITH 2.0mm HDPE GEOMEMBRAN

- EXTERNAL RETICULATED GEOTEXTILE
- 200mm THICK HDPE HOPE GEOMEMBRANE
- INTERNAL CLAY MINERAL LINER (MINIMUM PERMEABILITY $< 1 \times 10^{-10}$) AND ARE COMPACTED TO AVOID ANY AIR TRAPPED FORMATION SURFACE
- CLAY LAYER
- 100mm THICK CLAY MINERAL LINER (MINIMUM PERMEABILITY $< 1 \times 10^{-10}$) AND ARE COMPACTED TO AVOID ANY AIR TRAPPED FORMATION SURFACE
- PERMANENT FORMATION SURFACE

This drawing has been reproduced using U3230500

Appendix 14 – Engineering cross sections, ref: U3230601

