

Appendix 2 – BCL Hydro Consultants Report

Your Ref:
Our Ref: B/LH021/DOC/20

Mr R Smithyman
Kedd Limited
Fox Studio
King Street
Much Wenlock
Shropshire
TF13 6BL

18th September 2020

Dear Mr Smithyman,

[Lea Castle Farm, Wolverley, Worcestershire.](#)
[Proposed sand and gravel extraction, with progressive restoration – Hydrological and Hydrogeological Assessment. Regulation 25 Request - Provision of additional information with regard to consultee responses from the Environment Agency, Natural England and Lead Local Flood Authority.](#)

Further to your email and provision of the Regulation 25 Request received from the Mineral Planning Authority in relation to the above planning application, I am writing to provide additional information and details to address the various water related matters raised by consultees.

Responses to the three primary consultees (Environment Agency, Natural England and the Lead Local Flood Authority) are provided below, with the original consultee letters provided at **appendix 1**). It is of note that the details provided also address a number of common issues raised by individuals and other consultees in relation to the proposed project.

[Environment Agency \(EA\) response \(Ref. SV/202/110574/01-L01, dated 31st March 2020\).](#)

The EA are satisfied that the site monitoring undertaken, alongside the additional analysis presented in the Hydrological and Hydrogeological Impact Assessment (HHIA), demonstrates the Site will be worked dry, with subsequent placement of inert material remaining a significant distance above the watertable (expected minimum standoff greater than 20m). The EA are also satisfied with the proposed measures for pollution prevention during works (appendix 6 of the HHIA).

A concern is raised with regard to the potential for placement of lower permeability material at the Site and the need for drainage to direct water to soakaway areas once restoration is complete. The EA are concerned that the focussing of runoff to a few discrete soakaway ponds will serve to cause a reduction in the depth of the unsaturated zone and hence increased risk of groundwater pollution. It is noted that our report states we do not expect significant groundwater mounding to occur beneath the soakaway areas (this statement being made based on the aforementioned relatively large depth to groundwater and the intrinsic elevated permeability of the Principal Aquifer underlying the Site).

It is of note that the EA do not object to the proposed development but do identify three areas of monitoring that they consider are needed to ensure no detrimental impact is caused to the water environment in the locality: i. monitoring of groundwater levels in proximity to the soakaway areas, ii. monitoring of water quality (groundwater and surface water) in the same areas and iii. monitoring of groundwater levels in and around the Site to confirm no detrimental reduction in groundwater levels is caused.



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With regard to the first two points, it is of note that a program of groundwater and surface water monitoring will be required as part of the Environmental Permit Application (EP) needed to allow the proposed inert infill placement for restoration of the Site. The third point also relates to assessment of water levels following placement of infill material. These points will be discussed in more detail below.

The EA response also raises concern with regard to ensuring the development will have no detrimental impact on flows and water quality at protected sites located to the south (Hurcott and Podmore Pool SSSI, Hurcott Pasture SSSI) and west of the Site (Stourvale Marsh SSSI, Puxton Marsh SSSI), as well as highlighting that the Site is located within the overall catchment (Zone 3) of a Public Water Supply borehole.

Protection of designated ecological sites

The hydrogeological data presented within our HHIA report draws on a wide range of data sources to allow definition of the conceptual model for the locality. The derived dataset suggests groundwater flow in proximity to the Site, is to the west/southwest and the River Stour. This expectation is confirmed by the regional groundwater flow dataset held by the EA, for which the output contour plot has been obtained and is now appended to this letter ([appendix 2](#)).

Both the Site derived and EA datasets indicate groundwater levels will reside at approximately 38maOD beneath the Site (EA dataset slightly lower). The EA have advised that the contour plot provided is expected to be indicative of 'average' groundwater elevation conditions for the locality and the regional flow pattern. This notwithstanding, the Ordnance Survey mapping data for the valley to the south of the Site (in proximity to the Hurcott and Podmore Pool SSSI and Hurcott Pasture SSSI) indicates an elevation of some 42maOD within the valley i.e. above the groundwater level expected at the Site. On this basis, groundwater beneath the Site is located down hydraulic gradient of the protected areas and hence will not be contributing to flows through the aforementioned protected sites.

The remaining protected Sites are separated from the proposed development by the Staffordshire and Worcestershire Canal (Stourvale Marsh SSSI) and River Stour and canal (Puxton Marsh SSSI). Based on this hydrological setting, the vertical standoff to the watertable at the Site and the proposed retention/returning of incident rainfall to the aquifer within the confines of the Site, there is considered negligible potential for the development to result in negative impact at these locations.

Groundwater monitoring program

The foregoing notwithstanding, based on the original concerns raised, the EA recommend a pre-commencement condition be imposed on the planning permission, requiring the applicant to prepare a Hydrometric Monitoring Scheme for submission and approval of the MPA, in consultation with the EA.

The proposed monitoring scheme is required for approval and implementation prior to any development at the Site. However – as highlighted above, the monitoring program is primarily focussed towards the ensuring the infill aspects of the development do not result in any negative water resource or quality impacts at the aforementioned protected Sites.

Based on the additional information and discussion provided herein, such impact is considered minimal and it is instead recommended that the condition be amended to require submission and approval of the monitoring program prior to the placement of any infill material at the Site. It is of note that monitoring will still be required for implementation prior to the commencement of operations, in order to obtain representative groundwater samples for use in the EP application, but this will also enable the formal monitoring program as submitted for approval, to include any requirements from the EP application process.

Natural England response (Ref. 308334, dated 1st May 2020).

The Natural England (NE) response also raises the concern that the proposed development could have effect on the protected Sites of Special Scientific Interest listed above. On this basis NE request three additional points of information: i. Further clarification on how the potential for continuity between the

aquifer and the designated sites have been considered, ii. Clarification in relation to the proposed land drainage scheme to ensure long-term efficacy and iii. further clarification in relation to monitoring and mitigation scheme. These are discussed below.

Protected sites.

The potential for the proposed development to impact on the protected sites in the locality has been discussed above. Groundwater within the aquifer beneath the Site is not expected to be contributing to flows through the identified protected areas (being located down hydraulic gradient of the areas associated with the Wannerton Brook and separated from the areas associated with the River Stour by the Staffordshire and Worcestershire Canal).

The foregoing factors, coupled with the standoff for working from the watertable and drainage measures incorporated into the Site design (returning incident rainfall to the aquifer within the Site boundary), indicate the development is not expected to result in any negative impact at the identified sites.

Drainage scheme

NE raise two areas of concern with regard to the long-term efficacy of the proposed drainage scheme for the Site. These relate primarily to the infill operation (using inert waste): i. potential for degradation of groundwater quality (through accidental spillages during operations or through placement of inert waste) and ii. potential for reduced groundwater recharge and disruption of recharge patterns due to placement of lower permeability inert waste.

The HHIA completed as part of the planning application has made recommendation for a fluids handling protocol (appendix 6 of the HHIA report) in order to limit the potential for accidental spillages during site operations. The protocol includes requirements for maintenance and checking of plant, for safe fuel storage and for inclusion of contingency spill kits to be held on Site. The measures proposed have been prepared in line with similar quarry/infill operations managed within the midlands region and are considered adequate to reduce the potential risk for contamination at the Site to acceptable levels.

With regard to the potential for degradation of water quality due to inert fill placement, this will be governed by regulation through the Environmental Permitting process. Prior to importation of fill material, an application for an EP will be required. This will include requirement for a Hydrogeological Risk Assessment (HRA) to be completed. The HRA will assess the site setting and risks to/sensitivity of, local receptors. The HRA will assess the proposed nature of imported material and the need or otherwise, for additional controls (a liner or specific limitation on quality of waste imported) to be specified on the Permit issued. Through the EP application process, the potential for the development to result in negative impact on local groundwater quality will thus be controlled.

Following the placement of inert material, rainfall incident on the Site will be directed to a series of soakaway areas. These will allow runoff to recharge to the wider aquifer in a manner similar to the prevailing situation, albeit focussed to a reduced number of locations within the Site boundary. An additional drawing has been prepared to provide detail with regard to the Surface Water Management proposals for the Site. A copy of the Surface Water Management Plan is appended to this letter (***appendix 3*** – drawing no. KD.LCF.032).

Three soakaway areas are designated within the restoration landform (1. Northwestern boundary, 2. Southwestern boundary and 3. To the East of the causeway between the Wolverley Road and Lea Castle Farm buildings). Each of the areas will be constructed to remain in continuity with insitu aquifer forming the base and western flanks of each soakaway area.

Following submission of the planning application, the restoration landform has been amended to maximise the ecological benefit offered by the restored Site (***appendix 3*** – drawing KD.LCF.031). This has included enlargement of the aforementioned soakaway areas and refinement of the contributing

catchment drainage. Each area is located within a gentle bowl feature, enclosed by an approximate 2m high rise in ground elevation to the western boundary (the lowest elevation flank).

Whilst rainfall runoff is expected to infiltrate rapidly to the underlying aquifer within the soakaway areas, it is clear that a large volume is offered for any temporary storage of water during periods of excess rainfall. **Table 1** summarise the volume for storage offered within the landform encompassing each of the soakaway areas, prior to the aforementioned 2m high retaining boundary being overtopped.

Table 1. Soakaway areas and temporary volume for storage offered within restoration landform prior to overtopping	
Soakaway area	Volume offered in landform allowing approx.. 1m freeboard
1 – Northwestern boundary	30,000 to 65maOD
2 – Southwestern boundary	80,000 to 65maOD
3 – East of the causeway to Lea Castle Farm	48,000 to 68maOD

The volume of temporary storage specified with the Flood Risk Assessment¹ (FRA), required to balance the 1 in 100-year storm event (plus allowance for climate change) for the entire Site equates to some 550m³. It is clear that the soakaway areas offer a significant additional volume and hence large factor of safety, with regard to the long-term control of water recharge to the local aquifer.

It is of note that the volumes presented in **table 1** are not expected to be called upon for storage of water. Runoff is expected to infiltrate readily to the underlying aquifer from the various ephemeral soakaway areas. The volumes presented at **table 1** are provided to demonstrate the large degree of control that is provided for site runoff and related drainage, inherently designed into the restoration landform.

In discharging rainfall runoff to the identified soakaway areas, recharge will be provided both centrally and generally down hydraulic gradient of the restored Site. On this basis, the general pattern of groundwater flow down gradient of the Site is not expected to be significantly varied from the prevailing situation.

Monitoring and mitigation scheme

NE have also requested additional details on the monitoring scheme and any related mitigation options. As discussed above, it is suggested that the formal monitoring program is submitted for approval prior to commencement of infilling operations. This notwithstanding, the outline expected scheme will require locations installed up gradient of the infill areas at the Site (on the eastern and northeastern boundaries) and down gradient (on the western and southwestern boundaries), to enable collection of suitable groundwater quality and elevation data for inclusion in the EP application. Locations will also need to be included on the southern flank of the Site and in proximity to the causeway running through the centre of the Site, to enable monitoring of groundwater levels in proximity to the eastern soakaway area.

For the EP application it is expected that a minimum of 12-months of groundwater sampling data will be required in advance of submission. This will also provide a suitable baseline period for collection of groundwater elevation data, prior to commencement of infilling operations and against which to compare post development groundwater levels.

With regard to mitigation options for the proposed development, these are set out in the HHIA (section 5.6) - options for prevention of placing material unsuitable for inclusion within the restoration landform (lining, waste acceptance and control of rogue loads etc).

¹ Lea Castle Farm, Planning application for sand and gravel extraction and progressive restoration to agricultural parkland, public access and nature enhancement. Flood Risk Assessment and drainage strategy. Ref. KEDD/NRS/WOLVERLEY/FRA/04. BCL Hydro. 21st October 2019.

Lead Local Flood Authority (email from Wyre Forest District Council, dated 12th March .

The Lead Local Flood Authority response identifies four areas where additional information is required: i. clarification on the long-term ownership and responsibility for maintenance of identified soakaway areas, ii. consideration of above ground SuDS as opposed to buried drainage, iii. confirmation on when soakaway areas will be installed as part of phasing program and iv. clarification on runoff 'exceedance' overland flow routes.

Long-term ownership

The responsibility for maintenance of the soakaway areas and continued related efficacy will revert to the landowner following completion of the restoration and aftercare period.

Consideration of above ground SuDS

A drawing outlining the Surface Water Management proposals for the restored Site is appended to this letter (**appendix 3** - KD.LCF.032). As discussed above, the restoration has been amended to enhance the ecological potential for the Site and this has included a series of open water ditches installed to enable capture of surface runoff, for transfer to the identified soakaway areas. The open water ditches and linked ephemeral soakaway areas (above ground SuDS referred to above) are deemed preferable to subsurface features with regard to longer-term maintenance and operation, as well as providing the additional aforementioned ecological benefit.

With the inclusion of the above ground drainage and gradient of the restored landform areas, the recommendation for subsurface drainage made within the HHIA is no longer expected to be required.

Timing for installation of soakaway areas

A total of three soakaway areas are included at the Site (see attached drawing KD.LCF.032). These are to be installed within the restoration landform as follows:

- Soakaway 1 (Northwestern boundary) – On completion of Phase 1.
- Soakaway 2 (Southwestern boundary) – On completion of Phase 3.
- Soakaway 3 (East of causeway) – On completion of Phase 5,


Runoff exceedance and overland flow routes

The restoration landform has been designed to capture runoff from the infilled sections of the Site and direct accumulating water to the aforementioned soakaway areas. The various soakaways are located within areas of closed catchment within the restoration landform. Each of the areas is located a minimum of 2m below the retaining boundary landform, offering a significant volume of storage in comparison to the expected volume of runoff generated during storm events and the expected infiltration rate to the underlying aquifer. As such, overland flow from the soakaway areas/general restoration landform is not expected, with incident rainfall being managed within the Site boundary.

The only area where runoff will occur from the restored Site is from the area of insitu (unworked) ground located between Phases 2 and 3 on the western boundary of the Site. Rainfall falling onto the unworked section of ground immediately adjacent to the western boundary would be expected result in any runoff in accordance with the prevailing situation. Runoff into this area will however be reduced by the series of surface water drains included within the central section of the Western area of the restored Site (see KD.LCF.032), which will serve to reduce the existing catchment area for runoff across the western boundary. In this regard the proposed development will result in less overland flow passing across this section of Site and hence will provide an improvement with regard to potential runoff related flood risk to adjacent property.

I trust the foregoing details meet with your approval and are sufficient to satisfy the additional information requests submitted by the consultees. Please do not hesitate to contact me on 07773 319 269 should you wish to discuss this matter further or require any additional details.

Yours sincerely

A handwritten signature in black ink, appearing to read 'P. Burfitt', with a long horizontal stroke extending to the right.

Paul Burfitt
Senior Hydrogeologist
BCL Hydro

Appendix 1 – Correspondence from consultees

Worcestershire County Council
Development Control
County Hall Spetchley Road
Worcester
Worcestershire
WR5 2NP

Our ref: SV/2020/110574/01-L01
Your ref: 19/000053/CM
Date: 31 March 2020

FAO: Steven Aldridge

Dear Sir

PROPOSED SAND AND GRAVEL QUARRY WITH PROGRESSIVE RESTORATION USING SITE DERIVED AND IMPORTED INERT MATERIAL TO AGRICULTURAL PARKLAND, PUBLIC ACCESS AND NATURE ENHANCEMENT AT LAND AT LEA CASTLE FARM, WOLVERLEY ROAD, BROADWATERS, KIDDERMINSTER, WORCESTERSHIRE

I refer to the above planning application which was received on 26 February 2020.

We make the following comments:

Hydrogeology:

The Water Resources Technical Appendix covering the hydrological and hydrogeological impact assessment addresses many of the points raised in our response to the EIA scoping opinion.

A good amount of monitoring has been done to establish the groundwater levels across the site and confirms that the site will be worked dry. This suggests that the working quarry should have little impact on the water resources in the area if greenfield runoff rates are maintained.

The report presents a detailed risk assessment and mitigation plan for pollution prevention during works. Again this should reduce to a minimum the likelihood of spills etc causing contamination of the groundwater providing best practice is followed.

However, we are concerned about the ongoing impacts of reduced permeability over the site and the need for the land drains and soakaway ponds once restoration is complete. These will act to concentrate recharge and reduce the depth of unsaturated zone and hence potentially increase the risk of groundwater pollution in this area. The report has stated that groundwater mounding beneath these ponds will not be an issue and that recharge rates will remain the same overall.

Environment Agency
Hafren House, Welshpool Road, Shelton, Shrewsbury, Shropshire, SY3 8BB.
Customer services line: 03708 506 506
www.gov.uk/environment-agency
Cont/d..

We consider that the next stage of this will be to devise a monitoring programme that can establish the following parameters:

1. Mounding beneath the soakaway ponds is not occurring.
2. Water quality in and groundwater around the soakaway ponds is unpolluted.
3. Groundwater levels in and around the site are not reducing (as a result of this development).

It should be noted that a lot of work has been done by various bodies to maintain flows and ecology of Hurcott and Podmore Pool Site of Special Scientific Interest (SSSI), Hurcott Pasture SSSI, Stourvale Marsh SSSI and Puxton Marshes SSSI. We would reiterate that this development should have no detrimental impact on these features. In addition, this site is in proximity to important public water supplies and within a Source Protection Zone (SPZ) 3 and groundwater protection must be a high priority. Monitoring should also ensure that excavation and importation of inert material does not cause harm to nearby SSSI waterbodies by reducing hydrological connectivity.

In view of the above, we would recommend the imposition of the following condition:

CONDITION:

No development shall take place until a groundwater, surface water level and quality, monitoring scheme is submitted to and approved in writing by the Local Planning Authority (LPA), in consultation with the Environment Agency. Thereafter the scheme shall be implemented in accordance with the approved plans. The Scheme shall include, but may not be limited to:

- *pre-commencement, operational (extraction phase) and post extraction monitoring, of the existing onsite monitoring boreholes identified in the Water Resources Technical Appendix. Additional monitoring points will be required to monitor the soakaway ponds post restoration.*
- *method and nature of sampling/measurement;*
- *a programme detailing frequency and duration of monitoring along with details of how and when the monitoring data and the Scheme itself shall be reviewed to assess if impacts (if any) are occurring;*
- *trigger levels when action is required to protect a water feature;*
- *details of any contingency and mitigation proposals should a trigger level be breached and an impact be apparent at a water feature;*
- *a clause (in the event that an adverse impact/risk of deterioration attributable to the mineral extraction is noted in the groundwater / surface water monitoring data) for the temporary cessation of mineral extraction whilst investigation into the apparent deterioration is undertaken;*
- *proposals to investigate the cause and measures to avoid, mitigate or remedy any such risks; and to monitor and amend any failures, shall be submitted to the Local Planning Authority for their approval in consultation with the Environment Agency.*

REASON: *To protect the water environment and prevent any deterioration of 'controlled waters' (as defined under the Water Resources Act 1991), including surface and ground waters.*

Note to above condition - We would expect to be consulted on all details pertaining to the above recommended condition. With regards to frequency of monitoring, we consider at least monthly dip (or time-series data via logger) monitoring to be a standard frequency for such monitoring during the extraction phase of development.

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Flood Risk: The proposed development is located within Flood Zone 1 (low probability) based on our 'indicative' Flood Map for planning. However, there may be ponds and drains in and around the quarry area.

In this instance given the scale and nature of the proposal within flood zone 1 we would expect your Floods section, as the Lead Local Flood Authority (LLFA) to lead on the surface water management aspects (utilising the latest 'climate change' allowances within the NPPG) and those issues associated with ordinary watercourses/ditches/groundwater flooding; both operational and post restoration, to inform potential risks and avoidance/mitigation measures.

Biodiversity:

The restoration could be improved and provide greater net gain and ecological benefits by establishing ecological linkages through wetland habitat and associated species.

We have commented above about hydrological monitoring to ensure excavation and importation of inert material (see EPR permit comments) does not cause harm to nearby SSSI waterbodies by reducing hydrological connectivity.

Net Gain and ecological networks

The site occupies an important location between the River Stour (LWS) and the Staffordshire and Worcestershire Canal (LWS) to the north west and Hurcott and Podmore Pools (SSSI & LWS) to the south east. Each of these sites are cited as having important wetland ecology. The Worcestershire Mineral Local Plan (MLP 21) states that mineral restoration must contribute to ecological networks within and beyond the site at a wider landscape level. The proposed restoration plan does not go far enough to create robust ecological networks that could be utilised by a range of species within the landscape.

Primarily the concept restoration plan states the majority of the site will return to arable use with small areas of acid grassland and ephemeral wet grassland/pools. Many of these restoration measures will be adversely affected by agricultural practices and may not survive long enough to provide a net gain for biodiversity in perpetuity. We would not comment on the specifics of the acid grassland or net gain calculator, we leave that for you and your Ecologist/NE. However we would recommend that the restoration plan would benefit from creating some areas of permanent water with ephemerally wet pools dispersed between.

Permanent pools can be hotspots for wildlife as they are colonised by wetland plants and invertebrates and can encourage species within our remit. They can also provide a food source for bats and birds in the form of emerging insects. Creating some permanent waterbodies would augment the site's ability to function as a wildlife corridor linking up the wildlife sites in the landscape. It is important to note that retrospective restoration of quarries can be disproportionately expensive when compared to phased creation of environmental enhancements, rather than creation at the end of the working period. Therefore the creation and provision of wetlands should be a gradual phased process that follows the working phases of the area, rather than at the end of the working period.

We would also advise that landscaped soakaway ponds could also contribute to biodiversity if they were planted up with phragmites reedbed - a Worcestershire BAP habitat and valuable wildlife resource.

Protected species

Otter

We would suggest a greater consideration of otters that may be in the area. The site is surrounded by wetland wildlife sites that are highly suitable for otters. Otters have large territories and may be especially likely to use the site during winter to escape extreme flooding. Opportunities could be provided linked to the above.

Native Crayfish

If permanent pools were created these could also potentially function as ARK sites for the White Clawed Crayfish (WCC) population in the Wyre Forest. This is one of the last remaining populations of WCC in Worcestershire and is under constant threat from non-native crayfish and disease. If a group of these were relocated to an offline pool in the restoration area this would help secure the future of the species and deliver a Worcestershire BAP target.

The 'Ark Sites for White-Clawed Crayfish – guidance for the aggregates industry', Buglife, The Invertebrate Conservation Trust, may assist consideration and of this within the restoration:

<https://www.buglife.org.uk/sites/default/files/Crayfish%20Ark%20sites%20guidance%20for%20the%20aggregates%20industry.pdf>

Environmental Permitting Regulations - Inert landfilling

The operators will be required to operate the infilling as part of the restoration proposals under a relevant Environmental Permit, which will likely include requirements to undertake monitoring to assess any potential impact on the environment and local receptors. Dust and noise could be particular issues that the operator must be aware of during the landfilling phases. We would leave any pollution issues arising from the extraction phase for you to consider, perhaps in consultation with Worcestershire Regulatory Services.

Informative - An Environmental Permit from the Environment Agency will be required for the storage, treatment and disposal of inert extractive wastes resulting from the extraction of mineral resources. A further Environmental Permit will be required, should waste be accepted and deposited on site for restoration purposes. No Permit application has been received/twin tracked with the planning application so we cannot give you any certainty on these matters. We would advise the applicant to contact our National Permitting Service for basic and enhanced pre-application advice. Further information can be found at <https://www.gov.uk/guidance/waste-environmental-permitspermitting>

Operators should incorporate pollution prevention measures to protect ground and surface water. Previous Pollution Prevention Guidance maintained by the Environment Agency has been withdrawn but is still available in the national archives at: <https://www.gov.uk/government/collections/pollution-prevention-guidance-ppg>

We would refer to the latest Pollution Prevention Guidance targeted at specific activities, available at: <https://www.gov.uk/guidance/pollution-prevention-for-businesses>

Mining Waste Directive (MWD) The MWD brought in changes to the way Mining operations are regulated in England and Wales. If you manage extractive waste then this activity may be a mining waste operation, which is regulated under the EPR.

Extractive waste is defined as waste resulting from the prospecting, extraction, treatment and storage of mineral resources and the workings of quarries. In reality this

means heaps / tips and ponds / lagoons used to contain and settle waste fines. There are exemptions to this which can be assessed on a case by case basis. Further information on the above permitting matters is available from our EPR Waste team.

I trust the above will assist in your determination of the application.

Yours faithfully

Mark Davies
Planning Specialist

Date: 01 May 2020
Our ref: 308334
Your ref: 19/000053/CM



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Steven Aldridge
Team Manager – Development Management
Worcestershire County Council
County Hall, Spetchley Road, Worcester, WR5 2NP

BY EMAIL ONLY

saldridge@worcestershire.gov.uk

Dear Steve

Planning consultation: Proposed sand and gravel quarry with progressive restoration using site derived and imported inert material to agricultural parkland, public access and nature enhancement.
Location: Land at Lea Castle Farm, Wolverley Road, Broadwaters, Kidderminster, Worcestershire

Thank you for your consultation on the above dated 06 February 2020 which was received by Natural England on same day.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

SUMMARY OF NATURAL ENGLAND'S ADVICE

FURTHER INFORMATION REQUIRED TO DETERMINE IMPACTS ON DESIGNATED SITES

As submitted, the application could have potential significant effects on Hurcott and Podmoor Pool Site of Special Scientific Interest (SSSI), Hurcott Pasture SSSI, Stourvale Marsh SSSI and Puxton Marshes SSSI. Natural England requires further information in order to determine the significance of these impacts and the scope for mitigation.

The following information is required:

- Further clarification on how the potential for continuity between the aquifer and the designated sites have been considered
- Clarification in relation to the proposed land drainage scheme to ensure long term efficacy
- Further clarification in relation to monitoring and mitigation scheme

Without this information, Natural England may need to object to the proposal.

Please re-consult Natural England once this information has been obtained.

Natural England's further advice on designated sites/landscapes and advice on other issues is set out below.

Additional Information required

- **Further clarification on how the potential for continuity between the aquifer and the designated sites have been considered**
The proposed development is situated in a primary aquifer considered to be in continuity with the surface water system including the River Stour to the west and the Wannerton Brook. Therefore, it is likely to also be in continuity with a number of protected sites locally which are associated with these waterbodies namely Hurcott and Podmoor Pool SSSI, Hurcott Pasture SSSI, Stourvale Marsh SSSI and Puxton Marshes SSSI. Consequently, it is a concern to Natural England that at the impact screening stage, the Hydrological and Hydrogeological Impact Assessment identifies a potential for impact on groundwater but fails to recognise any potential for impact on protected sites. Natural England requires further information on how the assessment has considered the potential for continuity between the aquifer and the above mentioned designated sites.

- **Clarification in relation to the proposed land drainage scheme to ensure long term efficacy**

Natural England recognises that the site will be worked dry and some considerable distance above the water table. Nevertheless, we remain concerned about two key risk pathways identified in the Impact Assessment which relate primarily to infilling with inert waste:

- Potential for degradation of groundwater quality at the Site (whether caused by spillages or leakages of hydrocarbons, or unacceptable contaminant concentrations mobilised by rainfall percolating through inert waste).
- Potential for reduced groundwater recharge and disruption to existing patterns of recharge due to infilling with inert waste of lower permeability (and associated low permeability lining).

It is proposed that to mitigate for impacts on groundwater recharge, a land drainage scheme with perimeter soakaways will be used to maintain recharge at current volumes and minimise any disturbance to groundwater level profiles across the site. Natural England has concerns that the efficacy of such schemes may deteriorate over time without ongoing maintenance and monitoring. Consequently, Natural England requires further information on what arrangements would be put in place to ensure maintenance of the drainage scheme in perpetuity.

- **Further clarification in relation to monitoring and mitigation scheme**
There is reliance on managing the risks associated with infilling of the workings through a monitoring and mitigation scheme that would be attached to any future Environmental Permitting application to be made to the EA. Natural England requires further information on proposals for monitoring which should address both groundwater quality and groundwater level impacts (the latter to ensure the drainage scheme is operating effectively). Monitoring proposals should also identify what realistic and available mitigation options could be deployed if monitoring identifies issues of groundwater contamination or undesirable levels of disturbance to recharge patterns.

Please note that if your authority is minded to grant planning permission contrary to the advice in this letter, you are required under Section 281 (6) of the Wildlife and Countryside Act 1981 (as amended) to notify Natural England of the permission, the terms on which it is proposed to grant it and how, if at all, your authority has taken account of Natural England's advice. You must also allow a further period of 21 days before the operation can commence.

Soils, Land Quality and Reclamation – Further information required

Having examined this proposal in the light of our statutory duties under Schedule 5 of the Town and Country Planning Act 1990 (as amended) and the Government's policy for the sustainable use of

soil as set out in paragraphs 170 and 171 of the National Planning Policy Framework (July 2018), Natural England has the following comments to make:

1. Based on the information provided in support of the planning application, we note that the proposed development would extend to approximately 46 ha, including some 41.2 ha of 'best and most versatile' (BMV) agricultural land; namely Grades 2 and 3a land in the Agricultural Land Classification (ALC) system.
2. While some of the restoration proposals on some of the BMV land are for non-agricultural purposes (woodland), Natural England considers the proposed reclamation to a biodiversity and amenity afteruse acceptable, provided the methods used in the restoration and aftercare would enable the land to retain its longer term capability to be farmed to its land classification potential, thus remaining a high quality resource for the future.
3. The hectareage involved in the proposals are not clear and consistent across the Environmental Statement. Acid rich grassland can be considered as agricultural land, therefore assuming that the restoration profile is similar to that of the agricultural restoration areas the 8.1 ha of acid grassland can contribute to the restored BMV total. Likewise for the woodland areas. There is no information provided about the proposed restored soil profile for the woodland and acid grassland areas, including its suitability for these land uses; this should be provided by the applicant.
4. However, although we are generally satisfied that that the BMV land should be capable of being reclaimed without loss of quality, the submitted soil handling, restoration and aftercare proposals do not fully meet the requirements for sustainable minerals development, set out in the National Planning Policy Framework and current [Minerals Planning Practice Guidance](#), particularly section 6 titled "Restoration and aftercare of mineral sites" for the following reasons:
 - *Soil stripping and storage; Proposals adequate to retain soil and land quality*
 - *Timing of critical operations or assessment or soil moisture condition; Proposals adequate to retain soil and land quality*
 - *The choice of soil handling machinery; Proposals adequate to retain soil and land quality*
 - **Restored soil profile depths and composition; inadequate details provided to confirm soil resource is protected**
 - *A detailed and practicable Restoration Scheme; Proposals adequate to retain soil and land quality, or*
 - **An outline aftercare scheme for the management of the restored land; inadequate details provided**
5. Soil resources: The ALC survey provides details of the soil resources in the current agricultural areas but does not provide details of the soils under the existing woodland or tracks. These soils form part of the soil resource of the site and should be included in a soil inventory. The inventory then can be used to assess the volume of soils at the site and whether there is sufficient soil resource for the proposed restoration profiles. No details are provided of the target profiles under the new woodland or acid grassland. Thus it is not clear whether there are sufficient soils on site, or if there will surplus soils following restoration. Soils are a finite resource and should not be wasted. The volumes of soils provided at ES Section 4.5.2 do not tally with the areas provided in the table or elsewhere in the Statement. There needs to be clarity over soils resources at the start of the proposals and where they are to be placed.
6. Reference is made to using imported soils and clay to fill the void (ES Section 13.4.28). The use of imported soils should be avoided if possible because soil is a finite resource. If there is no alternative then the use of topsoils should be avoided.
7. An outline aftercare statement should be provided by the applicant.

8. Although the soils are naturally free draining there should be a commitment to install under drainage during the aftercare period if required. This needs to be considered in the design of the restoration proposals.
9. Natural England would therefore advise that any grant of planning permission should be made subject to conditions to address these points, safeguard soil resources and promote a satisfactory standard of reclamation appropriate to the proposed afteruses. Suggested conditions are set out in the attached Appendix.
10. In accordance with Schedule 5, Part 1, Para 4 (1) of the 1990 Act, Natural England confirms that it would be appropriate to specify agriculture as an afteruse, and for the land to be reclaimed in accordance with Para 3 (1) of the Act; namely that the physical characteristics of the land be restored, so far as practicable, to what they were when last used for agriculture.
11. Should the development proceed (and subject to no more accurate information coming to light during the working of the site), Natural England is satisfied that the Soils and Agricultural Land Classification Report in ES Appendix G constitutes a record of the pre-working ALC grading and physical characteristics of the agricultural land within the application site boundary.
12. Defra's [Good Practice Guide for Handling Soils](#) provides detailed advice on the choice of machinery and method of their use for handling soils at various phases. We welcome the adoption of "Loose-handling" methods (as described by Sheets 1-4 of the Guide), to minimise damage to soil structure and achieve high standards of restoration.
13. More general advice for planning authorities on the agricultural aspects of site working and reclamation can be found in the Defra [Guidance for successful reclamation of mineral and waste sites](#).

Should your Authority consider that there is a case for granting planning permission without conditions along the lines of those recommended in the attached Appendix, Natural England would wish to be consulted again prior to the determination of the application.

Other advice

Further general advice on the protected species and other natural environment issues is provided at Annex A.

If you have any queries relating to the advice in this letter please contact me on 02082256013.

Should the applicant wish to discuss the further information required and scope for mitigation with Natural England, we would be happy to provide advice through our [Discretionary Advice Service](#).

Please consult us again once the information requested above, has been provided.

Yours sincerely

Yana Burlachka
Lead Adviser – West Midlands Team

From:
Sent: 12 March 2020 15:27
To: Aldridge, Steven
Cc: Paul Round
Subject: FW: Seeking Comments - Proposed Quarry at Land at Lea Castle Farm - Ref: 19/000053/CM

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Steve,

I have reviewed the information submitted for application 19/000053/CM - Proposed sand and gravel quarry with progressive restoration using site derived and imported inert material to agricultural parkland, public access and nature enhancement at Land at Lea Castle Farm, Wolverley Road, Broadwaters, Kidderminster, Worcestershire

The submitted information includes a Flood Risk Assessment and Drainage Strategy (BCL Consultant Hydrogeologists Limited, Oct 2019). I believe that the site is not at risk from any type of flooding and therefore I have focused my response upon the interaction with the surrounding areas (including the water dependent SSSIs).

The site is located within the catchments of the Stour and the Blakedown Brook, which is a tributary of the Stour. The site does not contain an abundance of natural or manmade surface water drainage features, which suggests that the area is currently predominantly drained by vertical percolation to underlying strata. Infiltrated water slowly recharges the wetland SSSIs that are present in the valleys to the west (Stour: Puxton and Stourvale Marsh) and to the east (Blakedown Brook: Hurcott and Podmore Pools).

The lowest planned sections of mineral extraction (and thus subsequent infilling) are between 16 to 24 m above the level of the water table. The submitted information sets out that during the operational phase rainfall will be drained naturally through the floors of the mineral extraction, mimicking the present situation. There will be no dewatering and no other pumped or overland gravity discharges of rainfall runoff will be made from the site during the operational phase.

Following the quarrying phase the site will be infilled with inert waste materials and then covered in approximately 1.2 m of topsoil. It is stated that the covering with topsoil will ensure that the water logging of soils above the restoration infill is unlikely. The infill material will be of significantly lower permeability than the current aquifer materials (that will be quarried) and therefore it is likely that following infilling more water will runoff, and less water will percolate into the underlying strata. The additional volume of runoff that will be generated has been estimated as 550 m³ for a 1:100-year storm + 40% climate change allowance. The proposal is that a network of buried land drains will be installed, falling out to a number of landscaped soakaway ponds situated at the margins of the infill material (total surface area: c.2,160m²). Following abatement of storm conditions the temporarily retained runoff (causing a temporary 0.25m increase of pond levels in a 1:100-year storm + 40% climate change allowance) would drain to underlying strata over a period of hours to days. The idea is that drainage of rainfall runoff within the restored site will, as at present, be made via percolation to underlying strata (via the soakaway ponds), and that there will be no overland gravity discharges of rainfall runoff from the site.

Conclusion

I believe that the site is not at risk from any type of flooding and therefore I have focused my response upon the interaction with the surrounding areas (including the water dependent SSSIs). The submitted information sets out a strategy that aims to ensure that the amount of percolation to the underlying strata, that recharges the water dependent SSSI, will remain unaltered with new land drains and soakaway ponds compensating for the lower permeability of the infill materials. I believe it should be made clear who will maintain these features following restoration; land drainage is not something that is enforceable under the Land Drainage Act 1991.

In addition, I wonder whether the use of aboveground SuDS features rather than buried land drains could be explored.

I also believe that it need to be made clear when in the phasing the land drains soakaway ponds will be installed.

Reviewing the cross sections it seems to me that any excess water would not be able to leave the site as the restored site appears to be lower than the surrounding land. I am not sure whether I interpret this correctly. I believe that an assessment should be made of any changes in 'exceedance' overland flow routes leaving the site following the development (this represents a worst case scenario in which the soil become water logged and/or the newly installed land drainage does not function). I believe this assessment is required to ensure the development will not increase the flood risk to others.

I would welcome a response to these queries as part of the current application. If you are however minded to approve this application prior to this, then I would request that a detailed surface water drainage condition will get attached:

"No infilling works shall take place until a site drainage plan for the proposed development has been submitted to, and approved in writing by the Local Planning Authority. The plan shall include details of land and surface water drainage measures and shall conform with the principles set out in the Flood Risk Assessment and Drainage Strategy submitted with the application (BCL Consultant Hydrogeologists Limited, Oct 2019). It shall include an assessment of the use of sustainable drainage systems (SuDS). It shall detail the strategy that will be followed to facilitate the optimal functionality and performance of the drainage scheme throughout its lifetime. The development shall be implemented in accordance with the approved drainage plan and thereafter maintained."

Best wishes,

Kirsten

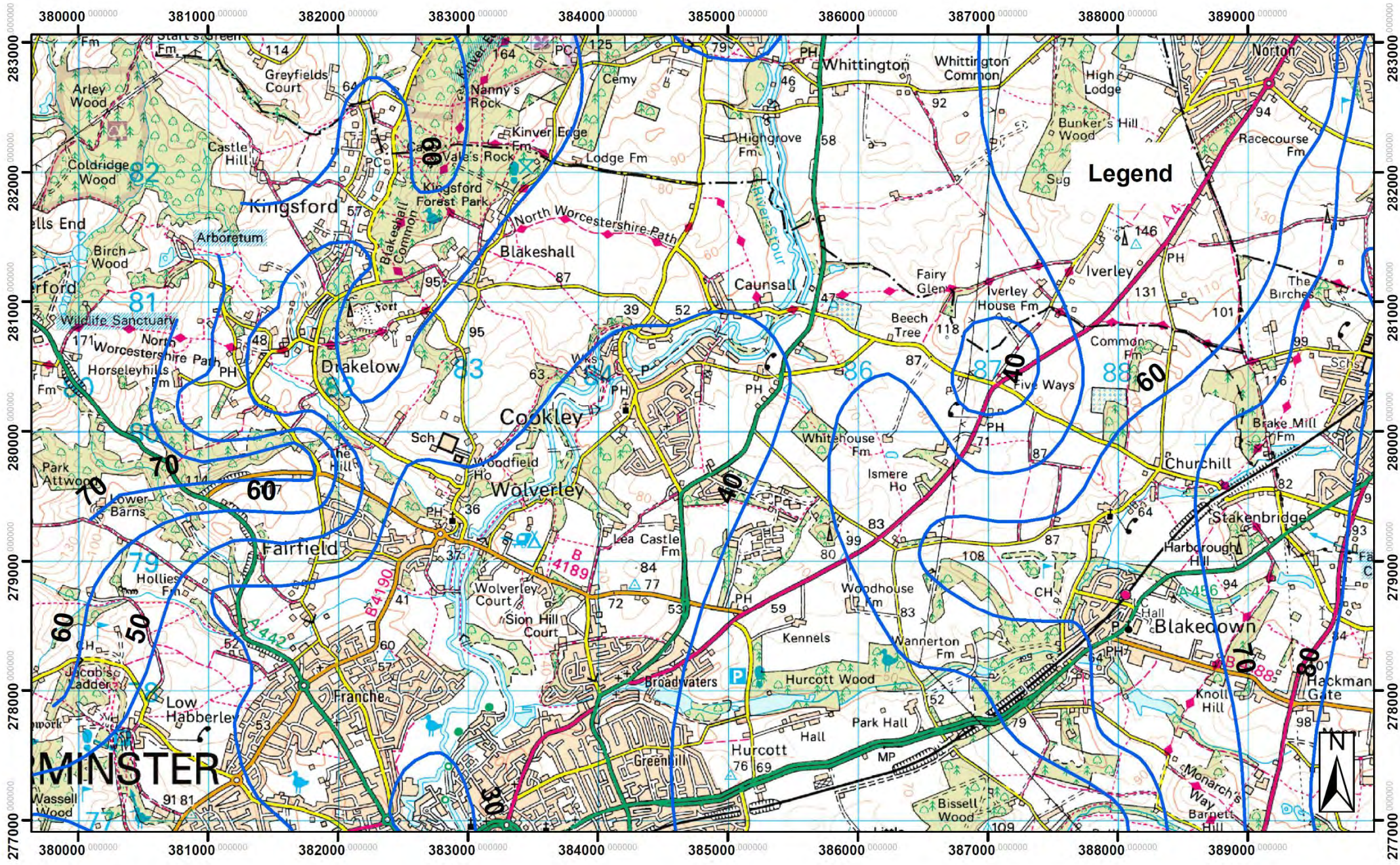


Kirsten Huizer
Senior Water Management Officer
Wyre Forest District Council
A shared District Council service covering Bromsgrove, Redditch & Wyre Forest
Wyre Forest House, Finepoint Way, Kidderminster, DY11 7WF

Keep up to date on the latest news via  [NorthWorcsflooding](#)

FLOODS
DESTROY
BE PREPARED

Appendix 2 – Environment Agency Regional groundwater model data contour plot



Scale as shown

Indicative groundwater (Permo Triassic Sandstone)
level contours (mAOD) May 2009

This map is reproduced with the permission of Ordnance Survey on behalf of Her Majesty's Stationary Office.
Environment Agency. GD 03177G. (2002)

Appendix 3 – Restoration and Surface Water Management drawings



Concept Restoration

Concept Restoration
 The aim of the Restoration Scheme is the creation of a "High Quality Agricultural Parkland".

Re-engaging, adapting and connecting the local landscape for efficient and profitable agricultural land management and for public amenity benefits in respect of enjoyment, access, and wellbeing, along with the creation of habitats to support wildlife Biodiversity.

Summary of Restoration Outcomes:

- Recreation of quality landscape/parkland and agricultural setting
- Additional connections both east - west and north - south to allow access for walkers, cyclists and horse riders, off and away from roads (over 2.3km)
- Establishment of benches along avenue and heritage / educational signage / pocket parks
- Planting of ~ 200 avenue and parkland trees
- Planting of ~ 6,000 native trees and shrubs
- Creation of ~ 8.6 hectares of Acidic Rich Meadow (a target Biodiversity Action Plan species)
- Over 1km of managed Native Hedgerows
- Reinstatement of all Best and Most Versatile Agricultural Land
- Permanent Aftercare and Management of All Land within the Site

LEGEND

- Application Boundary
- Existing Woodland, Trees & Scrub
- Existing Hedgerows/Hedgerow Trees
- Existing Public Rights of Way
- Existing Buildings/Structures/Roads and Tracks
- Existing Contours Meters above Ordnance Datum
- Proposed Contours Meters above Ordnance Datum
- Undisturbed Agricultural Land within the Planning Application Boundary
- Restoration Proposals**
- Restored Agricultural Grassland
- Proposed Woodland / Tree Planting
- Proposed Acid Grassland
- Proposed Ephemeral Pools
- Proposed Pocket Parks
- Proposed Public Rights of Way (Footpath / Bridleway / Cycleway)
- Section Locations (See Planning Application Drawing No. 16)

Note: it is suggested that PROW refs. 62 4(B) and 62 2(C) are updated from Footpath to Bridleways as part of the Proposed Development.



PROJECT:
Lea Castle Farm

TITLE:
Concept Restoration






REF NO:
KD,LCF,031

DATE: **September 2020** SCALE: **1:5,000 @ A3**

STATUS:
FINAL



LEGEND

-  Application Boundary
-  Existing Contours Meters above Ordnance Datum
-  Proposed Contours Meters above Ordnance Datum
-  Proposed Ephemeral Surface Water Management Ponds
-  Proposed Drainage Ditch



PROJECT:
Lea Castle Farm

TITLE:
Surface Water Management

REF NO:
KD.LCF.032

DATE: **September 2020** SCALE: **1:5,000 @ A3**

STATUS:
FINAL

