

Sophie Thorpe

From: PlanningSSD - [REDACTED]
Sent: 10 September [REDACTED]
To: Sophie Thorpe
Subject: RE: 200904/keh02FW: Site at Littlehampton - Pre-planning enquiry
Attachments: SSD Pre-app advice note September 2019.pdf; Terms and Conditions April 2018.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Sophie,

Thank you for consulting the Environment Agency on the above pre-application.

1. Queries relating climate change allowances will need to be directed to our Partnership & Strategic Overview Team (PSO) - PSOWestSussex@environment-agency.gov.uk
2. Queries relating to historical flooding will need to be directed to PSO (Product 5 request)
3. Please note the Town and Country Planning (Development Management Procedure) (England) Order 2015, came into force on 15 April 2015. The Order removed the Environment Agency as a statutory consultee in relation to surface water drainage, unless it is within an area that has critical drainage problems. In addition the revisions made Lead Local Flood Authorities (LLFAs) a statutory consultee on major developments with surface water drainage. As such we recommend that you liaise with the Lead Local Flood Authority (LLFA) Drainage Engineer if you have any additional queries in respect of surface water
4. The Local Authority (Arun) will be able to clarify the vulnerability classification

Having reviewed your proposal we are providing you with a preliminary opinion, which outlines the key environmental issues within our remit and provides guidance on any actions you need to undertake. It also provides hyperlinks to where you can obtain further information and advice to support your planning application. We offer one free preliminary opinion per site, per applicant /developer.

The Environmental Constraints identified on the site include:

- Flood Zones 2 and 3
- Statutory Main River
- Principal Aquifer

Based on the information currently available, the development raises some environmental concerns that you will need to address as part of your planning application. Further work will be needed to show how these issues can be satisfactorily addressed to ensure no environmental impacts.

Should you wish us to review any technical documents or want further advice to address the environmental issues, we can do this as part of our charged for service.

Further engagement at the pre-application stage will speed up our formal response to your planning application and provide you with certainty as to what our response to your planning application will be. It should also result in a better quality and more environmentally sensitive development. As part of our charged for service we will provide a dedicated project manager to act as a single point of contact to help resolve any problems.

We currently charge £100 per hour plus VAT. We will provide you with an estimated cost for any further discussions or review of documents. The terms and conditions of our charged for service are attached.

Please note: This response is based on the information you have made available at this time. It is based on current national planning policy, associated legislation and environmental data / information. If any of these elements change in the future then we may need to reconsider our position.

We trust that the above information is of assistance. If you'd like further detailed advice, please don't hesitate to contact us.

Kind regards,

Sustainable Places Team

Environmental Planning and Engagement | Solent and South Downs



From: Enquiries, Unit

Sent: 04 September 2020 15:39

To: [REDACTED]

Subject: 200904/keh02FW: Site at Littlehampton - Pre-planning enquiry

Dear Sophie,

Thank you for your pre-planning enquiry.

I have passed your enquiry to our Sustainable Places team for the relevant area and they will be in touch with you shortly.

The Freedom of Information Act and Environmental Information Regulations state that a public authority must respond to requests for information within 20 working days, but we aim to respond to all enquiries as quickly as we can.

You can find more information about our service commitment by clicking on the link below:

<https://www.gov.uk/government/publications/environment-agency-customer-service-commitment>

Should you wish to contact the Sustainable Places team directly, please use the contact details below. Please quote your Enquiry Reference 200904/keh02 in any correspondence with us regarding this matter.

Sustainable Places
Environment Agency
Solent & South Downs Area
Guildbourne House
Chatsworth Road
Worthing
West Sussex
BN11 1LD

Kind Regards

Katherine Hughes
National Customer Contact Centre
Environment Agency



From: Sophie Thorpe [REDACTED]

Sent: 01 September 2020 15:36

To: Enquiries, Unit <enquiries@environment-agency.gov.uk>

Subject: Site at Littlehampton - Pre-planning enquiry

Dear External Relations,

Please find attached a pre-planning enquiry for the site named above, along with a site location plan.

We would appreciate any comments you may have on this site, particularly regarding flood risk and drainage and the following questions:

1. Please can you confirm the new climate change allowance (%) which should be included within our assessment of flood risk. Please can you also confirm the acceptable technical methodology for applying this new allowance.
2. Are there any historical reports of flooding that you are aware of in the area surrounding the site? If so what is the source of these events?
3. Are there any particular local requirements relating to the proposed drainage strategy for the area? i.e. in relation to expected discharge rates etc.
4. Please could you clarify the Agency's position regarding the proposal to change the vulnerability rating of the development?

(Please note, we have also sent a request for product 4 data in a separate request).

Whilst we have attempted to cover all relevant details in the questions above we are aware that the local knowledge of the Environment Agency is often essential in ensuring that a robust Flood Risk Assessment is achieved. Therefore if there are other issues or information over and above the responses to the questions above that you feel may be of use in this work we would be most grateful if you could let us know.

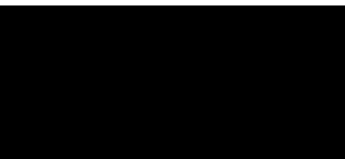
If you require any additional information, please do not hesitate to contact me.

Many thanks.

Kind regards,

Sophie Thorpe
Hydrologist

RSK
18 Frogmore Road, Hemel Hempstead, Hertfordshire, HP3 9RT, UK



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Registered number: 4723837

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Solent & South Downs Area

Pre-application Advice Note

September 2019

This document sets out the environmental issues we will consider when providing our planning application consultation advice to Local Councils. It can be used by applicants, developers and consultants at the pre-planning stage.

Fluvial Flood Risk

Development must be safe and should not increase the risk of flooding.

You can view a site's flood zone on the Flood Map for Planning on our website: <https://flood-map-for-planning.service.gov.uk>

If your proposed development is located within flood zone 2 or 3 you should consult the Flood Risk and Coastal Change pages of the National Planning Policy Guidance (NPPG)

<http://planningguidance.communities.gov.uk/blog/guidance/flood-risk-and-coastal-change/>

Here you can determine whether the flood risk vulnerability of your proposed development and the flood zone are compatible. You can also establish if there are flood risk sequential test and exception test requirements for your proposed development. In the first instance we recommend the developer/applicant liaises with the Local Planning Authority (LPA) to undertake the Sequential Test in accordance with the National Planning Policy Framework (NPPF).

If your proposed development is located within flood zone 2 or 3 and its vulnerability and flood zone are considered acceptable under the NPPG then a site specific Flood Risk Assessment (FRA) is required to support any subsequent planning application. This is required by paragraph 163 of the NPPF: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

Guidance on the content of a site specific FRA can be found in the NPPG and online: <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>

More detailed flood risk modelling data is available to help you produce a FRA please contact our Customers and Engagement team at SSDenquiries@environment-agency.gov.uk.

Climate Change Allowances

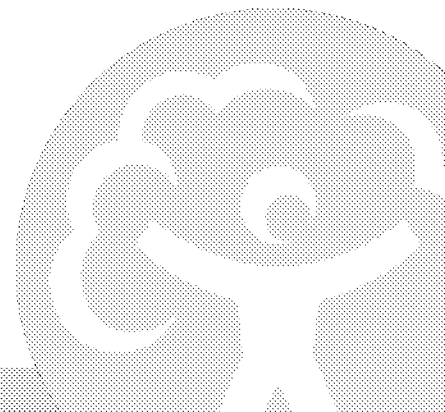
On 19 February 2016, we published new guidance for planners and developers on how to use climate change allowances in a site-specific FRA: <https://www.gov.uk/guidance/flood-risk-assessments-climatechange-allowances>

Groundwater Quality

Development must not cause pollution to the water environment.

Source Protection Zones

We have defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used across the country for public drinking water supply. These zones are more sensitive to contamination from activities that might cause pollution in the area. The closer the activity, the greater the risk.



SPZ1s are the areas designated as most at risk from contamination and development activities and in these areas we may consider it inappropriate for development to discharge foul or surface water into the ground.

To see if your proposed development is located within a Source Protection Zone, please use our online map: <https://magic.defra.gov.uk/>

Contaminated Land

The NPPF takes a precautionary approach to land contamination. Before the principle of development can be determined, land contamination should be investigated to see whether it could preclude certain development due to environmental risk or cost of remediation. Where contamination is known or suspected, a desk study, site investigation, remediation and other works may be required to enable safe development.

Pollution

If the proposed development use has the potential to pollute ground or surface water receptors then an assessment to establish whether the risk of pollution is acceptable or can be mitigated will be required within any planning application.

Foul Drainage

When drawing up wastewater treatment proposals for any development, the first presumption is to provide a system of foul drainage discharging into a public sewer to be treated at a public sewage treatment works (those provided and operated by the water and sewerage companies). This should be done in consultation with the sewerage company of the area prior to the submission of a formal planning application.

If connection to a public sewage treatment plant is not feasible, a package sewage treatment plant may be considered. If you would like further advice please call 03708 506 506.

Cemeteries

The development of new cemeteries in areas where groundwater vulnerability is high should be avoided, except where the thickness and nature of the unsaturated zone, or the impermeable formations beneath the site, protect groundwater; or where the long-term risk is mitigated by appropriate engineering methods.

Main Rivers

Ecology

In accordance with the National Planning Policy Framework (NPPF), any development proposal should avoid significant harm to biodiversity and seek to protect and enhance it. Opportunities to incorporate biodiversity in and around the development will be encouraged.

Your scheme should be designed with a naturalised buffer zone of at least 8 metres from the main river to protect and enhance the conservation value of the watercourse and ensure access for flood defence maintenance.

This buffer zone should be managed for the benefit of biodiversity for example by the planting of locally appropriate, UK native species. The buffer zone should be undisturbed by development with no fencing, footpaths or other structures. This buffer zone will help provide more space for flood waters, provide improved habitat for local biodiversity and allows access for any maintenance requirements.

To identify any Main Rivers in proximity to your proposed development please see our Main Rivers Consultation Map: <http://apps.environment-agency.gov.uk/wivbv/151293.aspx>

customer service line
03708 506 506

incident hotline
0800 80 70 60

floodline
0345 988 1188

www.gov.uk/environment-agency

Culverting

The Environment Agency is likely to oppose culverting as it is damaging to the ecological integrity of the river channel and its corridor and acts as a barrier to the movement of wildlife, including fish and may also increase flood risk. If the proposal will impact an existing culvert the Environment Agency may oppose planning consent for development either over, or within 8 metres of an existing culvert. Wherever possible, existing culverts should be removed and the river channel and bankside habitat reinstated to restore the ecological continuity of the river channel and its corridor.

Water Framework Directive (WFD)

Any marine works below MHWS require an assessment of possible impacts on Water Framework Directive (WFD) . The assessment should include all elements of the works that fall within, or have the potential to affect, a WFD water body and any of the protected areas therein (including Bathing Waters and Shellfish Waters).

The WFD assessment should follow the 'Clearing the Waters for All' guidance available at <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>

Where appropriate, a WFD Assessment should assess any potential impacts and demonstrate that the required enhancements will be delivered. In some cases the requirements of a WFD assessment can be incorporated into an Environmental Impact Assessment (EIA). Any development that has the potential to cause deterioration in classification under WFD or that precludes the recommended actions from being delivered in the future is likely to be considered unacceptable to us.

Permits & Consents

Environmental Permitting Regulations

To see if your proposed development requires an Environmental Permit under the Environment Permitting Regulations please refer to our website: <https://www.gov.uk/guidance/check-if-you-need-an-environmental-permit>

From 6 April 2016 an Environmental Permit is required for any proposed works or structures, in, under, over or within 8 metres of the top of the bank of designated Main River, and within 16 metres of a tidal defence.

Ordinary Watercourse Consent

The prior written consent of the relevant Lead Local Flood Authority is required for the erection of any flow control structures, culverting or diversion of ordinary watercourses, including streams, land drains and ditches.

Marine Licence

A marine licence may be required for any activities at the mean high water spring tide up to the territorial limit. This also includes the waters of every estuary, river or channel where the tide flows at mean high water spring tide.

Any development must demonstrate how adverse impacts on migratory fish, bathing waters, shellfish waters, designated sites, protected and priority species and habitats will be avoided, minimised, mitigated and if necessary compensated for. Works within or affecting a Water Framework Directive (WFD) waterbody will need to demonstrate that compliance with WFD objectives will be achieved. 'Clearing the Waters for All' provides guidance on how the impacts on WFD should be addressed, and should be used when preparing an assessment, including the screening and scoping of activities. <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>

Further pre-application options

The information provided above details generic information which may or may not be applicable to your development. We are able to provide more detailed and bespoke advice and answer technical questions for a charged fee of £100 per person per hour +VAT.

If you are interested in finding out more about this service, please email:

planningssd@environment-agency.gov.uk

We can explain this service and provide you with a bespoke quote for further pre-application advice that you may require please see .gov - <https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion>

Please note

Please note that the view expressed in this letter by the Environment Agency is in response to the enquiry only and does not represent our final view in relation to any future planning application made in relation to this site.

We reserve the right to change our position in relation to any such application.

As part of this preliminary response we have not technically reviewed any documents. This opinion is based on the information submitted and current planning policy and guidance.

If you have any questions please contact the Solent & South Downs Sustainable Places team:

planningssd@environment-agency.gov.uk

To make a request for data

Please submit your request for data to ssdenquiries@environment-agency.gov.uk. You should get the information within 20 working days. We will tell you when to expect the information if we need more time.

There are many datasets available online at www.data.gov.uk including flood maps, historic landfill, waste exemptions, consented discharges to controlled waters, and much more.

customer service line
03708 506 506

incident hotline
0800 80 70 60

floodline
0345 988 1188

www.gov.uk/environment-agency

Sophie Thorpe

From: [REDACTED]
Sent: 06 October 2020 14:41
To: Matthew Cheeseman; Sophie Thorpe
Subject: AC19021-Riverside Industrial Estate, Littlehampton - Culverted Main River

Kind regards

Matthew Woods
BEng (Hons)
Technical Director (Civil Engineering)



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[REDACTED]
Centre, Mill Lane, Underriver, Sevenoaks, TN15 0SQ. Tel: 01732 838 050

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From: Jackson, Adrian [REDACTED]
Sent: 18 May 2020 15:46
To: Matthew Woods [REDACTED]
Cc: Block, Damon [REDACTED] Rudwick, And [REDACTED]
[REDACTED]

Subject: RE: AC19021-Riverside Industrial Estate, Littlehampton - Culverted Main River

Hi Matthew

Thank you for your additional information. I can confirm that the other EA functions whom would have an interest in these proposals have a 'no objection' in principle.

As discussed, on the basis that all the land is within your clients ownership, it's certainly the favoured option from an EA standpoint.

The only areas of concern and comment were as follows:

It needs to be ensured that the right hand bank i.e closest to the A259 is 'stable' once the culvert is removed, and when the channel is opened up, if space allows a 2 stage channel be considered. Also with regards any vegetation/ tree clearance we are still in the bird nesting period, so this should be undertaken outside of the nesting season.

In terms of Items 2 and 3 an additional FRAP would be needed, but it would be preferable to include all on the same FRAP if the work activity timetables allow.

Based on the previous aborted attempts to CCTV the culvert, you'd have to think that conventional CCTV cameras will result in the same outcome. I would recommend that consideration be given to using a sonar camera, which is specialist piece of kit, and not cheap, which allows inspections when water levels and silt cause obstruction. You'd really want to avoid dewatering and silt removal although temporary works of some description would be likely during the dismantling. Let me check on this though, as from memory, we also investigated the sonar camera option and were told it was still not feasible.

It might be worth seeing if the manhole on the microfiche drawing can be accessed and whether a CCTV survey could be undertaken from a different entry point.?

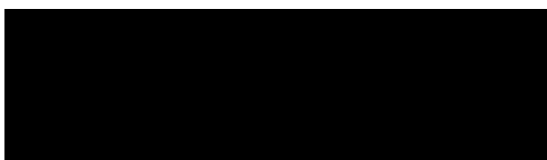
I think we are progressing slowly. Again call me if you need to.

best regards - adrian

Adrian Jackson

PSO West Sussex | Partnership & Strategic Overview | West Sussex

Environment Agency | Guildbourne House, Chatsworth Road, Worthing, West Sussex, BN11 1LD



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From: Matthew Woods

Sent: 13 May 2020 18:10

To: Jackson, Adrian

Cc: PSO West Sussex

> Tim Bromley-Martin
> Roger Hamblin; Martin Howell

Work: Glen Ernest

Subject: AC19021-Riverside Industrial Estate, Littlehampton - Culverted Main River

Dear Adrian

Following our recent telephone conversation regarding the above we have sketched up a potential "open channel" solution which would daylight a large section of the currently culverted main river whilst still delivering the size of building our client hopes to build (See our revised Services & Culvert Sketch, Sketch No. Ac19021-SK-C-002 Rev P4).

As discussed the above proposal would create a pinch point on the corner of the building and we have tentatively shown the channel central to the gap to provide maximum access to both sides. If this proposal is acceptable in

principle could you please confirm and we will then work this option up in further detail to formally submit to the planners / EA.

It may be that we could also adapt and adjust the proposed open channel route slightly to allow the channel to be formed "off-line" for the bulk of the culvert to minimise disruption to the culverted river as much as possible. Would this be acceptable, in principle, to the EA as well?

As you are aware we have already tried to locate the culvert using Ground Penetrating Radar (GPR) and cameras but due to the site conditions at the time were unable confirm the culvert location.

We understand from our conversation that the EA will still need to know the location of the culvert in relation to the development, which ever option is progressed.

Given the above we have discussed possible options to locate the culvert with the Client / Client team and listed possible the options below.

1. Clear the entire area of interest to ground level, and ensure surface is suitable to re-run the area with the GPR equipment (this will need to be checked with the GPR specialist to discuss further).
2. As above but then carefully carry out a series of exploratory trenches to intercept and expose the culvert. Repeat as required to fully establish the line and level of the culvert route.
3. Investigate with CCTV / GPS equipment from inside the culvert i.e. floating camera / GPS equipment pushed or pulled through the culvert, tractor unit. This option would likely require the culvert to be de-watered and de-silted either partly or fully. Historic EA information suggests that the silt may be contaminated to some degree (old CCTV investigation commissioned by the EA noted this) so would require careful management and control to remove.

Would any of the above require permits, licences or approval from the EA to undertake? We assume that item 1 would not because it is not intrusive and won't have any potential to damage the culvert.

Given the above does the EA have any objections or comments to the potential options for further investigation or any additional options for establishing the line and level?

If you have any questions regarding the above or would like to discuss anything further then please call or e-mail. In the meantime we look forward to your reply.

Kind regards

Matthew Woods
BEng (Hons)
Technical Director (Civil Engineering)



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From: Jackson, Adrian [REDACTED]
Sent: 11 May 2020 14:55
To: Matthew Woods [REDACTED]
Cc: PSO West Sussex [REDACTED]
Subject: RE: AC19021-Riverside Industrial Estate, Littlehampton

Hi Matthew

Thanks for your email. I hope you've adopted a working pattern that suits in these strange times.

It's a little disappointing that the original proposals are not being pursued, and I would suggest that this is still your best option. I guess the revised plan is the cheaper option.

However first and foremost the pipe location needs to be established, and cannot be second guessed. Before any FRAP is applied for, this information needs to be obtained, and to confirm a methodology would still be needed, which is pre requisite for detail in terms of the FRAP. Regarding the other data referred to in the email 18/03, I am not asking for exhaustive amounts of detail, and in most cases, it can be provided with basic annotation, on one masterplan.

Whilst it is noted that you state the buried services could not pick up the route, this could (subject to all the necessary service searches) be ascertained by carefully removing the earth cover with a mini excavator, and a trail pit dug, and then by hand, for the remaining section, once you are in the proximity of the culvert roof.

Based on the sketch provided the building edge is far too close to the assumed culvert line location. Even if the watercourse were open, I think you would be looking at a 3 to 4 metre distance from the proposed building edge.

Furthermore we do not know the culvert condition, and the building extension itself, could be seriously compromised if structural failure of the culvert was to occur, and there is the issue of having to get access, if it was ever needed in the future.

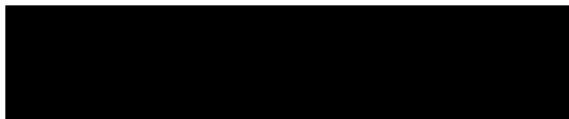
If you need to discuss anything with me, please do hesitate in contacting me further and/or call me if it's easier.

with regards Adrian

Adrian Jackson

PSO West Sussex | Partnership & Strategic Overview | West Sussex

Environment Agency | Guildbourne House, Chatsworth Road, Worthing, West Sussex, BN11 1LD



ARE YOU AT RISK FROM FLOODING?

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From: Matthew Woods

Sent: 07 May 2020 17:50

To: Jackson, Adrian

Cc: PSO West Sussex

; Strudwick, Andy

Tim Bromley-Martin

<glen.ernest@gdmarchitects.co.uk>; Martin Howell

<[REDACTED]>; Roger Hamblin [REDACTED]
Subject: AC19021-Riverside Industrial Estate, Littlehampton [REDACTED]

Dear Adrian

It's been a while since we last spoken. I trust you are keeping safe and well?

Following receipt of your information below (which was very useful thank you) we have reviewed the microfiche files in conjunction with a recently commissioned topographical / buried utilities survey of our Client site and prepared a best fit overlay of the information over which the proposed development has been added, see attached sketch AC19021-SK-C-002 Rev P3.

Unfortunately due to existing site constraints / ground conditions and the condition of the culverted river it was not possible to establish the exact line of the culvert using the standard buried services detection equipment, therefore we have used the microfiche information to establish the line at this stage to enable the proposed development to be worked up.

Based on the above our Client has reduced the size and location of the proposed unit to avoid physically building over the culvert (although it is still very close) as well as mitigate the need for diverting / daylighting the river.

Given the above we assume that the methodology listed in your e-mail below will not now apply, although we assume that our Client will still need an Flood Risk Activities Permit (FRAP) because the proposed building will be within 8m of the culverted main river; although we would appreciate your confirmation of this as well as next steps.

We look forward to receiving your earliest reply.

Kind regards

Matthew Woods
BEng (Hons)
Technical Director (Civil Engineering)



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[REDACTED]
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From: Jackson, Adrian [REDACTED]

Sent: 18 March 2020 14:23

To: Matthew Woods [REDACTED]

Cc: PSO West Sussex [REDACTED]

Strudwick, Andy

Subject: Riverside Industrial Estate

Hello Matthew -- I'm sorry this has taken so long in responding. Thank you for your patience.

I have attached some plans from our historic microfiche (more to follow) which show the route of the culvert with manhole locations, and other info. (You will need to 'jigsaw' them together) I'm not sure it will tell you anything you don't know already, but it may assist you.

In terms of information we will need in terms of a FRAP application, it is as follows below:

- # plan showing existing buildings and distances to the existing culvert
- # plan showing length of culvert to be demolished (with length measurement.) The more you can open up the better
- # plan showing infilled section of culvert in relation to the proposed new extension
- # plan showing 'new cut' with length measurement, and how it will tie in with existing culvert
- # plan showing bed width dimension, bank slope of 'new cut' and distances to existing building and proposed extension
- # plan showing existing culvert dimensions.
- # RAMS with details of dewatering and temporary works.

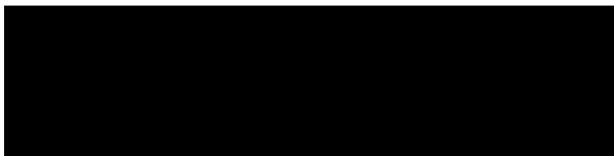
Any problems give me a call on the number below.

many thanks Adrian

Adrian Jackson

PSO West Sussex | Partnership & Strategic Overview | West Sussex

Environment Agency | Guildbourne House, Chatsworth Road, Worthing, West Sussex, BN11 1LD



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Sophie Thorpe

From: Matthew Woods [REDACTED]
Sent: 06 October 2020 14:47
To: Matthew Cheeseman; Sophie Thorpe
Subject: AC19021-Riverside Industrial Estate, Bridge Road, Wick, Littlehampton, BN17 5DF
Attachments: AC19021-SK-C-002P6.pdf

Kind regards

Matthew Woods
BEng (Hons)
Technical Director (Civil Engineering)



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[REDACTED] Centre, Mill Lane, Underriver, Sevenoaks, TN15 0SQ. Tel: 01732 838 050

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From: Matthew Woods
Sent: 08 September 2020 13:55
To: 'Jackson, Adrian' [REDACTED]
Cc: PSO West Sussex [REDACTED]
Subject: AC19021-Riverside Industrial Estate, Bridge Road, Wick, Littlehampton, BN17 5DF

Hi Adrian

Thank for the chat earlier regarding the above.

As discussed our Client has now been able to carry out further survey / investigation works to the culverted main river and establish the line and level of the culvert where it passes through our Client's development.

As such please find attached our Services and Culvert Sketch No. AC19021-SK-C-002 Rev P6 which now shows the proposed works to divert / daylight (as far as practical) and culvert the existing culverted main river to enable our Client's development proposal to be delivered.

Whilst we understand in an ideal world it would be preferential to fully daylight the culverted main river, in preparing the above we do not believe it is practical / possible due to site constraints. Therefore we have shown a hybrid solution (part open channel / part culverted channel), diverting the original culvert route to enable the proposed development suit the development which we hope will be acceptable in principle to the EA.

We have shown the new bank profile of the "open channel" section of the diverted Main River with 1 in 2 side slopes with an, almost vertical sided main channel, this profile reflects the existing open channel section down stream of the culvert. We may be able to adjust and flatten the slope by introducing a vertical step / s in the bank profile but this would need to be discussed with yourselves at detail design stage.

The above sketch has been issued for your information and initial comments / approval in principle at this stage. It hopefully addresses the majority of the items raised in your e-mail dated 18th March 2020 with the exception of the request for RAMS with details of dewatering and temporary works. However we do not believe this is required at this feasibility / pre-planning stage.

Our Client is also currently working towards a making a planning application submission and is collating the necessary documents and drawings required for this so we assume you may also be asked to comment during the planning process.

If you have any questions regarding the above then please call.

In the meantime we look forward to your earliest reply.

Kind regards

Matthew Woods

BEng (Hons)

Technical Director (Civil Engineering)



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From: Jackson, Adrian

Sent: 09 June 2020 12:55

To: Matthew Woods

Cc: PSO West Sussex

Subject: Riverside Industrial Estate, Littlehampton

Hi Matthew – Regards your message, to reiterate the Environment Agency would not support a building extension over the culvert.

The main reasons being, the structural integrity of the culvert is unknown, and if the pipe was to collapse, or need urgent remedial work there would be no way to access it. It would cause all manner of issues. I doubt whether Arun District Council's Building Control team would support it either.

As I see it, there are only two options which you can pursue.

Construction of the extension with a minimum distance of 4 – 5 metres from the existing culvert, or opening up the watercourse and re-routing subject to, and bearing in mind the EA comments previously made. (e.g opposite side bank stability, watercourse width, bank profiles etc)

I trust this email correspondence is sufficient for your requirements.

Let me know if otherwise.

many thanks adrian

Adrian Jackson



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Sophie Thorpe

From: Matthew Woods [REDACTED]
Sent: 06 October 2020 14:39
To: Matthew Cheeseman; Sophie Thorpe
Subject: AC19021-Riverside Industrial Estate, Littlehampton - Culverted Main River

Kind regards

Matthew Woods
BEng (Hons)
Technical Director (Civil Engineering)



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[REDACTED]
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From: Jackson, Adrian [REDACTED]
Sent: 14 May 2020 07:00
To: Matthew Woods <matthewwoods@abstruct-consult.com>
Subject: RE: AC19021-Riverside Industrial Estate, Littlehampton - Culverted Main River

Hi Matthew -- many thanks for the revised plan detail.

I've forwarded to our ecologist and our Asset Team Leader for additional comment.

I would imagine I will be in position to respond early next week.

best regards - adrian

From: Matthew Woods [REDACTED]
Sent: 13 May 2020 18:10
To: Jackson, Adrian [REDACTED]
Cc: PSO West Sussex [REDACTED]; Tim Bromley-Martin [REDACTED]
[REDACTED] <[REDACTED]@[REDACTED].co.uk>; Martin Howen [REDACTED]
[REDACTED]
Subject: AC19021-Riverside Industrial Estate, Littlehampton - Culverted Main River

Dear Adrian

Following our recent telephone conversation regarding the above we have sketched up a potential "open channel" solution which would daylight a large section of the currently culverted main river whilst still delivering the size of building our client hopes to build (See our revised Services & Culvert Sketch, Sketch No. Ac19021-SK-C-002 Rev P4).

As discussed the above proposal would create a pinch point on the corner of the building and we have tentatively shown the channel central to the gap to provide maximum access to both sides. If this proposal is acceptable in principle could you please confirm and we will then work this option up in further detail to formally submit to the planners / EA.

It may be that we could also adapt and adjust the proposed open channel route slightly to allow the channel to be formed "off-line" for the bulk of the culvert to minimise disruption to the culverted river as much as possible. Would this be acceptable, in principle, to the EA as well?

As you are aware we have already tried to locate the culvert using Ground Penetrating Radar (GPR) and cameras but due to the site conditions at the time were unable confirm the culvert location.

We understand from our conversation that the EA will still need to know the location of the culvert in relation to the development, which ever option is progressed.

Given the above we have discussed possible options to locate the culvert with the Client / Client team and listed possible the options below.

1. Clear the entire area of interest to ground level, and ensure surface is suitable to re-run the area with the GPR equipment (this will need to be checked with the GPR specialist to discuss further).
2. As above but then carefully carry out a series of exploratory trenches to intercept and expose the culvert. Repeat as required to fully establish the line and level of the culvert route.
3. Investigate with CCTV / GPS equipment from inside the culvert i.e. floating camera / GPS equipment pushed or pulled through the culvert, tractor unit. This option would likely require the culvert to be de-watered and de-silted either partly or fully. Historic EA information suggests that the silt may be contaminated to some degree (old CCTV investigation commissioned by the EA noted this) so would require careful management and control to remove.

Would any of the above require permits, licences or approval from the EA to undertake? We assume that item 1 would not because it is not intrusive and won't have any potential to damage the culvert.

Given the above does the EA have any objections or comments to the potential options for further investigation or any additional options for establishing the line and level?

If you have any questions regarding the above or would like to discuss anything further then please call or e-mail. In the meantime we look forward to your reply.

Kind regards

Matthew Woods

BEng (Hons)

Technical Director (Civil Engineering)



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From: Jackson, Adrian <[REDACTED]>

Sent: 11 May 2020 14:55

To: Matthew Woods [REDACTED]
Cc: PSO West Sussex [REDACTED]
Subject: RE: AC19021-Riverside Industrial Estate, Littlehampton

Hi Matthew

Thanks for your email. I hope you've adopted a working pattern that suits in these strange times.

It's a little disappointing that the original proposals are not being pursued, and I would suggest that this is still your best option. I guess the revised plan is the cheaper option.

However first and foremost the pipe location needs to be established, and cannot be second guessed. Before any FRAP is applied for, this information needs to be obtained, and to confirm a methodology would still be needed, which is pre requisite for detail in terms of the FRAP. Regarding the other data referred to in the email 18/03, I am not asking for exhaustive amounts of detail, and in most cases, it can be provided with basic annotation, on one masterplan.

Whilst it is noted that you state the buried services could not pick up the route, this could (subject to all the necessary service searches) be ascertained by carefully removing the earth cover with a mini excavator, and a trial pit dug, and then by hand, for the remaining section, once you are in the proximity of the culvert roof.

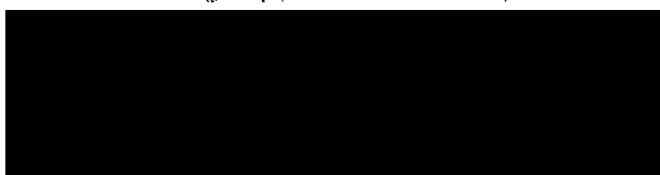
Based on the sketch provided the building edge is far too close to the assumed culvert line location. Even if the watercourse were open, I think you would be looking at a 3 to 4 metre distance from the proposed building edge.

Furthermore we do not know the culvert condition, and the building extension itself, could be seriously compromised if structural failure of the culvert was to occur, and there is the issue of having to get access, if it was ever needed in the future.

If you need to discuss anything with me, please do hesitate in contacting me further and/or call me if it's easier.

with regards Adrian

Adrian Jackson
PSO West Sussex | Partnership & Strategic Overview | West Sussex
Environment Agency | Guildbourne House, Chatsworth Road, Worthing, West Sussex, BN11 1LD



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[REDACTED]

Subject: AC19021-Riverside Industrial Estate, Littlehampton

Dear Adrian

It's been a while since we last spoken. I trust you are keeping safe and well?

Following receipt of your information below (which was very useful thank you) we have reviewed the microfiche files in conjunction with a recently commissioned topographical / buried utilities survey of our Client site and prepared a best fit overlay of the information over which the proposed development has been added, see attached sketch AC19021-SK-C-002 Rev P3.

Unfortunately due to existing site constraints / ground conditions and the condition of the culverted river it was not possible to establish the exact line of the culvert using the standard buried services detection equipment, therefore we have used the microfiche information to establish the line at this stage to enable the proposed development to be worked up.

Based on the above our Client has reduced the size and location of the proposed unit to avoid physically building over the culvert (although it is still very close) as well as mitigate the need for diverting / daylighting the river.

Given the above we assume that the methodology listed in your e-mail below will not now apply, although we assume that our Client will still need an Flood Risk Activities Permit (FRAP) because the proposed building will be within 8m of the culverted main river; although we would appreciate your confirmation of this as well as next steps.

We look forward to receiving your earliest reply.

Kind regards

Matthew Woods

BEng (Hons)

Technical Director (Civil Engineering)



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[REDACTED]

Subject: Riverside Industrial Estate

Hello Matthew – I'm sorry this has taken so long in responding. Thank you for your patience.

I have attached some plans from our historic microfiche (more to follow) which show the route of the culvert with manhole locations, and other info. (You will need to 'jigsaw' them together) I'm not sure it will tell you anything you don't know already, but it may assist you.

In terms of information we will need in terms of a FRAP application, it is as follows below:

- # plan showing existing buildings and distances to the existing culvert
- # plan showing length of culvert to be demolished (with length measurement.) The more you can open up the better
- # plan showing infilled section of culvert in relation to the proposed new extension
- # plan showing 'new cut' with length measurement, and how it will tie in with existing culvert
- # plan showing bed width dimension, bank slope of 'new cut' and distances to existing building and proposed extension
- # plan showing existing culvert dimensions.
- # RAMS with details of dewatering and temporary works.

Any problems give me a call on the number below.

many thanks Adrian

Adrian Jackson

PSO West Sussex | Partnership & Strategic Overview | West Sussex

Environment Agency | Guildbourne House, Chatsworth Road, Worthing, West Sussex, BN11 1LD



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APPENDIX G

WEST SUSSEX COUNTY COUNCIL

CORRESPONDENCE

Sophie Thorpe

From: [REDACTED]
Sent: Management <FloodRiskManagement@westsussex.gov.uk>
21 October 2020 12:12
To: Sophie Thorpe
Subject: RE: Enquiry re. Local Flooding issues in Littlehampton area

Sophie,

Further to your recent enquiry.

From a surface water and groundwater perspective the area is not at high risk of flooding. We do not have any reports of issues with surface water and groundwater on the Riverside Industrial Estate.

With regard to the questions you asked. Please see my replies below:

Flooding records/maps

Are the council aware of any local flooding issues within the area? – No, but it would also be worth checking with Arun District Council (Paul.Cann@arun.gov.uk)

As part of our Flood Risk Assessment we will be documenting any recorded incidents of flooding so any records/anecdotal evidence that the council may have, would be of great help. In particular we would be interested to hear of any reported incidents of surface water, highway or groundwater flooding. – **As LLFA we have no records of flooding on the Riverside Industrial Estate. We are aware that a ditch outside your proposed site boundary collects highway run-off from the adjacent road (Bridge Road) and therefore must be maintained at all times.**

Are there any surface water flood maps available and if so please can we obtain a copy? – **The area is at low risk of surface water flooding. Current mapping can be found on-line - <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>**

We have recently submitted a request for data from the Environment Agency and are currently awaiting their response. We anticipate that they will be able to provide us with any relevant modelled fluvial/tidal flood levels for the site. – **The area is shown to be within Flood Zone 2 and 3.**

Flood Mitigation Measures

Can you provide information on any required flood mitigation measures you may suggest for development in this area, if deemed necessary. – **We (WSCC as the LLFA) have no special requirements for flood mitigation measures in this area. However, you may wish to check with Arun District Council. Also, see our surface water management policy, which sets out the requirements as you develop your design (https://www.westsussex.gov.uk/media/12230/ws_llfa_policy_for_management_of_surface_water.pdf)**

If you have any formal pre-planning procedure i.e. forms, fees etc, please can you provide details. – **see https://www.westsussex.gov.uk/media/12230/ws_llfa_policy_for_management_of_surface_water.pdf**

Regards,

Kevin

Kevin Macknay
Flood Risk Management – Team Leader
Highways, Transport and Planning
Place Services
West Sussex County Council

[REDACTED]


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From: Sophie Thorpe 
Sent: 20 October 2020 16:38
To: Flood Risk Management
Subject: Enquiry re. Local Flooding issues in Littlehampton area

Good Afternoon,

We are Engineering Consultants acting for a Client who is considering development of a site within the Littlehampton area. We are in the process of producing a Flood Risk Assessment for the site and would be grateful for your input on the following points.

For reference, I have included a site plan.

The site is approximately 0.2ha in size and the proposals include the construction of a new light industrial unit with associated goods yard and car park.

Flooding records/maps

Are the council aware of any local flooding issues within the area? As part of our Flood Risk Assessment we will be documenting any recorded incidents of flooding so any records/anecdotal evidence that the council may have, would be of great help. In particular we would be interested to hear of any reported incidents of surface water, highway or groundwater flooding.

Are there any surface water flood maps available and if so please can we obtain a copy?

We have recently submitted a request for data from the Environment Agency and are currently awaiting their response. We anticipate that they will be able to provide us with any relevant modelled fluvial/tidal flood levels for the site.

Flood Mitigation Measures

Can you provide information on any required flood mitigation measures you may suggest for development in this area, if deemed necessary.

If you have any formal pre-planning procedure i.e. forms, fees etc, please can you provide details.

The above information would be of great assistance in developing the masterplan, drainage strategies and designs for the project prior to planning submission.

Many thanks for your time.

I look forward to your reply.

Kind regards,

Sophie Thorpe
Hydrologist

RSK
18 Frogmore Road, Hemel Hempstead, Hertfordshire, HP3 9RT, UK


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APPENDIX H

ARUN DISTRICT COUNCIL

CORRESPONDENCE

Sophie Thorpe

From: [REDACTED]
Sent: 03 September 2020 12:11
To: Sophie Thorpe
Subject: FW: Enquiry re. Local Flooding issues in Littlehampton area

Follow Up Flag: Follow up
Flag Status: Flagged

Ms Thorpe,

Please see the below email from our Engineering Department.

As far as the pre planning advice procedure, please follow the link <https://www.arun.gov.uk/planning-permission>.

Thank you
Mrs Johnson

Daun Johnson
Technical Support Unit Assistant, Planning

T: 01903 737762
E: daun.johnson@arun.gov.uk

Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF
www.arun.gov.uk



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From: Roger Spencer <[REDACTED]>
Sent: 03 September 2020 12:11
To: Daun Johnson <[REDACTED]>
Cc: Sarah Burrow <[REDACTED]>; Paul Cann <[REDACTED]>
Subject: RE: Enquiry re. Local Flooding issues in Littlehampton

The site is already impermeable (concrete slab – that presumably has drainage) however, that would have been constructed some years ago and with the newer drainage requirements, we would look for some form of betterment from this proposal. Need to do groundwater and infiltration testing.

We do not have a record of historic flooding on the site but this is not definitive record.

There is a Main River (EA) running around the site (between the site and the A259 embankment).

The area is within the Rive Arun Internal Drainage District (IDD) – the Environment Agency is currently the Internal Drainage Board (IDB) and so Activity Permitting will need to go through the EA (rather than us consenting outside of the IDD) if the Main River will be impacted in any way.

Our GIS shows Groundwater flooding susceptibility layer classification as $\geq 75\%$ and the WSCC layer gives this as Moderate

The site is in Flood Zones 2 & 3 but the Risk of Flooding from Rivers and the Sea is given as low – this should be clarified in the data the enquirer has requested from the EA.

Regards,

Roger Spencer
Engineering Services Manager, Place

T: 01903 737812

E: roger.spencer@arun.gov.uk

Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF
www.arun.gov.uk



From: Sophie Thorpe [REDACTED]
Sent: 02 September 2020 15:10
To: Planning <Planning@arun.gov.uk>
Subject: Enquiry re. Local Flooding issues in Littlehampton area

FAO: Drainage and Flooding team

Good Afternoon,

We are Engineering Consultants acting for a Client who is considering development of a site within the Littlehampton area. We are in the process of producing a Flood Risk Assessment for the site and would be grateful for your input on the following points.

For reference, I have included a site plan.

The site is approximately 0.2ha in size and the proposals include the construction of a new light industrial unit with associated goods yard and car park.

Flooding records/maps

Are the council aware of any local flooding issues within the area? As part of our Flood Risk Assessment we will be documenting any recorded incidents of flooding so any records/anecdotal evidence that the council may have, would be of great help. In particular we would be interested to hear of any reported incidents of surface water, highway or groundwater flooding.

Are there any surface water flood maps available and if so please can we obtain a copy?

We have recently submitted a request for data from the Environment Agency and are currently awaiting their response. We anticipate that they will be able to provide us with any relevant modelled fluvial/tidal flood levels for the site.

Flood Mitigation Measures

Can you provide information on any required flood mitigation measures you may suggest for development in this area, if deemed necessary.

If you have any formal pre-planning procedure i.e. forms, fees etc, please can you provide details.

The above information would be of great assistance in developing the masterplan, drainage strategies and designs for the project prior to planning submission.

Many thanks for your time.

I look forward to your reply.

Kind regards,

Sophie Thorpe
Hydrologist

RSK
18 Frogmore Road, Hemel Hempstead, Hertfordshire, HP3 9RT, UK



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Registered number: 4723837

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APPENDIX I

SOUTHERN WATER SEWER ASSET PLAN

APPENDIX J

SURFACE AND FOUL WATER DRAINAGE STRATEGY REPORT

Structural & Civil Engineers

ABSTRACT Consulting Limited
The Highland Suite
Great Hollenden Business Centre
Mill Lane, Underiver
Sevenoaks
Kent TN11 5 OSQ

**Riverside Industrial Estate
Littlehampton
BN17 5DF**

**Surface / Foul Water Drainage Strategy
Report**

Project No. AC19021

Report No. R1 Rev A

November 2020

Issue, Revision & Check

First Issue 04/11/2020
Rev A 23/11/2020

Signed

By Alvin Jones

Checked Martin Howell MEng (Hons)

Approved Matthew Woods BEng (Hons)

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AC19021: Riverside Industrial Estate Littlehampton – Surface / Foul Water Drainage Strategy Report

1. Introduction

ABSTRACT Consulting have been appointed by London & Cambridge Properties to undertake a drainage strategy for the proposed development to support a detailed planning application. This report incorporates a SUDS assessment and maintenance strategy to assist with a planning application.

The site is located in the north part Riverside Industrial Estate, Littlehampton, BN17 5DF, south of Bridge Road ordnance survey grid TQ017025. A site location plan has been provided in Appendix A.

The site was occupied by hard standing in the form of parking areas associated with the nearby industrial units.

The proposals are to develop the site with new light industrial unit as well as associated access and parking areas. A proposed site layout can be found in Appendix B.

2. Existing Drainage

The site currently has a shallow foul water drain from the adjacent unit to the east crossing the site via two chambers and ultimately connecting to a private foul water manhole to the south-west to the north-eastern corner of the unit opposite. The surface water connects to a surface water drain to the south of the site which flows north-west and ultimately discharges into Wickfarm Ditch. This is demonstrated on the Topographic Survey plan in Appendix C. The sewer records in Appendix D show that there are no public sewers in the immediate vicinity.

Table 1 below demonstrates the surface water flows generated by the pre-development site for a number of different storm return periods. Calculations to support these figures can be found in Appendix E.

Return Period	Flow Rate Generated (ls ⁻¹)
1:1 year	11.0
1:30 year	26.9
1:100 year	34.8

Table 1 – Pre-Development Surface Water Flows

3. Proposed Foul Drainage

The proposed development will intercept the existing foul outlet from the adjacent unit to the east and divert this around the footprint of the proposed building and connect into the existing foul manhole to the south.

New drainage will be provided to service the new unit and connect into this new foul system.

All foul drainage is proposed to discharge under gravity via the private foul drainage system.

A drainage layout can be found in Appendix F.

4. SUDS Assessment

Sustainable Urban Drainage Systems (SUDS) is the philosophy of trying to replicate, as closely as possible, the natural drainage from a site before development.

There are a number of SUDS features that should be considered for any development and these are set out in a hierarchy. These are summarised along with their suitability for the site in table 2 below.

SUDS Feature	Site Specific Notes	Proposed Use
1) Store Rainwater for Later Use		
Rainwater Harvesting	Limited number of users in units would reduce the amount of water used.	Not proposed for use as the benefit is negligible.
2) Use Infiltration Techniques		
Green Roofs	Pitched roofs are unsuitable for green roofs.	Not proposed for use due to the pitched roof.
Soakaways	The site is underlain by clay to 4m over clay, with groundwater found at 0.5m. (British Geological Survey Borehole extract found in Appendix G)	Not proposed for use due to unsuitable ground conditions.
Permeable Paving	The site is underlain by made ground over London Clay with no soakage potential.	Not proposed for use due to unsuitable ground conditions.
3) Attenuate Rainwater in Ponds / Open Features for Gradual Release		
Swales / Detention Basins / Ponds	There are no large flat spaces on site suitable for surface features due to the site layout / constraints.	Not proposed due to site constraints.
4) Attenuate Rainwater in Tanks for Gradual Release		
Reduced Discharge and Storage	Existing site discharges to surface water drain.	Proposed for use as there are nearby surface water drains.

Table 2 – SUDS Features Hierarchy and Summary

It is proposed to manage all surface water flows using a flow control device incorporating a Hydrobrake and below ground attenuation tank to store the excess volume.

5. Proposed Surface Water Drainage

The pre-development impermeable area of the site is 1,407m² which represents 60% of the total site area. Post development this will reduce to 1,283m² (55%). Therefore surface water flows generated by the site will reduce post development.

Current guidance is to reduce offsite discharge rates so as to reduce the flood risk of properties downstream of the development.

Due to the underlying ground strata having no soakage potential it is not possible to discharge surface water to ground.

1140m² of the site shall be discharged through the new surface water drainage system, with the remaining 143m² being paths that will discharge to adjacent soft landscaping and there disperse into the upper layers of the soil.

Arun District Council's policy is to reduce offsite flows to as close to greenfield runoff rates as practically possible.

Using IH124 to calculate greenfield runoff rates for 4,540m² (the impermeable area served by the new drainage system) the runoff rates are as per table 3 overleaf, these are backed up by calculations within Appendix E.

Return Period	Greenfield Runoff Rate (ls ⁻¹)
1:1 year	0.3
1:30 year	0.9
1:100 year	1.3

Table 3 – Greenfield Runoff Rates

The greenfield runoff rates are too low to practically limit the new rates to. Therefore offsite flow rates from the new development will be controlled at 2ls⁻¹ through the use of a Hydrobrake flow control device to ensure post development offsite flow rates from the controlled area are considerably less than the pre development flow rates.

Table 4 below demonstrates that offsite flow rates will be significantly reduced from the pre development offsite flow rates. Calculations to back these up can be found in Appendix E.

Return Period	Flow Rate Generated (ls ⁻¹)			% of Pre Development Flow Rate
	Pre Development	Greenfield Runoff	Proposed	
1:1 year	11.0	0.3	1.8	16.4%
1:30 year	26.9	0.9	1.9	7.1%
1:100 year	34.8	1.3	-	-
1:100 year + 40% c.c.	-	-	1.9	5.5%

Table 4 – Post-Development Surface Water Flows

The drainage layout found in Appendix F demonstrates how surface water will be collected via high capacity channel drains and rainwater pipes and temporarily stored in a below ground attenuation tank before discharge to the existing surface water drain to the south-west of the proposed unit.

Due to the large nature of the parking areas and the potential vehicle types (HGVs) that will be accessing it surface water flows from the hard standing will pass through suitably sized Class 1 By Pass Separators in order to improve the water quality prior to discharge. The separator will also be fitted with an appropriate alarm system to provide additional warning should it require action.

The attenuation tanks have been sized to accept surface water flows for all storm events up to and including the 1:100 year event with a 40% allowance for climate change. Calculations proving this can be found in Appendix H.

In the event of surface water drainage system exceedance / failure surface water will pond within the access road and parking areas before running into the road network to the south. This is as per the current situation and therefore has not changed post development.

It is shown that post development offsite surface water flows have reduced.

6. Implementation

The new below ground surface and foul water drainage systems will be constructed as part of the overall development and will be operational prior to first occupation.

7. Adoption

It is not proposed to offer the new below ground surface and foul water drainage systems to Southern Water for Adoption.

8. Drainage Maintenance

The surface water drainage system serving the development will be managed and maintained by the client.

The pipework within the site is designed to be self-cleansing in accordance with Part H of the Building Regulations and as such should have no specific maintenance requirements other than general clearance of silts and debris as and when required.

The use of trapped gullies, catchpits, and inspection chambers will allow future access to maintain the system.

Standard typical maintenance associated with any property will be required for the roof water, gullies and channels, typically consisting of ensuring that the system is clear of any leaves or other debris. This should be carried out as required.

Table 5 sets out the various elements of the drainage system and suggested maintenance requirements.

The separator will be fitted with an alarm to notify the client when it requires immediate action.

Drainage Element	Inspection Requirements	Maintenance Requirements	Inspection Schedule
Gutters & Rainwater Downpipes	Visual inspection to check for blockages.	Clear and blockages / debris found.	Yearly
Channel Drains and Sump Units	Visual inspection for silt / debris.	Clear silt / debris.	Initially after 3 months, then every 6 months.
Pipework	Designed to be self-cleansing, only required if flooding issue occurs, then by specialist CCTV company.	As recommended by specialist CCTV survey company.	When required.
Catchpits	Visual inspection for silt / debris.	Clear silt / debris.	Initially after 3 months, then every 6 months.
Hydrobrake Chamber	Visual inspection for silt / debris.	Clear silt / debris.	Initially after 3 months, then every 6 months.
Attenuation Tank	CCTV survey to check distributor pipe is clear of debris, visual inspection of surface to check for deformation indicating an issue with the tank below.	Clear silt / debris. Excavation and replacement if required.	Yearly
By Pass Separators	As specified / required by manufacturer.	As required by manufacturer.	As required by manufacturer.
Below ground drainage system MUST only be worked on / entered by suitably trained and qualified people using appropriate Health and Safety equipment			
* Access to gutters and roof level downpipes to be discussed and agreed with Client. Due to nature of building specialised access equipment will be required.			

Table 5 – SUDS Maintenance Summary

9. Demonstrate Completion of Works Through Independent Testing

All below ground drainage serving the buildings and the externals will be regularly inspected during the course of construction (air tests / water tests / CCTV surveys as appropriate and deemed necessary – pipework only) and signed off by an approved Building Control Officer.

10. Construction Phase Drainage System

The proposed below ground surface water drainage system is not intended to be used as part of the construction phase drainage system.

Catchpits have been designed into the below ground drainage system to assist with the collection and management of silts and debris and to facilitate access to maintain the system.

11. Conclusions

The site was occupied by hardstanding incorporating parking and access. Existing foul water discharges to the private foul sewer to the south. Surface water discharges to an existing surface water drain running from south-east to north-west across the site ultimately discharging into the Wickfarm Ditch to the west of the site.

The proposed development will form a new connection to the existing surface water manhole and the foul will be connected via an existing manhole.

In order to reduce flood risk offsite flow rates shall be controlled through the use of a Hydrobrake to reduce offsite flows to 2ls^{-1} with below ground attenuation tanks to store the excess volumes for all storms up to and including the 1:100 year event with a 40% allowance for climate change.

A class 1 by pass separators will be used to treat the discharges from the parking areas and access prior to discharge to the drain.

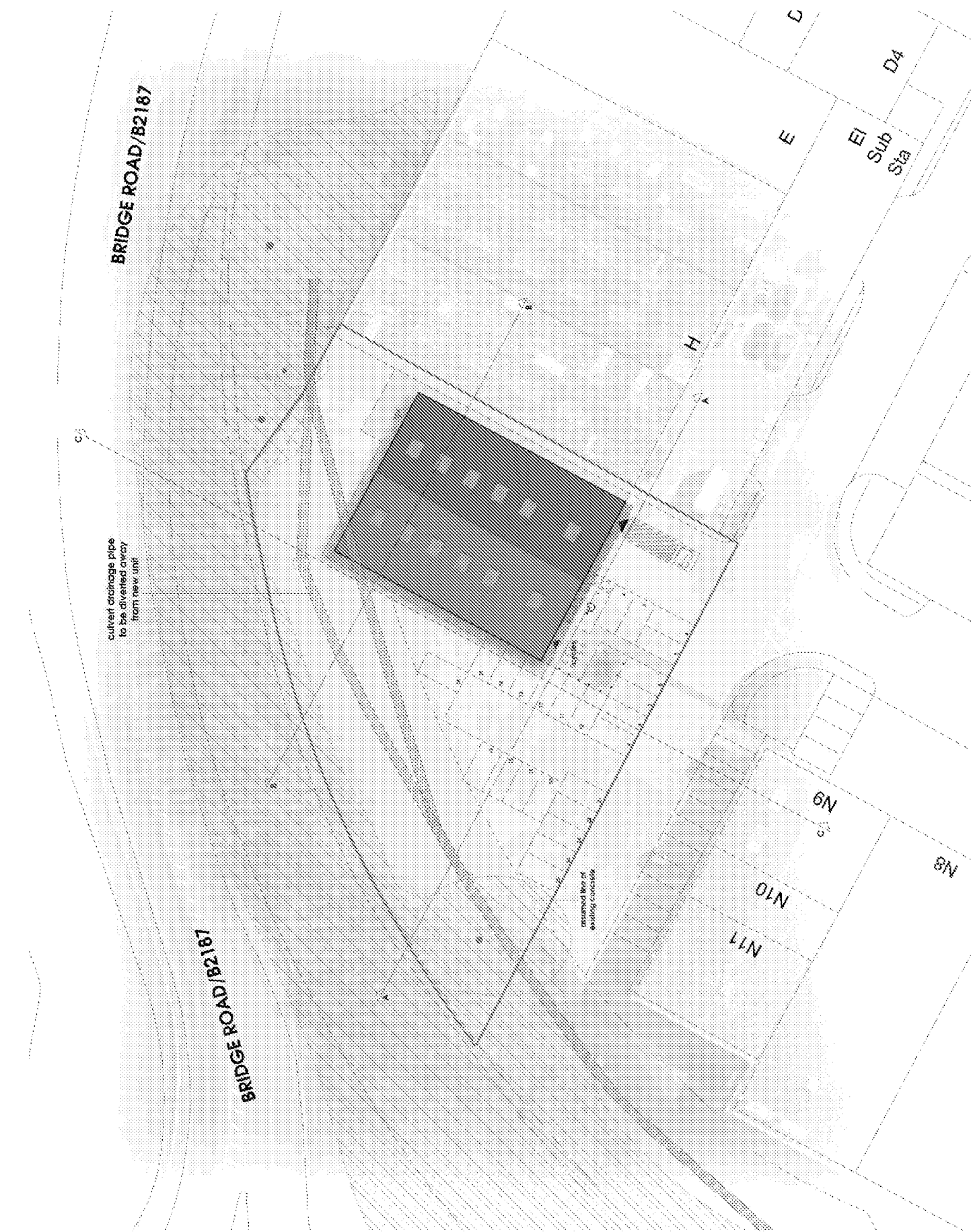
Appendix I contains the West Sussex Council SUDS Pro Forma summarising the information within this report.

Appendix A – Site Location Plan



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Appendix B – Proposed Site Plan



BRIDGE ROAD/B2187

BRIDGE ROAD/B2187

culvert drainage pipe
to be diverted away
from new unit

curved line of
existing curbside

schedule of
accommodation

Unit 1 GEA - 6100sqft/566.6sqm
(including first floor mezz)

5 no. allocated car parking spaces
(including 1 no. disabled space)
+ 1 no. goods parking space
+ cycle spaces

20 no. unallocated car parking spaces

culvert drainage pipe to be diverted
away from new unit

existing culvert

proposed culvert

trees to be retained



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Appendix C – Topographic Survey