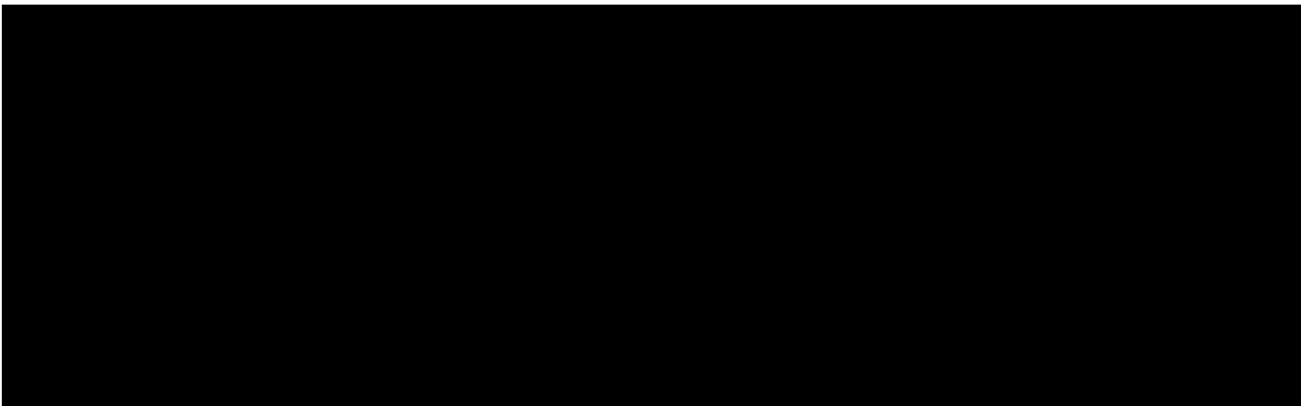


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From: Anna Gillings [REDACTED]
Sent: 26 October 2021 15:15
To: Simon Davis <Simon.Davis@arun.gov.uk>

Subject: FW: Dappers Lane - Drainage

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Hi Simon

Just by way of a quick update – you asked us to provide further information on the drainage conditions at Broadlees, Angmering by Friday to respond to WSCC queries. I emailed previously to say we are just waiting for some further information from Laura's team. As you will note below, Paul Cann is just discussing with WSCC to help conclude this.

I hope to have a response by Friday, but I know Laura Gibbons only works Tuesdays for Arun which might delay this.

The application doesn't expire until 22nd November, so we have a little while, although I am keen to resolve asap.

I will keep you updated.

Kind regards

Anna Gillings

Managing Director
Gillings Planning



Supporting Eastleigh Basics Bank – because this time of year doesn't have to be scary!

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From: Paul Cann <Paul.Cann@arun.gov.uk>

Sent: 26 October 2021 14:52

To: Shaun Letchford [REDACTED]

Subject: RE: Dappers Lane - Drainage

Hi Shaun

Thanks for the information. During the recent rainfall, flooding has been observed at the Water Lane/ Dappers Lane junction – not surprising based upon the findings of the CCTV survey!

I can confirm that ordinary watercourse consent will be required for the connection of the swale to the ditch and the proposed 1.4 l/s discharge.

What we need to agree is offsite works to ensure the piped system downstream is fit for purpose to receive flows from the site, so I have copied in WSCC so we can have discussion internally and come back to you. Certainly the ditch itself will need cleaning out and from what i recall there is no headwall on the ditch outlet (so one will be required).

Speak again soon.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services

T: 01903 737819
E: paul.cann@arun.gov.uk



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From: Shaun Letchford [REDACTED]
Sent: 12 October 2021 09:09
To: Laura Gibbons <Laura.Gibbons@arun.gov.uk>; Paul Cann <Paul.Cann@arun.gov.uk>

Subject: RE: Dappers Lane - Drainage

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Laura/Paul

Thank you for your comments.

It appears for the onsite we are nearly there. We will provide you with the updated details requested in due course.

What seems to be the area barring full approval is the offsite connections. Paul kindly sent the details of the offsite survey the previous consultant had undertaken and since then the client team have undertaken a full CCTV survey of the ditch connection and downstream network (attached). This substantiates the previous survey in that the ditch connects into the highway drainage and travels along Water Lane before discharging into the Black Ditch.

What is in abeyance is how we go about gaining discharge consent approvals to remove any further objection. As we are not directly connecting into the Black Ditch and/or altering the outfall the EA will not require an approval as it will be a flood risk activity exemption, at most, if we approach them. To this end do we require OWC from Arun into the ditch and since we are replicating Greenfield discharge rates and the discharge is so small do we require any further approval from the highway authority, assuming they own the downstream pipework.

As always happy to discuss on the phone but if you are able to consider the above and provide your thoughts as to the best way to alleviate your concerns to achieve full sign off that would be good.

Kind regards

Shaun Letchford BEng (Hons) FCIHT
Director

Abley Letchford Partnership Ltd
Consulting Engineers

3 Tealgate, Charnham Park
Hungerford, RG17 0YT

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From: Laura Gibbons <Laura.Gibbons@arun.gov.uk>

Sent: 05 October 2021 10:09

To: Jonathan Shuttleworth [REDACTED] Shaun Letchford [REDACTED]
[REDACTED]

Subject: RE: Dappers Lane - Drainage

Hi Jonathan,

Thanks for your email. Please see my comments below in *blue*.

Kind regards,

Laura Gibbons

Drainage Engineer

Engineering Services

Please note that I work Tuesdays 08:00-16:00 for Arun only.



T: 01903 221374

E: laura.gibbons@arun.gov.uk or [REDACTED]

Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF

From: Jonathan Shuttleworth [REDACTED]

Sent: 13 September 2021 17:04

To: Laura Gibbons <Laura.Gibbons@arun.gov.uk>; Shaun Letchford [REDACTED]
[REDACTED]

Subject: RE: Dappers Lane - Drainage

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Hi Laura,

Thank you for your comments.

Please find attached the updated drawings, calculations and maintenance plan to accommodate them.

Any questions, please don't hesitate to get in contact.

Kind Regards,

Mr Jonathan Shuttleworth
Senior Engineer

Abley Letchford Partnership Ltd
Consulting Engineers



From: Laura Gibbons <Laura.Gibbons@arun.gov.uk>

Sent: 17 August 2021 13:48

To: Shaun Letchford

Subject: RE: Dappers Lane - Drainage

Hi Shaun,

Thank you for supplying this information. I have the following comments.

1. Please can you detail the ground levels at the groundwater monitoring locations. *Point closed.*
2. Groundwater level at the attenuation tank is stated to be 10.05mAOD, the location appears to be between WS105 and WS106. Groundwater data loggers show groundwater level at circa 0.7mbgl, and 0.9mbgl respectively, unclear how groundwater level effectively 1.1m depth corresponds, please confirm groundwater readings to mAOD. *Point closed.*
3. Please apply a factor of safety of 6.5 to the design of permeable paving area 2 as the drained area is greater than 1000m2. *Point closed.*
4. Please confirm invert level of ditch where swale connects. Please provide further details of swale proposals, including invert, cover level, slope, connection with ditch. *Await comments regarding proposed connection to ditch from a land drainage consent perspective.*
5. Please provide construction detail drawing showing swale cross section, long section, ACO inlet detail in relation to swale, connection between swale and ditch. *Await comments regarding proposed connection to ditch from a land drainage consent perspective.*

6. A construction detail drawing of the permeable paving is required. Including additional details showing diffuser block connections, and baffles. *Detail showing distribution tank does not appear to have been supplied. Awaited*
7. Please provide construction detail of permeable paving which is shown to not have a permeable sub-base. *Is this shown by the area with the SC membrane on the permeable block paved car park detail?*
8. Please provide catchpits upstream of all connections into permeable sub-base. *Point closed.*
9. Invert level of hydrobrake on construction detail is shown to be inconsistent with invert level in calculations/ on layout. Please update. *Point closed.*
10. Please detail maintenance requirements for pipes, catchpits, and hydrobrakes. *Point closed.*
11. I have looked back through the case notes and it appears that Paul had some comments regarding the condition of the downstream culvert. Please liaise with Paul Cann regarding this. *Awaited.*

Kind regards,

Laura Gibbons

Drainage Engineer

Engineering Services

Please note that I work Tuesdays 08:00-16:00 for Arun only.



T: 01903 221374

E: laura.gibbons@arun.gov.uk or [REDACTED]

Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF

From: Shaun Letchford [REDACTED]
Sent: 30 July 2021 16:33
To: Laura Gibbons <Laura.Gibbons@arun.gov.uk>

[REDACTED]

Subject: RE: Dappers Lane - Drainage

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Laura

Further to the below please find a link to all our drawings and reports for approval to the drainage scheme as discussed. We have included:

- All drawings including drainage and area plans, sections and schedules and construction details

- Drainage statement with full drainage calculations, surveys and reports (infiltration and groundwater included separately) and the ADC checklist
- SuDS maintenance report and schedules

To confirm all calculations include for:

- FEH-13 rainfall
- Factor of safety
- All drainage beneath the incoming pipe for the 1:10 plus 40% climate change in infiltration devices

We have also included the full drainage survey of the downstream drainage which proves a connection for the watercourse at the bottom of the site on Water Lane, that any existing overland site drainage would discharge into, into the highway drain which discharges into the Black Ditch.

As always we have tried to include everything you would require for approval but obviously if there is anything fundamental you believe is missing do not hesitate to contact us, and, as always if you feel a meeting would be beneficial to discuss any points then please contact us.

We trust the drainage is to your approval and we look forward to your comments.

[Redacted]

Kind regards

Shaun Letchford BEng (Hons) FCIHT
Director

[Redacted]

Abley Letchford Partnership Ltd
Consulting Engineers

3 Tealgate, Charnham Park
Hungerford, RG17 0YT

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From: Laura Gibbons <Laura.Gibbons@arun.gov.uk>

Sent: 13 July 2021 09:46

To: Shaun Letchford [Redacted]

Subject: RE: Dappers Lane - Drainage

Good morning Shaun,

Thanks for your email. I have provided some responses to your queries below in *red*.

I cannot state definitively whether your proposals are acceptable without seeing further information. Broadly speaking:

- the proposal to infiltrate the northern area is acceptable in principle.
- The area which drains via gravity to infiltration should be maximised, it looks like some further down pipes may be able to connect to infiltration areas.
- The remaining areas which cannot be drained via infiltration should be attenuated and discharged via gravity to watercourses.

My colleague Paul Cann may have a better knowledge of the system you are proposing on discharging to, and I recommend you contact him as soon as you have completed some further investigations into this network. Paul is on leave this week.

Kind regards,

Laura Gibbons

Drainage Engineer

Engineering Services

Please note that I work Tuesdays 08:00-16:00 for Arun only.



T: 01903 221374

E: laura.gibbons@arun.gov.uk or [REDACTED]

Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF

From: Shaun Letchford [REDACTED]
Sent: 09 July 2021 16:46
To: Laura Gibbons <Laura.Gibbons@arun.gov.uk>

[REDACTED]
Subject: Dappers Lane - Drainage

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Laura

I hope you are well.

We have another Angmering scheme, Dappers Lane, which we have taken on the design responsibility from Fairhurst of which you have had dealings with previously and especially during May of this year. Please allow me to explain.

We have been tasked with achieving approval from yourself (ADC) to the design of the drainage and discharge of conditions. To enable this we understand you will require full detailed design and a maintenance manual and this will follow. However, as per our other site, it would be prudent to agree the design principles with yourself to avoid

abortive works both on your side and ours, knowing what you may or may not accept. To this end please below a synopsis of the design, with some questions, which relate to the drainage strategy attached.

Surface Water Drainage

As you are aware winter groundwater monitoring and infiltration testing has taken place and these have informed our drainage scheme, which follows the approved FRA and the Fairhurst drainage scheme, albeit without a pump.

As per your emails it is our intention to drain the northern section of the site through infiltration into the ground. The southern section of the building at a lower level will drain to the south and attenuated with a controlled discharge into the watercourse adjacent to Water Lane. We are at this time unsure where this watercourse drains to but we are investigating this. However, as you know the site falls to this watercourse providing an existing discharge point and, we suspect, is then taken to the Black Ditch, across Water Lane. We have therefore provided a controlled discharge to this watercourse.

The drainage scheme mimics existing Greenfield conditions and is also in accordance with your email to Fairhurst during May. However, to achieve this we have some specific questions if you would be so kind.

1. The northern section drains wholly by infiltration. With respect to the permeable paving the base is not 1m above the recorded groundwater level. Your email dated 17 March to Fairhurst states "Arun District Council will accept the invert of any type of infiltration structure at the maximum monitored groundwater level i.e. no buffer zone is required". Please can you confirm this statement. *I confirm that we do not require a 1m buffer zone, we require the base of infiltrating structures to be located above peak recorded groundwater level.*
2. With permeable paving all water drains into the structure from above and therefore the clear space below an incoming pipe for the 1:10 year event plus CC, and any groundwater or base of structure, is not required. However it would be beneficial to also drain some of the roof gullies into the permeable paving medium as they are adjacent or 5m away, due to not allowing infiltration within 5m of a building. If we discharge the roof gullies into the porous paving will you require storage below this incoming connection to be able to cater for the 1:10 year event plus CC, above the highest groundwater. If so this cannot be achieved. To clarify we are not proposing a pipe network just individual roof gully connections into the porous paving medium. *Incoming connections from roof drainage must be located above the 1 in 10 year plus 40% cc event, looking at your plans it looks like there is potential for sub-base formation levels to be lowered, please investigate this. Please ensure that catchpits are provided upstream of all connections into the sub-base. All diffuser blocks should be 5m from buildings and upstream pipes should be labelled with diameter and fall.*
3. The southern section will drain by controlled discharge into the watercourse as described. Obviously the existing Greenfield discharge rate is small as the ground suggest infiltration is viable even though it is limited in the south. The southern impermeable area Greenfield rate is 0.19 l/s. Therefore we have currently set the proposed discharge rate to 2 l/s as the most practical smallest discharge rate you can achieve. However, even this is considered too low by some authorities. Please can you confirm the maximum discharge rate you will allow for this site. *Our requirement is more heavily dictated by aperture size than flow rate, we require that apertures on flow control devices have a minimum diameter of 50mm where water is not directed through permeable sub-bases.*
4. We will provide all drainage calculations to FEH rainfall and a FOS of 5 (minor inconvenience) as per your checklist. *Please ensure that FEH 2013 rainfall is used. Without knowing your catchment area and modelled cv value I cannot confirm whether a FOS of 5 is appropriate for the infiltration drainage design.*

As stated are you able to comment on the above and the drawing as to your approval, or otherwise, to the drainage strategy, and if in agreement we will provide full detailed design and a maintenance manual for approval.

As always happy to discuss on the phone or on Teams.

Kind regards

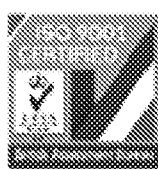
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Director



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