

From: Amanda Scholes on behalf of Planning.Responses
Sent: 01 December 2021 08:39
To: Planning Scanning
Subject: FW: Dappers Lane - Drainage- OWC application - A/210/21/DOC

AMANDA SCHOLES
PLANNING RECEPTIONIST



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From: Anita Gardner <[REDACTED]>
Sent: 30 November 2021 09:46
To: Planning.Responses <[REDACTED]>
Subject: FW: Dappers Lane - Drainage- OWC application - A/210/21/DOC

Please scan as a consultee response

Anita Gardner
Principal Planner



Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF
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From: Laura Gibbons <[REDACTED]>
Sent: 30 November 2021 09:41
To: Anita Gardner <[REDACTED]>
Cc: Paul Cann <[REDACTED]>
Subject: RE: Dappers Lane - Drainage- OWC application

Hi Anita,

Condition 15

We recommend discharge of condition 15. Please ensure that the following are included on any approval:

- A360-01C Drainage Strategy
- A360-02B Drainage Areas Plan
- A360-03A Surface Water Schedules

- A360-05A Surface Water Longsections
- A360-07A Drainage Details Sheet 1
- A360-08C Drainage Details Sheet 2
- A360-09C Offsite Drainage Works

Condition 16

I recommend condition 16 is discharged, please ensure that the following is listed on any approval

- A360-01C Drainage Strategy
- A360-09C Offsite Drainage Works
- Land Drainage Consent LDC-ARUN-2021-017

Condition 17

I recommend condition 17 is discharged, please ensure that the following is listed on any approval.

- A360-R002-A SuDS Maintenance Manual

Condition 21

I recommend condition 21 is discharged, please ensure that the following is listed on any approval.

- A360-01C Drainage Strategy
- A360-09C Offsite Drainage Works
- Land Drainage Consent LDC-ARUN-2021-017
- A360-R002-A SuDS Maintenance Manual

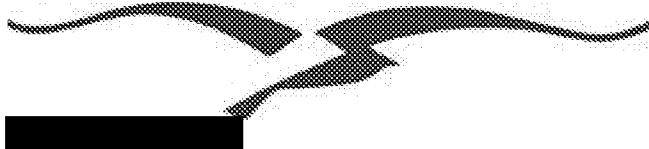
Kind regards,

Laura Gibbons

Drainage Engineer

Engineering Services

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



[Redacted]

[Redacted]

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

From: Anita Gardner [Redacted]

Sent: 30 November 2021 08:54

To: Laura Gibbons [Redacted]; Paul Cann [Redacted]

Subject: FW: Dappers Lane - Drainage- OWC application

Hi Both,

Can you let me know if you are now satisfied with the above additional details and whether the condition can be discharged?

Thanks
Anita

Anita Gardner
Principal Planner



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

From: Anna Gillings <[REDACTED]>
Sent: 30 November 2021 08:27
To: Anita Gardner <[REDACTED]>
Cc: Emma Patchell <[REDACTED]>; Sam Rous <[REDACTED]>
Subject: FW: Dappers Lane - Drainage- OWC application

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Dear Anita

As previously, please could you add these to application 210/21/DOC.

We now just await Laura consultation response and all conditions should then be able to be discharged.

Thanks

Anna Gillings

Managing Director
Gillings Planning

Gillings
Planning

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From: Paul Cann <[REDACTED]>
Sent: 29 November 2021 12:34
To: Jonathan Shuttleworth <[REDACTED]>; Shaun Letchford <[REDACTED]>
Cc: Sam Rous <[REDACTED]>; Anna Gillings <[REDACTED]>; Luke Fallon <[REDACTED]>;
[REDACTED] <[REDACTED]>; Laura Gibbons <[REDACTED]>; Ray Drabble <[REDACTED]>;
[REDACTED] <[REDACTED]>; Kevin Macknay <[REDACTED]>; Hugo Redfern <[REDACTED]>;
[REDACTED] <[REDACTED]>; Anita Gardner <[REDACTED]>
Subject: RE: Dappers Lane - Drainage- OWC application

Hi Jonathan

Land Drainage Consent enclosed. Please advise the contractor to contact us once works commence.

In terms of any outstanding matters on the onsite suds design and the discharge of the relevant planning conditions, I understand that you are in discussions with Laura.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services



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From: Jonathan Shuttleworth [REDACTED]
Sent: 29 November 2021 10:03
To: Paul Cann [REDACTED]; Shaun Letchford [REDACTED]
Cc: Sam Rous [REDACTED]; Anna Gillings [REDACTED]; Luke Fallon [REDACTED]
[REDACTED]; Laura Gibbons [REDACTED]; Ray Drabble [REDACTED]
[REDACTED]; Kevin Macknay [REDACTED]; Hugo Redfern [REDACTED]
[REDACTED] Anita Gardner <Anita.Gardner@arun.gov.uk>
Subject: RE: Dappers Lane - Drainage- OWC application

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Hi Paul,

Many thanks for responding so quickly,
I have updated the drawing according to your comments.
Are we there?

Kind Regards,

Mr Jonathan Shuttleworth
Senior Engineer



Abley Letchford Partnership Ltd
Consulting Engineers



From: Paul Cann [REDACTED]
Sent: 26 November 2021 12:30

To: Jonathan Shuttleworth [REDACTED]; Shaun Letchford [REDACTED]
Cc: Sam Rous [REDACTED]; Anna Gillings <[REDACTED]>; Luke Fallon
<[REDACTED]>; Laura Gibbons <[REDACTED]>; Ray Drabble
<[REDACTED]>; Kevin Macknay <[REDACTED]>; Hugo Redfern
<[REDACTED]>; Anita Gardner <Anita.Gardner@arun.gov.uk>
Subject: RE: Dappers Lane - Drainage- OWC application

Hi Jonathan

Added comments against my previous ones in red. Once resolved, I can issue the land drainage consent.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services



[REDACTED]
Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF
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From: Jonathan Shuttleworth [REDACTED]
Sent: 25 November 2021 15:44
To: Paul Cann [REDACTED]; Shaun Letchford [REDACTED]
Cc: Sam Rous [REDACTED]; Anna Gillings <[REDACTED]>; Luke Fallon
[REDACTED]; Laura Gibbons <[REDACTED]>; Roger Spencer
[REDACTED]; Ray Drabble <[REDACTED]>; Kevin Macknay
[REDACTED]; Hugo Redfern <[REDACTED]>; Anita Gardner
[REDACTED]
Subject: RE: Dappers Lane - Drainage- OWC application

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Hi Paul,

Many thanks for your comments and for calling me back yesterday. It's very much appreciated.
Hopefully, the attached drawing meets your expectations and we can get approval.
As we discussed I think I sent the application before, but you may have missed it as the email was addressed to Laura with yourself copied in. I've attached it again.

Kind Regards,

Mr Jonathan Shuttleworth
Senior Engineer

[REDACTED]
Abley Letchford Partnership Ltd



From: Paul Cann <[REDACTED]>
Sent: 22 November 2021 13:42
To: Jonathan Shuttleworth <[REDACTED]>; Shaun Letchford <[REDACTED]>
Cc: Sam Rous <[REDACTED]>; Anna Gillings <[REDACTED]>; Luke Fallon <[REDACTED]>;
[REDACTED] Laura Gibbons <[REDACTED]>; Roger Spencer <[REDACTED]>;
[REDACTED] ay Drabble <[REDACTED]>; Kevin Macknay <[REDACTED]>;
[REDACTED] <[REDACTED]>; Hugo Redfern <[REDACTED]>; Anita Gardner <[REDACTED]>
Subject: RE: Dappers Lane - Drainage

Hi Jonathan

Comments below;

1. I await the completed application for land drainage consent. Received ok
2. I am prepared to waive the fees in this case due to the other benefits being attained. -
3. Please could you colour the culverts/ditch on the offsite drainage works plan to make them clearer. ok
4. Proposed headwall & Leg 'D';
 - a) Specify invert levels of proposed 225mm pipe. ok
 - b) Brickwork refers to note 3 but should be note 2. Prefabricated headwall now specified as discussed. Specify the manufacturer and model, to suit the 225mm pipe.
 - c) Show how the post & rail fence will be bolted to the headwall. Prefabricated hand railing now specified. ok
 - d) Please adjust the proposed trash screen design to utilise this one or very similar; 225mm Sloped Trash Screen with Sides 45 degrees | Althon Specify the 45 degree trash screen in association with 4b)
 - e) Entry into existing manhole – make good manhole wall as necessary – add note. ok
 - f) All pipework to be twin walled polypipe or similar approved with 150mm thick ST4 concrete bed and surround with expansion joints. Add suitable note/detail. See enclosed drawing to assist.
5. Gully connection – existing lateral to be joined to new pipework/oblique junction using a 'flexible' coupling – add note. Remove the saddle connection detail as this is not applicable.
6. Leg 'B' - proposals noted thank you. -
7. Leg 'C' – proposals noted but ensure entire length of culvert adjacent the site boundary is shown. ok
8. Leg 'X' - Undertake further CCTV survey to enable completion of previous survey to Black Ditch – Present findings so further discussions can be had. Relevant notes added to plan. ok
9. Note 'Connection to be remade to upgraded pipeline between MH1 and ditch' shown in wrong location. ok

Look forward to receiving your revised details, etc.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services



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From: Jonathan Shuttleworth [REDACTED] <>
Sent: 09 November 2021 11:38
To: Paul Cann [REDACTED]; Shaun Letchford [REDACTED]
Cc: Sam Rous [REDACTED]; Anna Gillings [REDACTED]; Luke Fallon [REDACTED]; Laura Gibbons [REDACTED]; Roger Spencer [REDACTED]; Ray Drabble [REDACTED]; Kevin Macknay [REDACTED]; Hugo Redfern [REDACTED]
Subject: RE: Dappers Lane - Drainage

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Hi Paul,

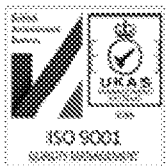
Please find attached the offsite Drainage Works Drawing in order to show and detail the requested works and to accompany the Land Drainage Consent Application for the proposed development on Dappers Lane, Angmering. If you have any comments or questions please don't hesitate to get back to me as soon as possible.

Kind Regards,

Mr Jonathan Shuttleworth
Senior Engineer

[REDACTED]

Abley Letchford Partnership Ltd
Consulting Engineers



From: Paul Cann [REDACTED]
Sent: 26 October 2021 15:59
To: Shaun Letchford [REDACTED]
Cc: Sam Rous [REDACTED]; Anna Gillings [REDACTED]; Luke Fallon [REDACTED]; Jonathan Shuttleworth [REDACTED]; Laura Gibbons [REDACTED]; Roger Spencer [REDACTED]; Ray Drabble [REDACTED]; Kevin Macknay [REDACTED]
Subject: RE: Dappers Lane - Drainage

Hi Shaun

I have now had a conversation with Kevin Macknay at WSCC.

I have given below a very brief summary of the issues identified;

Pipeline Surveyed	Diameter (mm)	Issues	Remediation required	Comments
MH1 to Gully (Leg A)	150	Medium displaced joint @7.3m.	No action	WSSC responsibility
MH1 to Gully (Leg B)	150	Blocked.	Jetting to clear blockage (silt/roots?). CCTV afterwards to check for other issues/possible further works.	WSSC responsibility but if you have a jet machine on site to resolve the other issues listed below, clearing the blockage would be appreciated and this would also help reduce flood risk/safety (icing) concerns at the junction and benefit all concerned.
MH1 (Leg C)	225?	Medium displaced joint @12.2m. Root intrusion.	Remove roots.	Culverted watercourse. Adjoining landowner has riparian responsibility (ie. developer). Remove roots and patch line points of intrusion. Post CCTV survey required.
MH1 to ditch (Leg D)	150	Blocked.	Replace pipework.	Upgrade pipe to 225mm diameter with new headwall & trash screen (slope faced). Connect existing gully via oblique junction. Ditch to be cleaned out.
MH1 (Leg E)	225	Blocked/Badly fractured/siltation, etc.	No action.	Purpose of pipe unknown.
MH1 to Black Ditch (Leg X)	600	Root intrusion.	Remove roots.	Remove roots and patch line points of intrusion. Post CCTV survey required. Entire pipeline to the Black Ditch needs to be CCTV surveyed. A buried manhole possibly exists. Further discussion can be had once more is known.
Pipe 1 to MH1 (assumed to be gully connection immediately downstream of ditch outlet)	150	Medium displaced joint @0.6m.	Remake connection.	Connection to be remade to upgraded pipeline between MH1 and ditch.

The works highlighted yellow above will require your attention.

All these works will ultimately form part of the land drainage consent application and will need to be fully detailed. Please let me know if you have any queries.

Regards

Paul Cann
Principal Drainage Engineer



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From: Paul Cann

Sent: 26 October 2021 14:52

To: Shaun Letchford <[REDACTED]>

Cc: Sam Rous <[REDACTED]>; Anna Gillings <[REDACTED]>; Luke Fallon <[REDACTED]>; Jonathan Shuttleworth <[REDACTED]>; Laura Gibbons <[REDACTED]>; Roger Spencer <[REDACTED]>; Ray Drabble <[REDACTED]>; Kevin Macknay <[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

E: paul.cann@arun.gov.uk



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From: Shaun Letchford <[REDACTED]>

Sent: 12 October 2021 09:09

To: Laura Gibbons <[REDACTED]>; Paul Cann <[REDACTED]>

Cc: Sam Rous <[REDACTED]>; Anna Gillings <[REDACTED]>; Luke Fallon <[REDACTED]>; Jonathan Shuttleworth <[REDACTED]>

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

www.alpce.co.uk



From: Laura Gibbons [REDACTED]

Sent: 05 October 2021 10:09

To: Jonathan Shuttleworth [REDACTED]; Shaun Letchford <[REDACTED]>

Cc: Sam Rous [REDACTED]; Anna Gillings [REDACTED]; Luke Fallon [REDACTED]
[REDACTED] Paul Cann [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.



[Redacted]

[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 <[Redacted]>; Shaun Letchford [Redacted]
Cc: Sam Rous <[Redacted]>; Anna Gillings <[Redacted]> Luke Fallon
<[Redacted]>; Paul Cann <[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



Accredited Contractor
CHAS.co.uk

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

Sent: 17 August 2021 13:48

To: Shaun Letchford

Cc: Sam Rous <[REDACTED]>; Anna Gillings <[REDACTED]>; Jonathan Shuttleworth <[REDACTED]>; Luke Fallon <luke.[REDACTED]> Paul Cann <[REDACTED]>

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.



[REDACTED]
[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 Gibbon [REDACTED] >
Cc: Sam Rous [REDACTED] >; Anna Gillings [REDACTED] >; Jonathan Shuttleworth <[REDACTED]>; Luke Fallon <[REDACTED]>; Paul Cann <[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.

<https://we.tl/t-0EVrV5nh08>

Kind regards

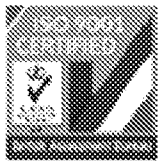
Shaun Letchford BEng (Hons) FCIHT
Director

[REDACTED]

Abley Letchford Partnership Ltd
Consulting Engineers

3 Tealgate, Charnham Park
Hungerford, RG17 0YT

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From: Laura Gibbons [REDACTED]
Sent: 13 July 2021 09:46
To: Shaun Letchford [REDACTED]
Cc: Sam Rous [REDACTED]; Anna Gillings [REDACTED] Jonathan Shuttleworth [REDACTED]; Luke Fallon <[REDACTED]> Paul Cann <[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.



From: Shaun Letchford [REDACTED]
Sent: 09 July 2021 16:46
To: Laura Gibbons [REDACTED]
Cc: Sam Rous [REDACTED]; Anna Gillings [REDACTED]; Jonathan Shuttleworth [REDACTED]; Luke Fallon [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

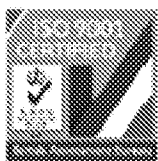
Shaun Letchford BEng (Hons) FCIHT
Director

[REDACTED] 5

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