



I. Correspondence with Lancashire County Council

Paul Bainbridge

From: Freeman, Paul <Paul.Freeman@lancashire.gov.uk>
Sent: 06 January 2022 15:09
To: Paul Bainbridge
Cc: Matthew Wright; Stephen Moorhouse; Eastham, Alan
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details
Attachments: Pasco Basin Design.pdf; CLM12 Draft QSE uncontrolled 06.01.22.docx

Hi Paul, Happy New Year.

Thank you for the information.

I am confident that we can accommodate the resulting 1 hectare of impermeable volume within the attenuation basin in the central island of the new junction gyratory.

I do not have any new information to present at this stage as we are yet to formally consult on the motorway widening drainage strategy, however the attached information and below narrative of intent should give you some of the certainty that you need to prove that there is sufficient storage capacity to accommodate your attenuation requirements. All proposals are though still subject to LLFA approval.

Your 1ha discharge 1%AEP+40%CC QBAR 6.5l/s,
and our discharge of 0.4ha for 1%AEP+40%CC QBAR 5l/s
at a total discharge rate 9.1l/s

which requires circa 1,226m³ of storage based on a quick storage estimate.

The basin currently has a maximum theoretical capacity of circa 1,900m³ at 1m deep as lined in its temporary works state, but we need to reduce this volume to provide a permanent water level, berm, topsoiling etc for treatment. I am confident that this can be achieved within that spare 35% capacity.

Permanently, we intend to install a hydro-brake within a chamber on the basin bank discharging back to the open channel prior to the upstream end of the western culvert.

We do not plan on surcharging the eastern culvert whilst attenuating, as we plan on using a riprap informal weir or similar erosion control matting to provide the inlet to the pond from the eastern culvert ditch; mimicking the previous bed level and cross-sectional profile at point of entry of the ditch rather than installing a restrictive piped inlet.

Furthermore, the design will ensure that the top water level in the attenuation pond will never exceed the pond inlet level during modelled storm events, achieved by way of a flow control bypass outlet which will be installed for exceptional events or for flow control malfunctions.

I hope this information is helpful, I am free for a meeting tomorrow, except between 12-13:30. Alan is not available tomorrow.

Kind regards

Paul Freeman
Senior Highway Engineer
Infrastructure Delivery
Planning and Environment
Lancashire County Council
Office: 01772 535244
Site: 07557030811
www.Lancashire.gov.uk

From: Paul Bainbridge <paul.bainbridge@watermangroup.com>
Sent: 05 January 2022 16:56
To: Eastham, Alan <Alan.Eastham@lancashire.gov.uk>; Freeman, Paul <Paul.Freeman@lancashire.gov.uk>
Cc:
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details
Importance: High

Hi Alan, Paul – Happy new year to you both.
Paul, thanks for your time on the phone earlier.

The information I requested at the start of December (see below) is now urgent as we need to submit an outline planning submission next month, and need to be certain our onsite proposals work with your proposals for the off-site highway works and the proposals (if any) for the existing pond that sits in the M65 roundabout that LCC are responsible for.

It has always been our understanding that the existing resized pond in the M65 roundabout was sized to accommodate your off site works in terms of impermeable highway runoff, and a proportion of our onsite proposed adoptable highway also discharging to the pond at an unattenuated rate.

Paul, you mentioned you were aware of a temporary proposal of your works/drainage design and a final proposed that may still be in progress? Alan has confirmed the pond in the M65 roundabout is designed to accommodate unattenuated flows from the onsite highway. We just need to understand fully if the proposals to accommodate this have been done, or are yet to be done.

I have attached our latest Drainage Constraints drawing to provide you with details of the on site proposals. The fundamentals of the drainage proposals have not changed since the last version of the scheme, so hopefully there is no issue with what we are proposing. The site and road levels are still being developed, however can you proceed on the basis that we have **1 hectare of impermeable onsite adoptable highway** that we are discharging to the M65 pond (via the existing culvert).

As previously mentioned we are proceeding on the basis that the proposed discharge rate from the M65 roundabout pond into the diverted ditch shall be greenfield runoff rate.

Paul, you mentioned you should be able to find the baseline data that will have been used for LCC to develop your drainage strategy / parameters. Would you be able to send this to me this week? I have a client meeting at the start of next week and need to show some progress / evidence that your works have considered the onsite flows from our works. We also need you to confirm that a hectare of impermeable onsite adoptable highway can be accommodate as unattenuated flow into the M65 pond. Alan - you have confirmed this in principle but now you have an area to work with to make sure. Plus as well as your verbal confirmation, we really need some drawings / evidence that everything works / will work. This will then form part of the supporting information for the Drainage Strategy and outline de

Can we set up a meeting on Friday please, this would be really useful prior to my client meeting at the start of next week. I can work around when you are available on Friday?

Thanks, Paul

Paul Bainbridge
Senior Engineer
Waterman Infrastructure & Environment

m +44 (0) 7411669249
E Paul.bainbridge@watermangroup.com
www.watermangroup.com | [LinkedIn](#) | [Twitter](#)

[Waterman responds to COVID – 19. Read more](#)

From: Paul Bainbridge
Sent: 01 December 2021 21:54
To: Eastham, Alan <Alan.Eastham@lancashire.gov.uk>
Cc: Matthew Wright <matthew.wright@watermangroup.com>; Robert Bradley <robert.bradley@watermangroup.com>; Stephen Moorhouse <stephen.moorhouse@watermangroup.com>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details

Hi Alan,

Thanks for your time on the phone earlier today, just wanted to summarise our conversation;

- You confirmed that LCC have accounted for unattenuated flows from the onsite proposed adoptable road into the pond within the M65 roundabout. These flows shall be attenuated prior to them re-entering the ditch system downstream of the roundabout (ultimately heading towards the culverts across Lostock Rd.)
- As per your request I shall send you the revised details of the masterplan and catchment areas of the adopted on site roads shortly. We have pending survey work related to the pond inlets and outlets, once we have this I will send to you.
- If you can send me the latest as built details you have on the M65 re sized pond (and details of the hydro brake / flow control device installed downstream of this pond). If the hydro brake/flow control device has not yet been installed can you send me the proposed details for it please. I can then ensure our onsite drainage design takes into account all the details of your proposals, whether they are built or not.

Thanks, Paul

Paul Bainbridge
Senior Engineer
Waterman Infrastructure & Environment

m +44 (0) 7411669249
E Paul.bainbridge@watermangroup.com
www.watermangroup.com | [LinkedIn](#) | [Twitter](#)

[*Waterman responds to COVID – 19. Read more*](#)

From: Eastham, Alan <Alan.Eastham@lancashire.gov.uk>
Sent: 30 November 2021 14:05
To: Paul Bainbridge <paul.bainbridge@watermangroup.com>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details

Hi Paul

Will have to be tomorrow morning as I'm going for a PCR test this afternoon. Got a positive lateral flow result.

Regards

Alan Eastham
Principal Engineer
Infrastructure Delivery Team
Lancashire County Council
T: 01772 534561
M: 07964647500
W: www.lancashire.gov.uk

From: Paul Bainbridge <paul.bainbridge@watermangroup.com>
Sent: 30 November 2021 10:03
To: Eastham, Alan <Alan.Eastham@lancashire.gov.uk>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details

Thanks Alan, that's ideal.

Paul

Paul Bainbridge
Senior Engineer
Waterman Infrastructure & Environment

m +44 (0) 7411669249
E Paul.bainbridge@watermangroup.com
www.watermangroup.com | [LinkedIn](#) | [Twitter](#)

[***Waterman responds to COVID – 19. Read more***](#)

From: Eastham, Alan <Alan.Eastham@lancashire.gov.uk>
Sent: 30 November 2021 10:00
To: Paul Bainbridge <paul.bainbridge@watermangroup.com>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details

Hi Paul

I can give you a call this afternoon, but on your point then yes we propose to run unattenuated into the M65 pond and restrict from the pond to greenfield rates.

Regards

Alan Eastham
Principal Engineer
Infrastructure Delivery Team
Lancashire County Council
T: 01772 534561
M: 07964647500
W: www.lancashire.gov.uk

From: Paul Bainbridge <paul.bainbridge@watermangroup.com>
Sent: 30 November 2021 09:56
To: Eastham, Alan <Alan.Eastham@lancashire.gov.uk>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details
Importance: High

Hi Alan,

Will you be able to give me a call on the below today? I have a client meeting at 30m, and it would be really useful to speak to you before.

Main point we are looking to clarify is the proposed attenuation measures downstream of the M65 roundabout – it is our understanding the flows from your highway design will flow unattenuated into the pond within the M65 roundabout, with the flow then attenuated to greenfield runoff rate immediately downstream of the roundabout before entering the downstream ditch system.

Thanks, Paul

Paul Bainbridge
Senior Engineer
Waterman Infrastructure & Environment

m +44 (0) 7411669249
E Paul.bainbridge@watermangroup.com

[Waterman responds to COVID – 19. Read more](#)

From: Paul Bainbridge
Sent: 29 November 2021 09:59
To: 'Eastham, Alan' <Alan.Eastham@lancashire.gov.uk>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details
Importance: High

Hi Alan,
Would you have any time today or tomorrow morning to discuss the below please.
I can do anytime that suits you.

Many thanks, Paul

Paul Bainbridge
Senior Engineer
Waterman Infrastructure & Environment

m +44 (0) 7411669249
E Paul.bainbridge@watermangroup.com
www.watermangroup.com | [LinkedIn](#) | [Twitter](#)

[Waterman responds to COVID – 19. Read more](#)

From: Paul Bainbridge
Sent: 26 November 2021 10:41
To: Eastham, Alan <Alan.Eastham@lancashire.gov.uk>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details

Hi Alan,
My apologies I didn't get chance to ring you on the 17th as arranged.

Do you have a spare half hour today anytime? I am free anytime up to 3pm.

Thanks Paul

Paul Bainbridge
Senior Engineer
Waterman Infrastructure & Environment

m +44 (0) 7411669249
E Paul.bainbridge@watermangroup.com
www.watermangroup.com | [LinkedIn](#) | [Twitter](#)

[Waterman responds to COVID – 19. Read more](#)

From: Eastham, Alan <Alan.Eastham@lancashire.gov.uk>
Sent: 16 November 2021 14:36
To: Paul Bainbridge <paul.bainbridge@watermangroup.com>
Cc: Gordon, David <David.Gordon@lancashire.gov.uk>; Robert Bradley <robert.bradley@watermangroup.com>;
Matthew Wright <matthew.wright@watermangroup.com>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details

Yes that's fine.

Regards

Alan Eastham

Principal Engineer
Infrastructure Delivery Team
Lancashire County Council
T: 01772 534561
M: 07964647500
W: www.lancashire.gov.uk

From: Paul Bainbridge <paul.bainbridge@watermangroup.com>
Sent: 16 November 2021 14:35
To: Eastham, Alan <Alan.Eastham@lancashire.gov.uk>
Cc: Gordon, David <David.Gordon@lancashire.gov.uk>; Robert Bradley <robert.bradley@watermangroup.com>;
Matthew Wright <matthew.wright@watermangroup.com>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details

Hi Alan,
That's great thanks – will phone you at 4pm tomorrow if that's ok.

Paul

Paul Bainbridge
Senior Engineer
Waterman Infrastructure & Environment

m +44 (0) 7411669249
E Paul.bainbridge@watermangroup.com
www.watermangroup.com | [LinkedIn](#) | [Twitter](#)

[***Waterman responds to COVID – 19. Read more***](#)

From: Eastham, Alan <Alan.Eastham@lancashire.gov.uk>
Sent: 16 November 2021 14:30
To: Paul Bainbridge <paul.bainbridge@watermangroup.com>
Cc: Gordon, David <David.Gordon@lancashire.gov.uk>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details

Hi Paul

My team has responsibility for designing the M65 improvement works and co-ordinating into the site works. The team member designing our drainage is currently off work, if you could give me a call around 3pm tomorrow, this will give me time to check out what our position is.

Regards

Alan Eastham
Principal Engineer
Infrastructure Delivery Team
Lancashire County Council
T: 01772 534561
M: 07964647500
W: www.lancashire.gov.uk

From: Gordon, David <David.Gordon@lancashire.gov.uk>
Sent: 16 November 2021 14:22
To: Eastham, Alan <Alan.Eastham@lancashire.gov.uk>
Subject: FW: Lancashire Central Off Site Highway Works - Drainage details

Hi Allan

Waterman's have come back on this (see below) and have elaborated on what they think has been done by whom and what they are now seeking to understand.

Would it be useful to have a quick call with Paul to clarify/go through?

Thanks
David

From: Paul Bainbridge <paul.bainbridge@watermangroup.com>
Sent: 15 November 2021 16:00
To: Gordon, David <David.Gordon@lancashire.gov.uk>
Cc: Prideaux, Emma <Emma.Prideaux@lancashire.gov.uk>; Dyson, Chris <Chris.Dyson@lancashire.gov.uk>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details

Hi David,
Thanks for that info.

I just wanted to clarify a few points on our original role and our understanding of LCC's role;

Original Roles:

Waterman – FRA/Preliminary Design Calcs.

Set out strategy, parameters etc. indicative drawings are included within the FRA and the prelim calcs for the highway drainage.

Note the strategy for the adopted highway adjacent to the retail/ikea plots was for a separate highway drainage system that drains unrestricted (at LCC Highways request) into the m65 roundabout. If I recall correctly this included an additional new crossing/culvert below the M65

There is a second system, which again discharges into the M65 roundabout for the ditch diversion (via the existing culvert), to which the development plot drainage is connected (At greenfield run-off rates to mimic existing). Waterman didn't carry out any "detailed designs" for this, the original commission didn't take us that far.

LCC - Detailed Design, Construction etc.

It is my understanding from speaking to colleagues who worked on the original scheme, that LCC were planning on using their own internal design team to deliver the detailed design/construction support etc.

The drawing supplied (and on LCC title block) shows design information for the diversion. LCC current package for the highway drainage (including new connection into the M65 roundabout) is missing.

We need to understand if this is all the design work that has been completed by LCC, ie is the highway drainage missing? Not designed/installed? Has the original approach / strategy changed at all to avoid the additional connection under the M65?

As you suggest, it may be that I need to speak to your design team about this?

Thanks, Paul

Paul Bainbridge
Senior Engineer
Waterman Infrastructure & Environment

m +44 (0) 7411669249
E Paul.bainbridge@watermangroup.com
www.watermangroup.com | [LinkedIn](#) | [Twitter](#)

[***Waterman responds to COVID – 19. Read more***](#)

From: Gordon, David <David.Gordon@lancashire.gov.uk>
Sent: 11 November 2021 15:44
To: Paul Bainbridge <paul.bainbridge@watermangroup.com>
Cc: Prideaux, Emma <Emma.Prideaux@lancashire.gov.uk>; Dyson, Chris <Chris.Dyson@lancashire.gov.uk>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details

Hi Paul

Re: your queries, I have spoken with our design team who have responded as per below and with the attached;

Re: the development road, this was not designed by LCC, who were to build it based on the original plans given to them. Any flow rates will therefore relate to these designs. The drainage was designed by Waterman - attached is a drawing which shows some alterations that had been started regarding the drainage.

LCC don't have access to the Microdrainage yet - attached is a model , however we are not sure if this will be relevant to the request from Watermans.

Re: Stanifield Roundabout, additional work will be required but this hasn't started yet. It was noticed that after the Stanifield scheme was completed the field immediately to the SE of the roundabout did drain better than before any work started.

Please let me know if there is anything further we can help with on this.

If you need to speak directly with our design team then let me know and I can facilitate.

Best regards
David

From: Paul Bainbridge <paul.bainbridge@watermangroup.com>
Sent: 09 November 2021 07:46
To: Gordon, David <David.Gordon@lancashire.gov.uk>; Dyson, Chris <Chris.Dyson@lancashire.gov.uk>; Mulla, Hussein <Hussein.Mulla@lancashire.gov.uk>
Cc: Prideaux, Emma <Emma.Prideaux@lancashire.gov.uk>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details
Importance: High

Hi David,

Do you know when you will be able to answer the questions in my below email – I have a client meeting coming up and need to provide some answers to the below questions (with the exception of the easement query which has now been answered by Elliot).

Paul

Paul Bainbridge
Senior Engineer
Waterman Infrastructure & Environment

m +44 (0) 7411669249
E Paul.bainbridge@watermangroup.com
www.watermangroup.com | [LinkedIn](#) | [Twitter](#)

[***Waterman responds to COVID – 19. Read more***](#)

From: Gordon, David <David.Gordon@lancashire.gov.uk>
Sent: 01 November 2021 12:27
To: Paul Bainbridge <paul.bainbridge@watermangroup.com>; Dyson, Chris <Chris.Dyson@lancashire.gov.uk>; Mulla, Hussein <Hussein.Mulla@lancashire.gov.uk>

Cc: Prideaux, Emma <Emma.Prideaux@lancashire.gov.uk>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details

Hi Paul

I've picked this up and will respond asap on some of the queries that I can't answer yet.

Attached, though, are the CAD files.

In terms of the easements required on the parts of the existing ditch infrastructure through the development footprint intended to be diverted, having spoken with our planning advisor you may need to enter pre-app discussions with the Lead Local Flood Authority which can be accessed via their website below, and which is best done at the point at which you have an indicative strategy.

<https://www.lancashire.gov.uk/business/business-services/pre-planning-application-advice-service/pre-planning-application-flood-risk-and-land-drainage-advice-service/>

If, however, you require some initial advice, then you can contact Elliot Burton via email (Elliot.Burton@lancashire.gov.uk).

Best regards
David

From: Paul Bainbridge <paul.bainbridge@watermangroup.com>
Sent: 01 November 2021 09:52
To: Gordon, David <David.Gordon@lancashire.gov.uk>; Dyson, Chris <Chris.Dyson@lancashire.gov.uk>; Mulla, Hussein <Hussein.Mulla@lancashire.gov.uk>
Subject: RE: Lancashire Central Off Site Highway Works - Drainage details
Importance: High

Hi everyone,

Is my below query something someone will be able to get back to me on today please, as I have a client meeting mid-week and it would be good to have some feedback on the below email. I'm free to chat anytime that suits you, today.

Thanks Paul 07411 669 249

From: Paul Bainbridge
Sent: 27 October 2021 14:38
To: david.gordon@lancashire.gov.uk
Cc: chris.dyson@lancashire.gov.uk
Subject: Lancashire Central Off Site Highway Works - Drainage details

Hi David,

I am currently working on the drainage strategy for the mixed use scheme associated with the off-site highway works undertaken by Lancashire County Council. My colleague Robert Bradley has sent me the uncontrolled copy of the drawing CLM12-LCC-DR-0100 General Arrangement drawing in PDF format, that you sent to Allan Grundy last month. Do you have a cad version of this? I am pulling together a up to date drainage strategy and so having your latest proposals in terms of highway works would be useful. Having been to site recently, I note that the link road that will ultimately link the development to Wigan Road has in part been constructed. Do you have the details of the drainage proposals / parameters of this road, in particular the flow rate entering the pond within the M65 Roundabout located north of the link road. We want to accurately represent the drainage proposals for this area in our design, to ensure we have accounted for all upstream flows.

Also, I understand that as part of the original application it was identified that remedial works were required for the drainage located at the Stanfield Lane / A582 roundabout. Do you have details of what works have taken place and/or proposed works that are due to take place in the future?

Also I am trying ascertain the easement Lancashire would require on the parts of the existing ditch infrastructure through the development footprint that we intend to divert – is this something you could advise on?

Happy to talk through the above at a time that suits you (Teams or Zoom).

Many thanks, Paul

Paul Bainbridge
Senior Engineer
Waterman Infrastructure & Environment

m +44 (0) 7411669249
E Paul.bainbridge@watermangroup.com
www.watermangroup.com | [LinkedIn](#) | [Twitter](#)

[Waterman responds to COVID – 19. Read more](#)

Waterman Group is a multidisciplinary consultancy providing sustainable solutions to meet the planning, engineering design and project delivery needs of the property, infrastructure, environment and energy markets.

This message contains confidential information and is intended only for the individual named. If you are not the named addressee you should not disseminate, distribute or copy this email. Please notify the sender immediately if you have received this email by mistake and delete it from your system. Email transmission cannot be guaranteed to be secure or error-free as information could be intercepted, corrupted, delayed, lost, destroyed, incomplete, or contain viruses. The sender does not accept liability for any errors or omissions in the contents of this message, which arise as a result of email transmission. All reasonable precautions have been taken to see that no viruses are present in this email. Waterman Group cannot accept liability for loss, disruption or damage however caused, arising from the use of this email or attachments and recommend that you subject these to virus checking procedures prior to use. Email messages may be monitored and by replying to this message the recipient gives their consent to such monitoring.

Waterman Group Plc., Pickfords Wharf, Clink Street, London SE1 9DG, is a company registered in England and Wales with company registration number 2188844.

This e-mail contains information intended for the addressee only.

It may be confidential and may be the subject of legal and/or professional privilege.

If you are not the addressee you are not authorised to disseminate, distribute, copy or use this e-mail or any attachment to it.

The content may be personal or contain personal opinions and unless specifically stated or followed up in writing, the content cannot be taken to form a contract or to be an expression of the County Council's position.

Lancashire County Council reserves the right to monitor all incoming and outgoing email.

Lancashire County Council has taken reasonable steps to ensure that outgoing communications do not contain malicious software and it is your responsibility to carry out any checks on this email before accepting the email and opening attachments.

This e-mail contains information intended for the addressee only.

It may be confidential and may be the subject of legal and/or professional privilege.

If you are not the addressee you are not authorised to disseminate, distribute, copy or use this e-mail or any attachment to it.

The content may be personal or contain personal opinions and unless specifically stated or followed up in writing, the content cannot be taken to form a contract or to be an expression of the County Council's position.

Lancashire County Council reserves the right to monitor all incoming and outgoing email.

Lancashire County Council has taken reasonable steps to ensure that outgoing communications do not contain malicious software and it is your responsibility to carry out any checks on this email before accepting the email and opening attachments.

This e-mail contains information intended for the addressee only.

It may be confidential and may be the subject of legal and/or professional privilege.

If you are not the addressee you are not authorised to disseminate, distribute, copy or use this e-mail or any attachment to it.

The content may be personal or contain personal opinions and unless specifically stated or followed up in writing, the content cannot be taken to form a contract or to be an expression of the County Council's position.

Lancashire County Council reserves the right to monitor all incoming and outgoing email.

Lancashire County Council has taken reasonable steps to ensure that outgoing communications do not contain malicious software and it is your responsibility to carry out any checks on this email before accepting the email and opening attachments.

This e-mail contains information intended for the addressee only.

It may be confidential and may be the subject of legal and/or professional privilege.

If you are not the addressee you are not authorised to disseminate, distribute, copy or use this e-mail or any attachment to it.

The content may be personal or contain personal opinions and unless specifically stated or followed up in writing, the content cannot be taken to form a contract or to be an expression of the County Council's position.

Lancashire County Council reserves the right to monitor all incoming and outgoing email.

Lancashire County Council has taken reasonable steps to ensure that outgoing communications do not contain malicious software and it is your responsibility to carry out any checks on this email before accepting the email and opening attachments.

This e-mail contains information intended for the addressee only.

It may be confidential and may be the subject of legal and/or professional privilege.

If you are not the addressee you are not authorised to disseminate, distribute, copy or use this e-mail or any attachment to it.

The content may be personal or contain personal opinions and unless specifically stated or followed up in writing, the content cannot be taken to form a contract or to be an expression of the County Council's position.

Lancashire County Council reserves the right to monitor all incoming and outgoing email.

Lancashire County Council has taken reasonable steps to ensure that outgoing communications do not contain malicious software and it is your responsibility to carry out any checks on this email before accepting the email and opening attachments.

This e-mail contains information intended for the addressee only.

It may be confidential and may be the subject of legal and/or professional privilege.

If you are not the addressee you are not authorised to disseminate, distribute, copy or use this e-mail or any attachment to it.

The content may be personal or contain personal opinions and unless specifically stated or followed up in writing, the content cannot be taken to form a contract or to be an expression of the County Council's position.

Lancashire County Council reserves the right to monitor all incoming and outgoing email.

Lancashire County Council has taken reasonable steps to ensure that outgoing communications do not contain malicious software and it is your responsibility to carry out any checks on this email before accepting the email and opening attachments.

This e-mail contains information intended for the addressee only.

It may be confidential and may be the subject of legal and/or professional privilege.

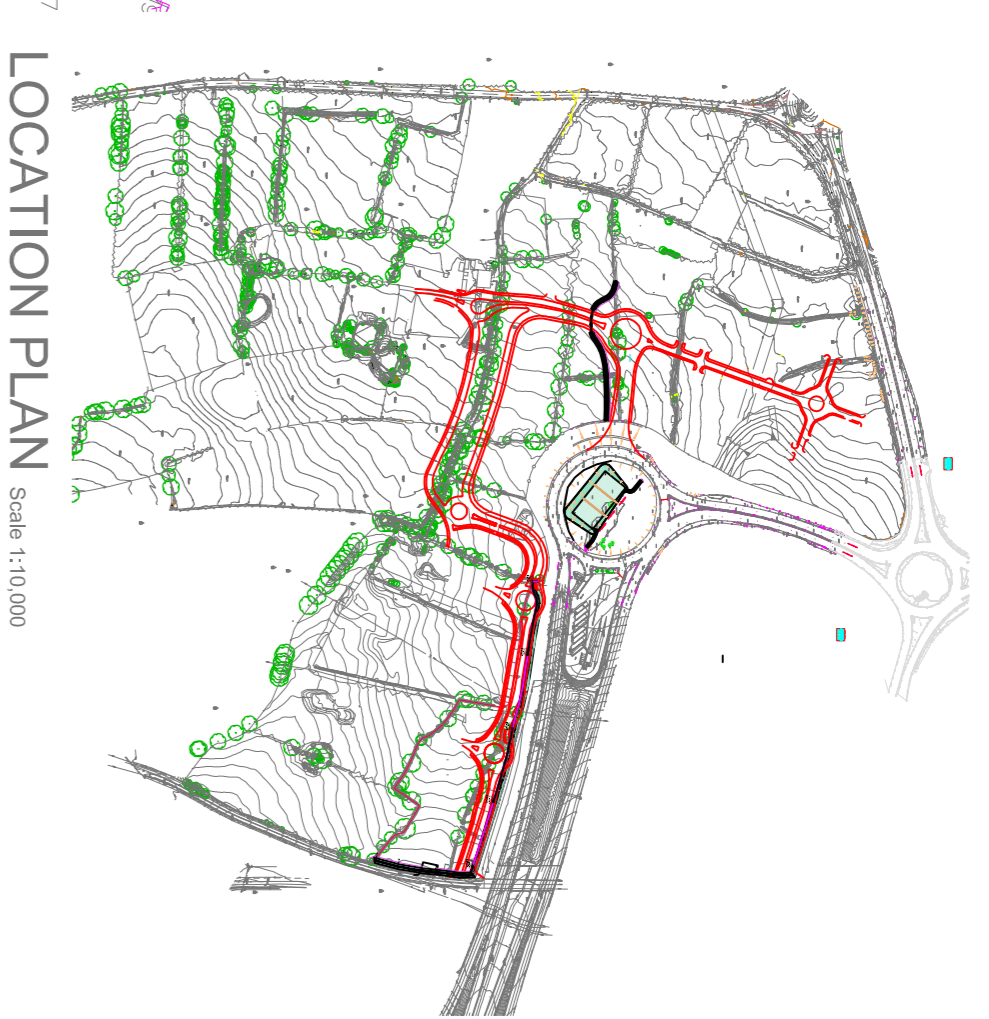
If you are not the addressee you are not authorised to disseminate, distribute, copy or use this e-mail or any attachment to it.

The content may be personal or contain personal opinions and unless specifically stated or followed up in writing, the content cannot be taken to form a contract or to be an expression of the County Council's position.

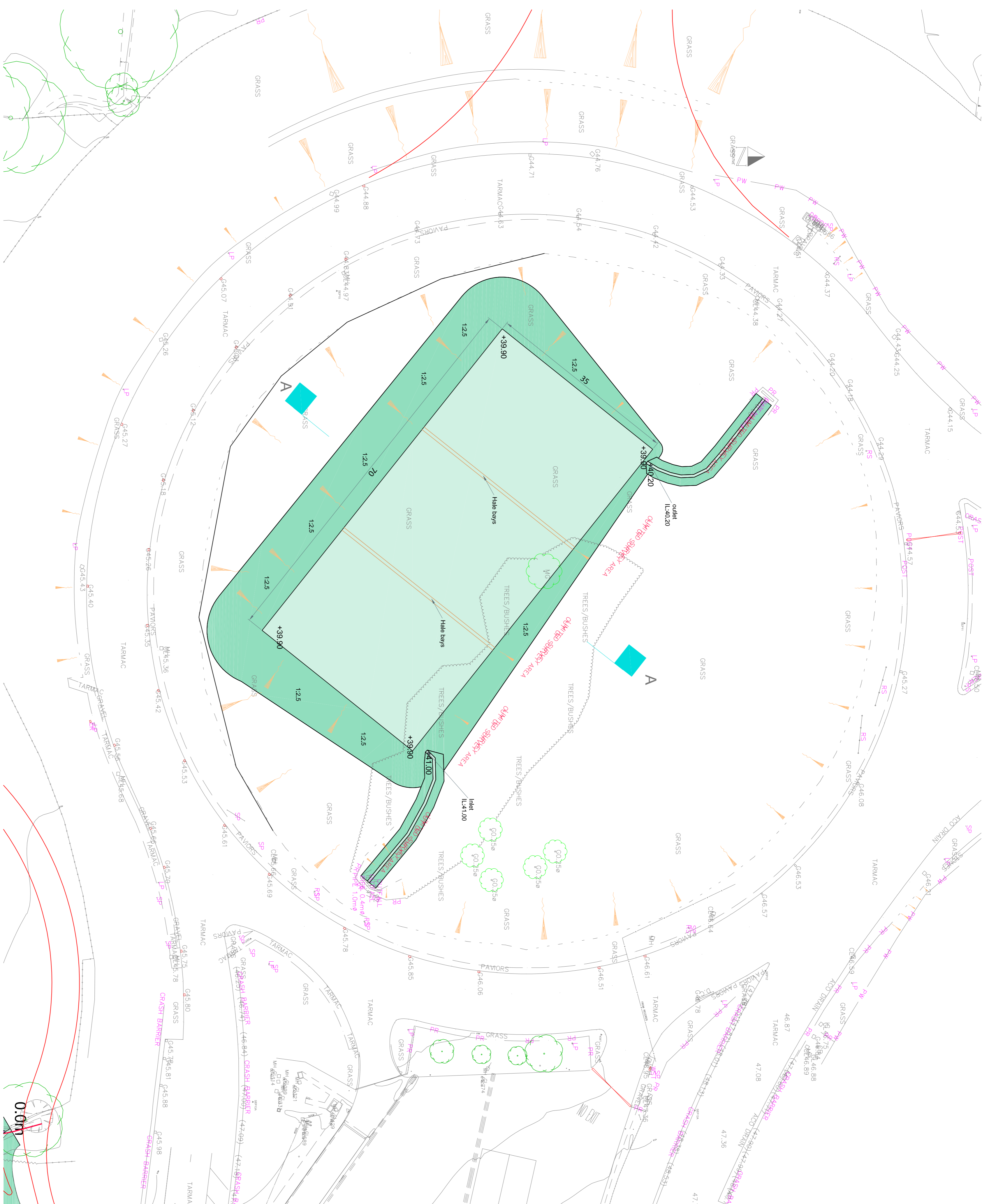
Lancashire County Council reserves the right to monitor all incoming and outgoing email.

Lancashire County Council has taken reasonable steps to ensure that outgoing communications do not contain malicious software and it is your responsibility to carry out any checks on this email before accepting the email and opening attachments.

DO NOT SCALE: if in doubt ask

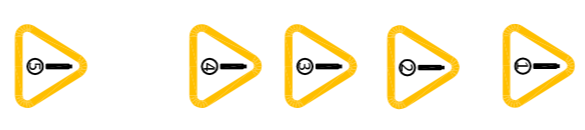
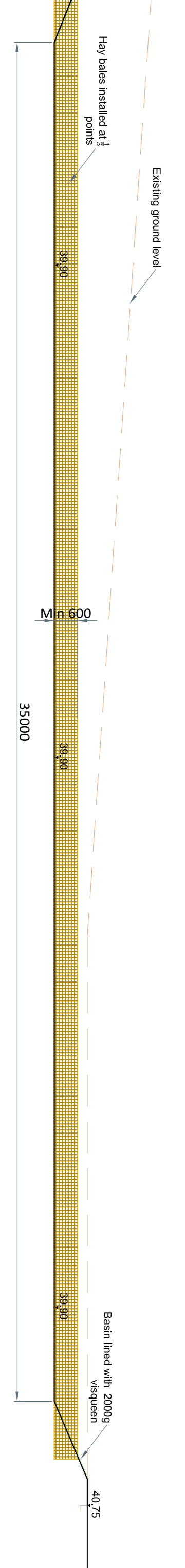


- NOTES**
- All dimensions in millimeters. All levels in metres.
 - This drawing is to be read in conjunction with all other Engineers, Architects and Specialist's drawings, the specifications, bill of quantities and contract documents.
 - Turbidity testing to be undertaken prior to works commencing works in a variety of weather conditions including during heavy rainfall/storm. The results are to be recorded formally and compared to results during construction
 - Refer to drawings:
 - P1170-LCC-T01-DRG-001
 - P1170-LCC-T01-DRG-002
 - P1170-LCC-T01-DRG-003
- KEY**
- Proposed road layout
 - Proposed ditch diversion
 - Proposed silt fence

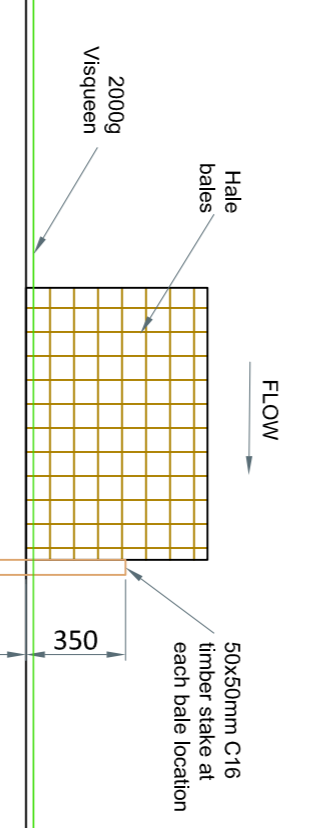


STILLING BASIN Scale 1:400

SECTION A-A Scale 1:100



SAFETY, HEALTH & ENVIRONMENT RISK ASSESSMENT	
Designers' note - cdn reg 13(2) The following are significant hazards which might affect the health and safety of those undertaking the works outlined in this set of drawings on railway structures or those affected by these activities, a site specific risk assessment shall always be undertaken prior to commencing any of the work described on it is assumed that a competent contractor is aware of the risks associated with general construction activities undertaken in the construction environment.	
HAZARD	MITIGATING MEASURES
SERVICES	A high voltage cable is present on site that requires diversion, consult ICD for position and way leaves
SLOPE STABILITY	Out slopes are to be controlled at the gradients indicated on the drawings, failure to do this could result in movement/failure
CONFINED SPACE	Outcrops are non access chambers, no man access permitted
POLLUTION	Turbidity testing to be undertaken prior to works commencing works in a variety of weather conditions including during heavy rainfall/storm. The results are to be recorded formally and compared to results during turbidity testing to be undertaken daily, should the results exceed those undertaken prior to the start of works. Consult all other
CONSTRUCTIBILITY	Proposed outwork levels have not been provided and some areas where works to be undertaken prior to start of works this may result in the works being undertaken at a level that is not as intended. The contractor is to ensure the details are compatible with these drawings



HALE BALE DETAIL Scale 1:25

TEMPORARY WATER COURSE DIVERSION & TEMPORARY DRAINAGE ROUNDABOUT STILLING BASIN

Project Title
CUERDEN SITE



PASCOE
Pascoe Consulting Engineers Ltd
31 Winkley Square
Preston
Lancashire
PR1 3JF 01772 254232
mail@pascoe-td.co.uk

Rev.	Date	Description of Revisions	Drawn	Chd	App
A	12.02.18	FOR APPROVAL	MH	SK	PT

FOR APPROVAL

Copyright © PAS Consulting Engineers Ltd 2018. All rights reserved. Reproduction in whole or in part or reuse to third parties without the prior written consent of PAS Consulting Engineers Ltd is prohibited.

Drawn By	Matt Holmes	Sig.	[Signature]	Date	31.01.18
Checked By	Sudhakar Karri	Sig.	[Signature]	Date	31.01.18
Approved By	Paul Thurlwell	Sig.	[Signature]	Date	31.01.18
Scale	As shown (A1)	Sheet	1 of 1		

Drawing Number
P1170-LCC-T01-DRG-002

Revision
A

1ha QBAR 6.5ls 1%AEP+40%CC

The screenshot shows the 'Quick Storage Estimate' dialog box with the 'Variables' tab selected. The left sidebar contains buttons for 'Variables', 'Results', 'Design', 'Overview 2D', 'Overview 3D', and 'Vt'. The main area contains the following settings:

Parameter	Value
FSR Rainfall	[Dropdown]
Return Period (years)	100
Region	England and Wales
Map	[Map Icon]
M5-60 (mm)	18.500
Ratio R	0.339
Cv (Summer)	0.750
Cv (Winter)	0.840
Impermeable Area (ha)	1.000
Maximum Allowable Discharge (l/s)	6.5
Infiltration Coefficient (m/hr)	0.00000
Safety Factor	2.0
Climate Change (%)	40

Buttons at the bottom: Analyse, OK, Cancel, Help.

Footer text: Enter Maximum Allowable Discharge between 0.0 and 999999.0

The screenshot shows the 'Quick Storage Estimate' dialog box with the 'Results' tab selected. The left sidebar contains buttons for 'Variables', 'Results', 'Design', 'Overview 2D', 'Overview 3D', and 'Vt'. The main area displays the following results:

Global Variables require approximate storage of between 195 m³ and 287 m³.

These values are estimates only and should not be used for design purposes.

Buttons at the bottom: Analyse, OK, Cancel, Help.

Footer text: Enter Maximum Allowable Discharge between 0.0 and 999999.0

0.4ha QBAR 5.0ls 1%AEP+40%CC

The screenshot shows the 'Quick Storage Estimate' dialog box with the 'Variables' tab selected. The 'Micro Drainage' logo is in the top left. A vertical sidebar on the left contains buttons for 'Variables', 'Results', 'Design', 'Overview 2D', 'Overview 3D', and 'Vt'. The main area is titled 'Variables' and contains the following fields:

FSR Rainfall	Cv (Summer)	0.750
Return Period (years): 100	Cv (Winter)	0.840
Region: England and Wales	Impermeable Area (ha)	0.400
Map	Maximum Allowable Discharge (l/s)	5.0
M5-60 (mm): 18.500	Infiltration Coefficient (m/hr)	0.00000
Ratio R: 0.339	Safety Factor	2.0
	Climate Change (%)	40

At the bottom of the dialog are buttons for 'Analyse', 'OK', 'Cancel', and 'Help'. A status bar at the very bottom reads: 'Enter Maximum Allowable Discharge between 0.0 and 999999.0'.

The screenshot shows the 'Quick Storage Estimate' dialog box with the 'Results' tab selected. The 'Micro Drainage' logo is in the top left. A vertical sidebar on the left contains buttons for 'Variables', 'Results', 'Design', 'Overview 2D', 'Overview 3D', and 'Vt'. The main area is titled 'Results' and contains the following text:

Global Variables require approximate storage of between 195 m³ and 287 m³.

These values are estimates only and should not be used for design purposes.

At the bottom of the dialog are buttons for 'Analyse', 'OK', 'Cancel', and 'Help'. A status bar at the very bottom reads: 'Enter Maximum Allowable Discharge between 0.0 and 999999.0'.

1.4ha QBAR 9.1ls 1%AEP+40%CC

Quick Storage Estimate

Micro Drainage

Variables

FSR Rainfall

Return Period (years) 100

Region England and Wales

Map M5-60 (mm) 18.500 Ratio R 0.337

Cv (Summer) 0.750

Cv (Winter) 0.840

Impermeable Area (ha) 1.400

Maximum Allowable Discharge (l/s) 9.1

Infiltration Coefficient (m/hr) 0.00000

Safety Factor 2.0

Climate Change (%) 40

Analyse OK Cancel Help

Enter Climate Change between -100 and 600

Quick Storage Estimate

Micro Drainage

Results

Global Variables require approximate storage of between 849 m³ and 1226 m³.

These values are estimates only and should not be used for design purposes.

Analyse OK Cancel Help

Enter Climate Change between -100 and 600