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environmental consultants

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Your Ref: 06/2023/0030

Date: 6th February 2023

Our Ref: SHF.1671.006.HY.LT.001.A

Email: daniel.alstead@enzygo.com

FAO: Elliot Burton

By Email: suds@lancashire.gov.uk

Lead Local Flood Authority

Lancashire County Council

Dear Elliot

Garstang Road, Broughton, Preston, PR3 5JA – LLFA Objection Response Letter

Introduction

Enzygo Ltd produced a Flood Risk Assessment (FRA), inclusive of an outline drainage strategy [Reference. SHF.1671.006.HY.R.001.B, July 2021], for a proposed outline application for a residential development, located on the above 'Site'.

Following submission of the FRA report, the Lancashire County Council as the Lead Local Flood Authority [LLFA] objected to the proposed development based on drainage grounds. Extracts from the objection letter [Reference. 06/2023/0030, 24th January 2023] is included below, along with Enzygo's responses.

Response

Lead Local Flood Authority - Site-Specific Advice

The following advice is provided to inform the applicant and the Local Planning Authority of any additional concerns with the application:

- *The climate change allowances were updated on 10th May 2022.*
- *The applicant will need to apply a 10% urban creep allowance in the drainage design in accordance with British Standard BS 8582.*
- *If the applicant is only modelling the impermeable area of the development, then an appropriate runoff coefficient (Cv) value needs to be applied to the drainage calculations. The default Cv values (0.84 and 0.75) apply when modelling a mixture of impermeable and permeable surfaces. A Cv value of 1.0 should be applied when modelling impermeable areas.*

The FRA and outline drainage strategy was prepared during July 2021. However, drainage guidance has been amended following submission of the report.

We have updated climate change to the current 50% allowance for the Ribble Management Catchment, applied 10% for urban creep, and used the 1.0 runoff coefficient to the revised drainage calculations. Revised drainage calculations and drawing are included in Attachments 2 and 3 respectively.

We would reiterate that this is an outline application demonstrating sufficient space can be provided to attenuate surface water runoff from the proposed development (i.e. retention pond). The pond has been designed to allow

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Registered in England & Wales registered number: 06525159 VAT number: 283 259677

for a permanent water level (i.e. 300mm) to improve amenity and biodiversity aspects. The drainage calculations and drawings will be refined at detailed design stage once the layout has been fixed by the developer. At this stage, additional SuDS features can be integrated into the layout (i.e. trapped gullies, permeable paving, interceptor, etc.) to improve water quality. Permeable paving could be used on driveways and/or cul-de-sacs. For completeness, a copy of the SuDS Pro-Forma has been included as Attachment 4.

Closure

We trust that the details presented herein are self-explanatory and clear and the objection is removed. If, for any reason you should have any queries or comments, please do not hesitate to contact me.

Yours sincerely,

Daniel Alstead BSc [Hons], MSc, MCIWEM, C.WEM

Associate Director [Hydrology]

Enzygo Ltd

Attachment 1 - LLFA Objection Letter

Attachment 2 - Updated Drainage Calculations

Attachment 3 - Updated Drainage Drawing

Attachment 4 - SuDS Pro-Forma

Lancashire County Council

Contact: Please contact the Local Planning Authority

Date: 24 January 2023

Dear Local Planning Authority,

Thank you for inviting the Lead Local Flood Authority to comment on the below application.

PLANNING APPLICATION CONSULTATION RESPONSE

Application Number:	06/2023/0030
Proposal:	Outline planning application seeking approval for access only for residential development for up to 51no. dwellings with associated works (all other matters reserved)
Location:	Land west of Garstang Road, Broughton, Preston, PR3 5JA

The Lead Local Flood Authority is a statutory consultee for major developments with surface water drainage, under the Town and Country Planning (Development Management Procedure) (England) Order 2015. It is in this capacity this response is compiled.

Comments provided in this representation, including conditions, are advisory and it is the decision of the Local Planning Authority whether any such recommendations are acted upon. The comments given have been composed based on the extent of the knowledge of the Lead Local Flood Authority and information provided with the application at the time of this response.

Lead Local Flood Authority Position

The Lead Local Flood Authority **objects** to the above application on the basis of:

Objection 1 – Inadequate Surface Water Sustainable Drainage Strategy

In the absence of an acceptable surface water sustainable drainage strategy to assess the principle of surface water sustainable drainage associated with the proposed development, we object to this application and recommend refusal of planning permission until further information has been submitted to the Local Planning Authority.

Reason

Paragraphs 167 and 169 of the National Planning Policy Framework require major developments to incorporate sustainable drainage systems that:

- take account of advice from the Lead Local Flood Authority;
- have appropriate proposed minimum operational standards;
- have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and
- where possible, provide multifunctional benefits.

The submission of basic information on how surface water is intended to be managed is vital if the Local Planning Authority is to make informed planning decisions. In the absence of acceptable information regarding surface water sustainable drainage, the Lead Local Flood Authority cannot assess whether the development proposed meets the requirements of Paragraph 169 of the National Planning Policy Framework or the Planning Practice Guidance in principle. This is sufficient reason in itself for a refusal of planning permission.

In particular, the submitted surface water sustainable drainage strategy fails to:

- **Provide appropriate minimum operation standards for peak flow and volume control**, in line with the Defra Technical Standards for Sustainable Drainage Systems, therefore, is contrary to paragraph 169 of the National Planning Policy Framework.

  Standard S6 of the Defra Technical Standards for Sustainable Drainage Systems requires applicants to demonstrate that post-development surface water runoff volume of any proposed development is discharged at a rate that does not adversely affect flood risk (Qbar).

  The submitted surface water sustainable drainage strategy states that surface water from the site will be discharged at greenfield Qbar rates but fails to contain surface water volume flows within this parameter, as set out in Standard S6 of the Defra Technical Standards for Sustainable Drainage Systems. This is because a 40% allowance has incorrectly been added to the Qbar greenfield runoff rate which is unacceptable. Climate change allowances are added to a sites attenuation requirements, not the sites discharge rate. This is sufficient reason in itself for a refusal of planning permission.

- **Provide an appropriate allowance for climate change**, in line with national guidance and, therefore, does not have appropriate minimum operation standards for the lifetime of the development, contrary to Paragraph 169 of the National Planning Policy Framework. Failure to provide an appropriate allowance for climate change will result in increased flood risk on and off site over the lifetime of the development. This is considered contrary to Paragraph 167 of the National Planning Policy Framework and therefore sufficient reason in itself for a refusal of planning permission.

The Lead Local Flood Authority asks to be re-consulted with the results of the amended sustainable drainage strategy and SuDS Pro-forma. We will provide you with further comments within 21 days of receiving formal re-consultation. Re-consultations should be sent to our identified mailbox.

Our objection will be maintained until the amended documents, as outlined above, have been received. Production of the amended documents will not in itself result in the removal of an objection.

If the applicant wishes to discuss our objection with the Lead Local Flood Authority, they can do so through our planning advice service. This service is offered to prevent any

issues that could potentially affect your application and provide relevant up to date advice regarding surface water flood risk and sustainable drainage.

More information on our planning advice service is available at: https://www.lancashire.gov.uk/business/business-services/pre-planning-application-advice-service/lead-local-flood-authority-planning-advice-service-for-surface-water-and-sustainable-drainage/

Lead Local Flood Authority - Site-Specific Advice

The following advice is provided to inform the applicant and the Local Planning Authority of any additional concerns with the application:

- The climate change allowances were updated on 10th May 2022.
- The applicant will need to apply a 10% urban creep allowance in the drainage design in accordance with British Standard BS 8582.
- If the applicant is only modelling the impermeable area of the development, then an appropriate runoff coefficient (Cv) value needs to be applied to the drainage calculations. The default Cv values (0.84 and 0.75) apply when modelling a mixture of impermeable and permeable surfaces. A Cv value of 1.0 should be applied when modelling impermeable areas.

Material Changes to this Planning Application

If there are any material changes to the submitted information which impact on surface water, the Local Planning Authority is advised to consider re-consulting the Lead Local Flood Authority via our identified mailbox.

If you decide to approve contrary to our advice

If the Local Planning Authority grants planning permission for this development contrary to our advice, then we will be unable to assist with the discharge of any planning conditions, including surface water or flood risk conditions that we have not recommended.

The Local Planning Authority should be aware that any development built after 1 January 2012 is not eligible for Grant-in-Aid funding from central government to study or alleviate flood issues. This is set out in section 9.3 of the Memorandum relating to capital grants for local authorities and internal drainage boards in England.

Please send a copy of the decision notice to our identified mailbox.

Yours faithfully,

Elliot Burton
Lead Local Flood Authority

Design Settings

Rainfall Methodology	FEH-13	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	Cover Level (m)	Diameter (mm)	Depth (m)
Attenuation Basin	1.122	100.000	1500	1.800

Simulation Settings

Rainfall Methodology	FEH-13	Drain Down Time (mins)	1440	30 year (l/s)	32.9
Summer CV	1.000	Additional Storage (m³/ha)	20.0	100 year (l/s)	40.3
Winter CV	1.000	Check Discharge Rate(s)	✓	Check Discharge Volume	x
Analysis Speed	Normal	1 year (l/s)	16.8		
Skip Steady State	x	2 year (l/s)	18.0		

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	50	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.70
Greenfield Method	FEH	Growth Factor 100 year	2.08
Positively Drained Area (ha)	1.850	Betterment (%)	0
SAAR (mm)	1015	QMed	18.0
Host	21	QBar	19.4
BFIHost	0.361	Q 1 year (l/s)	16.8
Region	10	Q 2 year (l/s)	18.0
QBar/QMed conversion factor	1.075	Q 30 year (l/s)	32.9
Growth Factor 1 year	0.87	Q 100 year (l/s)	40.3
Growth Factor 2 year	0.93		

Node Attenuation Basin Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	98.200	Product Number	CTL-SHE-0189-1940-1500-1940
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	19.4	Min Node Diameter (mm)	1500

Node Attenuation Basin Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	98.200
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	460

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	271.4	0.0	1.500	989.3	0.0	1.800	1164.4	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	Attenuation Basin	156	98.550	0.350	66.1	129.2659	0.0000	OK

Link Event (Outflow)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
240 minute summer	Attenuation Basin	Hydro-Brake®	19.2	250.5

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	Attenuation Basin	176	99.032	0.832	128.6	403.2121	0.0000	OK

Link Event (Outflow)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
15 minute winter	Attenuation Basin	Hydro-Brake®	19.4	226.0

Results for 100 year +50% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	Attenuation Basin	236	99.698	1.498	209.1	964.6835	0.0000	OK

Link Event (Outflow)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
60 minute summer	Attenuation Basin	Hydro-Brake®	19.4	812.6

NOTES

1. Do not scale from this drawing
2. All dimensions are in meters unless stated otherwise
3. This drawing is to be read in conjunction with all relevant drawings and documents associated with this project.
4. All surveyed information including levels and layout is provided by others
5. All existing and proposed dimensions, levels and locations to be checked and verified by the main contractor on site prior to the commencement of the works and any anomalies reported to the engineer.
6. All works, workmanship and materials on private drainage to be in accordance with the civil engineering specification for water industry 7th edition published by the water research council.

Key

- Site Boundary
- Foul Water Sewer
- Surface Water Sewer
- Foul Water Manhole
- Surface Water Manhole
- Existing Foul Water Sewer
- Existing Surface Water Sewer

REV:	DATE:	DETAIL:	DES:	CHK:	APP:
P03	03/02/23	Drainage design amended in line with LLFA comments	EA	RB	DA
P02	06/07/21	Final site layout added & drainage moved	EA	DA	DA
P01	14/05/21	First Issue	CH	WW	EA

enzygo environmental consultants
Samuel House, 5 Fox Valley Way, Stocksbridge, Sheffield, S36 2AA

CLIENT: Hollins Strategic Land

PROJECT: Garstang Road, Broughton

DRAWING TITLE: Outline Surface and Foul Water Drainage Strategy

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
CH	CH	WW	EA

DATE:	SCALE @ A3:
14/05/2021	NTS

PROJECT NO.:	DRAWING NO.:
SHF.1671.006	101

DRAWING STATUS:	ISSUE:
Preliminary	P03

N

NOTES

1. Do not scale from this drawing
2. All dimensions are in meters unless stated otherwise
3. This drawing is to be read in conjunction with all relevant drawings and documents associated with this project.
4. All surveyed information including levels and layout is provided by others
5. All existing and proposed dimensions, levels and locations to be checked and verified by the main contractor on site prior to the commencement of the works and any anomalies reported to the engineer.
6. All works, workmanship and materials on private drainage to be in accordance with the civil engineering specification for water industry 7th edition published by the water research council.

Key

Road and Driveway Impermeable Area
6635.5m² (0.664ha)

Roof Impermeable Area
3560m² (0.356ha)

REV:	DATE:	DETAIL:	DES:	CHK:	APP:
P01	03/02/23	First Issue	EA	RB	DA

enzygo environmental consultants
Samuel House, 5 Fox Valley Way, Stocksbridge, Sheffield, S36 2AA

CLIENT:
Hollins Strategic Land

PROJECT:
Garstang Road, Broughton

DRAWING TITLE:
Proposed Impermeable Areas

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
EA	EA	RB	DA

DATE:	SCALE @ A3:
03/02/2023	1:1000

PROJECT NO.:	DRAWING NO.:
SHF.1671.006	102

DRAWING STATUS:	ISSUE:
Preliminary	P01

Lancashire County Council

Sustainable Drainage Systems (SuDS)

Pro-Forma

This Pro-forma is endorsed by the North West Regional Flood and Coastal Committee (RFCC), including representatives from Lancashire County Council, as the Lead Local Flood Authority and Highway Authority, and by United Utilities and the Environment Agency

Lancashire County Council
PO Box 100, County Hall, Preston, PR1 0LD

When to use this pro-forma

The pro-forma may be a requirement of Local Planning Policy or the planning validation checklist for any planning application for major development.

The Lead Local Flood Authority expect the pro-forma to be submitted with all planning applications for major development with surface water drainage.

It supports applicants in summarising and confirming how surface water from a development will be managed sustainably under current and future conditions.

Your Local Planning Authority may have their own version of the pro-forma within policy, supplementary planning documents or validation checklists. Where such lists include alternative or additional requirements, both sets should be adhered to.

Your sustainable drainage system should be designed in accordance with **CIRIA The SuDS Manual C753** and any necessary adoption standards.

How to complete the pro-forma

Blue Box	Instructs or asks you to provide information
Grey Box	States the evidence required which you will need to submit
White Box	These are the boxes the applicant needs to complete in full

1. Complete ALL white boxes

2. Submit this pro-forma to the Local Planning Authority, along with:

- Sustainable Drainage Strategy
- Site Specific Flood Risk Assessment (if required)
- Minimum supporting evidence, as indicated in grey boxes of this pro-forma.

Guidance to support you

The pro-forma should be completed in conjunction with ‘Completing your SuDS Pro Forma Guide', found on our website.

The pro-forma can be completed using freely available tools such as **Tools for Sustainable Drainage Systems** or appropriate industry standard surface water management design software.

Section 1. Your Application and Development Details

a) Planning Application

Planning Application Reference *(if available)*	06/2023/0030
Select the type of planning application you will be submitting	Pre-application ☐ Outline ☒ Full ☐ Hybrid ☐ Reserved matters ☐

b) Development Site

Developer(s) Name	Hollins Strategic Land
Consultant(s) Name	Enzygo Ltd
Development Address *(including postcode)*	Land west of Garstang Road, Broughton, Preston, PR3 5JA
Development Grid Reference *(Eastings/Northings)*	352483, 434681

Total Development Site Area (Ha)	2.65
Contributing Area (Ha) of Development ***Note:*** *Consideration should be given to manage surface water from both impermeable and permeable surfaces (including gardens and verges) likely to enter the drainage system.*	1.85

Development Type		**State Proposed Number of Units**
Greenfield Site *Site is wholly undeveloped, and a new drainage system will be installed*	☒	51
Previously Developed / Brownfield Site *Site is already developed, and the entirety of the existing surface water drainage system will be used to serve the new development (evidence must be provided to prove existing surface water drainage system is reusable)*	☐	Click or tap here to enter text.

c) Details about Flood Risk and Sustainable Drainage Design

Please indicate the flood zone that your development is in. Select all that apply. *Based on the Flood Map for Planning and the relevant Local Authority Strategic Flood Risk Assessment (to identify Flood Zones 3a/3b).*	Flood Zone 1 ☒ Flood Zone 2 ☐ Flood Zone 3a ☐ Flood Zone 3b ☐
What is the surface water risk of the site? Select all that apply. *Based on the Risk of Surface Water Flooding Map.*	High ☐ Medium ☐ Low ☒ Very Low ☐

Have you submitted a Site-Specific Flood Risk Assessment (FRA)? *See separate guidance notes for clarification on when a FRA is required*	Yes ☒ No ☐
Have you submitted a Sustainable Drainage Strategy?	Yes ☒ No ☐
Select the minimum expected lifetime of development *(years)* *Refer to Planning Practice Guidance 'Flood Risk and Coastal Change' Paragraph 006*	100 years ☒ 75 years ☐ Other ☐

d) Multi-functional Benefits and Natural Flood Management

Select the benefits your sustainable drainage proposal will provide	Water quantity ☒ Water quality ☒ Amenity ☒ Biodiversity ☒
Summarise how your sustainable drainage system will provide the above benefits	This is an outline application demonstrating sufficient space can be provided to attenuate surface water runoff from the proposed development (i.e. retention pond). The pond has been designed to allow for a permanent water level (i.e. 300mm) to improve amenity and biodiversity aspects. The drainage calculations and drawings will be refined at detailed design stage once the layout has been fixed by the developer. At this stage, additional SuDS features can be integrated into the layout (i.e. trapped gullies, permeable paving, interceptor, etc.) to improve water quality. Permeable paving could be used on driveways and/or cul-de-sacs.

Does your sustainable drainage proposal provide multi-functional benefits via SuDS? *Refer to Paragraphs 055 and 059 of the Planning Practice Guidance*	Yes ☒ No ☐
Does your sustainable drainage proposal include measures to reduce the causes and impacts of flooding? *Refer to Paragraphs 059 and 063 of the Planning Practice Guidance*	Yes ☒ No ☐
Has the proposed sustainable drainage system been integrated with other aspects of the development such as open space or green infrastructure?	Yes ☒ No ☐

Do you propose to use natural flood management opportunities on your development? Select all that apply. *Refer to Paragraph 067 of the Planning Practice Guidance*	On-site ☐ Off-site ☐ No ☒
Have you assessed the impact of the proposed natural flood management within the site-specific flood risk assessment?	Yes ☐ No ☐ N/A ☒

Section 2: Impermeable Area and Existing Drainage

	Existing (E)	Proposed (P)	Change (P – E)
State Impermeable Area (Ha)	0	1.02	1.02
Evidence Required: Plans showing development layout, with existing and proposed impermeable areas.			☒

Are there existing sewers, watercourses, water bodies, flow paths, highway drains, soakaways, filter drains and/or other drainage features on the site?	Yes ☐ No ☒ Don't know ☐
Evidence Required: Plan(s) showing the existing site layout, to include all: • Natural catchments • Watercourses, both open and culverted • Water bodies – e.g. ponds, swales, wetlands etc. • Overland flow routes • Areas at risk of flooding from any source • Infiltration features – e.g. soakaways, filter drains, areas of sand/gravel etc. • Sewers, manholes and outfall locations (where known) • Highway drains, manholes and gullies (where known) Plans should be appropriately labelled with pipe sizes, dimensions and design levels	☐

Drainage Design ***Outline planning applications*** *should be able to demonstrate that a suitable drainage system is achievable.* ***All other type of planning application*** *should provide full details or reference to previous planning application where drainage details have been submitted or approved.*	
Select which design approach you are taking to manage water quantity *(refer to Section 3.3 of The SuDS Manual C753)* **Approach 1 – Volume control / Long Term Storage (Technical Standards S2/3, S4/5)** • *The attenuated runoff volume for the 1 in 100 year 6 hour event (plus climate change allowance) is limited to the greenfield runoff volume for the 1 in 100 year 6 hour event, with any additional runoff volume utilising long term storage and either infiltrated or released at 2 l/s/ha or less* • *The discharge rate for the critical duration 1 in 1 year event is restricted to the 1 in 1 year greenfield runoff rate* • *The discharge rate for the critical duration 1 in 100 year event (plus climate change allowance) is restricted to the 1 in 100 year greenfield runoff rate* **Approach 2 – Qbar (Technical Standards S6)** • *Justification has been provided that the provision of volume control/long term storage is not appropriate and an attenuation only approach is proposed. All events up to the*	☐ ☒

critical duration 1 in 100 year event (plus climate change allowance) are limited to Qbar (1 in 2 year greenfield rate) or 2 l/s/ha, whichever is the greater.	
Select the hydraulic method used in your calculations *Refer to Table 24.1 of The SuDS Manual*	FEH ReFH2 ☒ FEH Statistical Method ☐ Other (please state) ☐ Click or tap here to enter text.
Evidence Required: Plan(s) showing: • Existing flow routes, catchments, and flood risks • Modified flow routes, catchments, and flood risks • Contributing and impermeable areas • Current (if any) and proposed 'source control' and 'management train' locations of sustainable drainage components (C753 Chapter 7) • Details of drainage ownership • Details of exceedance routes (Technical Standards S9) • Topographic survey • Locations and number of existing and proposed discharge points ***Note:*** *Consideration should be given to manage surface water from both impermeable and permeable surfaces (including gardens and verges) likely to enter the drainage system.*	☒

Section 3: Peak Runoff RATES

Technical Standards S2, S3 and S6 (unless S1 applies)

Rainfall Event	Existing Rate (l/s)	Greenfield Rate (l/s)	Proposed Rate (l/s)
Qbar *(Approach 2)*	19.4	19.4	19.4
1 in 1 Year Event *(Approach 1)*	18.0	18.0	19.4
1 in 30 Year Event	32.9	32.9	19.4
1 in 100 Year Event* *(Approach 1)*	40.3	40.3	19.4

** Total discharge at the 1 in 100 year rate should be restricted to the greenfield runoff volume for the 1 in 100 Year 6 hour event with additional volumes (long-term storage volume) released at a rate no greater than 2 l/s/ha where infiltration is not possible. Climate change allowance should only be applied to the proposed rate and not the existing or greenfield rate.*

Evidence Required: Methodology used to calculate peak runoff rate clearly stated and justified.	☒
Impermeable areas plan, supported by topographical survey confirming positive drainage.	☒
Hydraulic calculations and details of software used.	☒

Section 4: Discharge VOLUME

Technical Standards S4, S5 and S6 (unless S1 applies)

Rainfall Event	Existing Volume (m^3)	Greenfield Volume (m^3)	Proposed Volume (m^3)
1 in 100 Year 6 Hour Event *(Approach 1)*	n/a	n/a	n/a

Does the below statement apply to your development proposal? Long term storage is not achievable on this site and, in accordance with S6 of the Non Statutory Technical Standards for SuDS, the surface water discharge rates for events up to and including the 1 in 100 year critical event are limited to Qbar (Approach 2)	Yes ☐ No ☐
Evidence Required: Approach to managing the quantity of surface water leaving the site clearly stated and justified	☐
Methodology used to calculate discharge volume clearly stated and justified.	☐
Hydraulic calculations and details of software used.	☐

Section 5: Storage

Technical Standards S7 and S8

State climate change allowance used (%) *Allowances must be applied when designing SuDS for both the 3.3% (1 in 30-year) and 1% (1 in 100-year) annual exceedance probability events*	3.3% AEP	Click or tap here to enter text.
	1% AEP	50%
Have you applied a 10% urban creep allowance in accordance with British Standard BS 8582 / 2013.	Yes ☒ No ☐ N/A ☐	
Evidence Required: State / used in appropriate industry standard surface water management design software.	☒	

State storage volume required (m^3) *(excluding non-void spaces)* *Must include an allowance for climate change and urban creep. Must be consistent with the contributing area used to calculate the runoff rates and volumes.*	965
Have you incorporated interception into your design? *(Refer to Chapter 24 of The SuDS Manual C753)* *Where possible, infiltration or other techniques are to be used to try and achieve zero discharge to receiving waters for rainfall depths up to 5mm.*	Yes ☒ No ☐
Evidence Required: Drainage plans showing location of attenuation and all flow control devices and supporting calculations.	☒

Summarise how storage will be provided for the 1 in 30 year event on site (plus climate change and urban creep allowances). *Storage must be designed to ensure that no flooding occurs onsite in a 1 in 30 year event (plus climate change and urban creep allowances) except in areas designated to hold and/or convey water as part of the design **and** no flooding occurs offsite in a 1 in 100 year (plus climate change and urban creep allowances) event.*	Basin
Summarise how storage will be provided for the 1 in 100 year event on site (plus climate change and urban creep allowances). *Where storage above the 1 in 30 year event (plus climate change and urban creep allowances) is provided in designated areas designed to accommodate excess surface water volumes, plans showing storage locations and surface water depths and supported by calculations used in appropriate industry standard surface water management design software. It is important to run a range of duration events to ensure the worst case condition is found for each drainage element on the site*	Basin

Evidence Required: Plans showing size and location of storage and supporting calculations. Where there is controlled flooding, extents and depths must be indicated.	☒

Section 6: Water Quality Protection

Contaminated surface water run-off can have negative impacts on the quality of receiving water bodies. The potential level of contamination will influence final the design of an appropriate treatment train as part of your sustainable drainage system.

Is the proposal site known to be or potentially contaminated?	Yes ☐ No ☒
If the site is contaminated, it should be demonstrated that the sustainable drainage system will not increase the risk of pollution to controlled waters though the mobilisation of contaminants and/or creation of new pollution pathways.	

Confirm the *Pollution Hazard Level* of the proposed development - Select ALL that apply

Refer to Pollution Hazard Indices for different Land Use Classifications in Table 26.2 of The SuDS Manual C753 for further guidance.

Pollution Hazard Level *Tick ALL that apply*		**Surface water run-off from the proposed development will drain from:**
VERY LOW	☒	• Residential roofs
LOW	☒	• Other roofs (typically commercial/industrial roofs) • Individual property driveways, residential car parks, low traffic roads (e.g. cul de sacs, home-zones and general access roads) • Non-residential car parking with infrequent change (e.g. schools, offices) i.e. < 300 traffic movements/day
MEDIUM	☐	• Commercial yard and delivery areas • Non-residential car parking with frequent change (e.g. hospitals, retail) • All roads except low traffic roads and trunk roads/motorways[1]
HIGH	☐	• Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites) • Sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured • Industrial sites • Trunk roads and motorways[1]

If the development's Pollution Hazard Level is 'Very Low' or 'Low', has the sustainable drainage design been risk assessed and appropriate mitigation measures included?	Yes ☒ No ☐
• *If the proposed development has a very low or low polluting potential, you should design your sustainable drainage system to include an appropriate treatment train in accordance with The SuDS Manual C753*	

If the development's Pollution Hazard Level is 'Medium' or 'High', is the application supported by a detailed water quality risk assessment?	Yes ☐ No ☐

[1] Motorways and trunk roads should follow the guidance and risk assessment process set out in Highways Agency (2009).

	N/A ☒
• *If the proposed development has a high polluting potential, a detailed risk assessment <u>will</u> be required to identify an appropriate SuDS treatment train and ensure compliance with Paragraph 174 of the National Planning Policy Framework.* • *If the proposed development has a medium polluting potential, a detailed risk assessment <u>may</u> be required depending on the nature, scale and location of the development.*	

Has pre-application advice on water quality been obtained from the Environment Agency?	Yes ☐ No ☒
If YES, please provide details:	Click or tap here to enter text.

Section 7: Details of your sustainable drainage system

a) Function of your Sustainable Drainage System

Do your proposals store rainwater for later use (as a resource) using rainwater harvesting?	Yes ☐ No ☒
Evidence Required: Please provide a brief sentence in the adjacent white box to describe how this function has been achieved.	Click or tap here to enter text.

Do your proposals promote source control to manage rainfall close to where it falls? e.g. promoting natural losses through soakage, infiltration and evapotranspiration	Yes ☒ No ☐
Evidence Required: Please provide a brief sentence in the adjacent white box to describe how this function has been achieved.	Permeable paving and trapped gullies to be integrated into layout at detailed design stage.

b) Hierarchy of Drainage Options – Planning Practice Guidance

Method of discharge are set out in order of priority. Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable, using as many options as possible as high up the hierarchy as you can.

i) Into the ground (infiltration)

Proposed method of surface water discharge	**Is this proposed?**
Hierarchy Level 1: Into the ground (via infiltration)	Yes ☐ No ☒

For full / reserved matters applications or outline applications where layout is <u>not</u> a reserved matter			
If YES – Evidence Required		**If NO – Evidence Required**	
☐	On-site ground investigation to demonstrate that the ground <u>is</u> free draining. Including infiltration test results in accordance with the methodology within BRE 365 (2016)	☐	On-site ground investigation to demonstrate that the ground <u>is not</u> free draining. Including infiltration test results in accordance with the methodology within BRE 365 (2016)
	AND		***OR***
☐	Completed Infiltration Checklist from The SuDS Manual (C753) Appendix B *An editable version of this form is available on Susdrain website.*	☐	Evidence to confirm that infiltration to ground would result in a risk of deterioration to ground water quality (e.g. a ground water source protection zone).
			OR

		☐	Geotechnical advice from a competent person* which determines that infiltration of water to ground would pose an unacceptable risk of geohazards to the site and/or local area. **Note: Competent person may include a Chartered Engineer, Chartered Geologists, Registered Ground Engineering Professionals (RoGEP).*
For outline applications where layout is a reserved matter or <u>where an applicant is unable to access a site</u> to conduct site investigations			
If YES – Evidence Required		**If NO – Evidence Required**	
☐	Thorough desk-based ground investigation e.g. a SuDS GeoReport or similar, making the best use of available resources including historical borehole logs and data available from the British Geological Survey ***AND***	☒	Thorough desk-based ground investigation e.g. a SuDS GeoReport or similar, making the best use of available resources including historical borehole logs and data available from the British Geological Survey
☐	'Plan B' sustainable drainage plan and statement of approach with an alternative discharge method, in case infiltration proposals are proven not feasible upon further site-specific ground investigation e.g. to consider seasonal variations to groundwater.		

ii) To a surface water body

Proposed method of surface water discharge		**Is this proposed?**	
Hierarchy Level 2: To a surface water body *(select type)* ***NOTE:** Consent from LLFA or Permit from Environment Agency may be required – refer to guidance*		Yes ☐ No ☒ N/A ☒	
		Main River	☐
		Ordinary Watercourse	☐
		Canal	☐
		Other water body	☐
If YES - Evidence Required		**If NO – Evidence Required**	
☐	Surface water body / watercourse survey and report ***AND***	☒	Plan showing nearby watercourses and waterbodies ***AND***
☐	*(If the waterbody is off site or privately owned e.g. canal)* – evidence of an agreement with the appropriate landowner(s) to connect to the waterbody, **OR**, for outline applications, a 'plan b' sustainable drainage plan and statement of approach with an alternative discharge point	☒	Statement providing justification in your Sustainable Drainage Strategy ***Note:** Where discharge of any element in the hierarchy is discounted, an applicant should provide justification. If the reasoning for discounting a discharge of surface water to watercourse relates to issues associated*

			with third party land or the securing of any other required consent, it may be necessary for the applicant to provide evidence to the local planning authority to support their proposed approach.

iii) To a surface water sewer or highway drain

Proposed method of surface water discharge		**Is this proposed?**	
Hierarchy Level 3: To a surface water sewer or highway drain *(select type)*		Yes ☒ No ☐ N/A ☐	
		Surface water sewer ☒ Highway drain ☐	
If YES - Evidence Required		**If NO – Evidence Required**	
☐	Written correspondence from the Water and Sewerage Company / Highway Authority regarding proposed connection. ***AND*** *(If the sewer is off site)* – evidence of an agreement with the appropriate landowner(s) to connect to the sewer, ***OR***, for outline applications, a 'plan b' sustainable drainage plan and statement of approach with an alternative discharge point	☒ ☒	Plan showing nearby sewers and highway drains ***AND*** Statement providing justification in your Sustainable Drainage Strategy

vi) To a Combined Sewer

Proposed method of surface water discharge		**Is this proposed?**
Hierarchy Level 4: To combined sewer		Yes ☐ No ☒ N/A ☒
If YES - Evidence Required		**If NO – Evidence Required**
☐	Written correspondence from the Water and Sewerage Company ***AND*** *(If the sewer is off site)* – evidence of an agreement with the appropriate landowner(s) to connect to the sewer	***N/A***

c) Proposed SuDS Component Types

	Tick ALL that apply					
Within property boundary	☐ Rainwater harvesting	☐ Green/ blue roofs	☒ Pervious pavements *[**Type:** A ☐ B ☐ C ☐]*	☐ Soakaway	☐ Bio retention systems	☒ Water Butt

	Tick ALL that apply				
Within development site boundary *(not property)*	☐ Wetlands	☐ Infiltration basins	☐ Rain gardens	☐ Bio retention system	☐ Detention basins
	☒ Retention ponds	☐ Swales	☐ Filter strips, channels and rills	☐ Infiltration trenches	☒ Other (state below)
	If 'Other' please state: The drainage calculations and drawings will be refined at detailed design stage once the layout has been fixed by the developer. At this stage, additional SuDS features can be integrated into the layout (i.e. trapped gullies, permeable paving, interceptor, etc.) to improve water quality. Permeable paving could be used on driveways and/or cul-de-sacs.				

Off site *(not within the boundary of the proposed development)*	**Please state:** Click or tap here to enter text.

I confirm that the above selected components have been designed in accordance with The SuDS Manual (C753).	I confirm ☒
I confirm that the management of flows resulting from rainfall in excess of a 1 in 100 year (plus climate change and urban creep allowances) rainfall event, and their exceedance route(s), has been fully considered in order to minimise the risks to people, property (new and existing) and infrastructure.	I confirm ☒

Section 8: Operation and Maintenance

Technical Standard S12 and National Planning Policy Framework

The applicant is responsible to ensure that ALL components selected in Section 7 can be maintained for the design life of the development. This information is required so the Local Planning Authority can ensure the maintenance and management of the sustainable drainage system. The Local Planning Authority will discuss how this will be secured (e.g. via planning condition or planning obligation).

Will any part of your sustainable drainage system use monitoring and operation technology?	Yes ☒ No ☐
Evidence Required: Please state what technology you propose to use and where we can find more details in your documents.	Private maintenance company – Section 6.6 of FRA report.

	Information Provided?
Management Plan	Yes ☒ No ☐
Evidence Required: **Plan/ drawing provided to show the position of the different SuDS components with:** • Key included to identify any of the adopting bodies that you will be offering your sustainable drainage components for adoption *(relates to maintenance and management arrangements below).* • Plan/ drawing to identify any areas where certain activities are prohibited, detailing reasons why. **Action plan for accidental pollutant spillages.**	☐ ☐

	Information Provided?
Maintenance Schedule	Yes ☒ No ☐
Evidence Required: A copy of the maintenance schedule including both: • **Proactive and preventative maintenance** Detailing regular, occasional and remedial maintenance activities including recommendations for inspection and monitoring. This should include recommended frequencies, advice on plant/ machinery required and an explanation of the objectives for the maintenance proposed and potential implications of not meeting them. • **Reactive and corrective maintenance** (e.g. product repair and replacement). Including advice on excavations, or similar works, in locations that could affect the SuDS components/ adjacent structures.	☐

Maintenance and Management Arrangements	Information Provided? Yes ☐ No ☒
Evidence Required: Evidence of formal agreement with the party responsible for undertaking maintenance. Please select any of the adopting bodies that you will be offering your sustainable drainage components for adoption. Tick all that apply. ☐ **Water and Sewerage Company** *Section 104 agreement (Water Industry Act 1991)* ☐ **Highway Authority** *Section 278/38 agreement (Highways Act 1980)* ☐ **Local Authority Public Open Space** *[Refer to Local Authority Policy]* Please select the arrangement(s) for all non-adopted sustainable drainage components. Tick all that apply. ☒ **Management Company** ☐ **Property Owner** *(for SuDS components within property boundary only)* ☐ **Other** (please state) Click or tap here to enter text.	☐

Your Evidence

Please list any relevant documents and or drawing numbers (including revision reference) to support your answers in this pro-forma.
Click or tap here to enter text.

Declaration and Submission

This pro-forma has been completed using evidence from information which has been submitted with the planning application.

The information submitted in the Sustainable Drainage Strategy and site-specific Flood Risk Assessment (FRA), where submitted, is proportionate to the site conditions, flood risks and magnitude of development and I agree that this information can be used as evidence to this sustainable drainage approach.

Submitter Details

Completed by	Liz Austin		
Authorised by	Daniel Alstead		
Date *(dd/mm/yyyy)*	08/02/2023	**Company Name**	Enzygo Ltd

Client Details

Name	Christian Orr	**Company Name**	Hollins Strategic Land