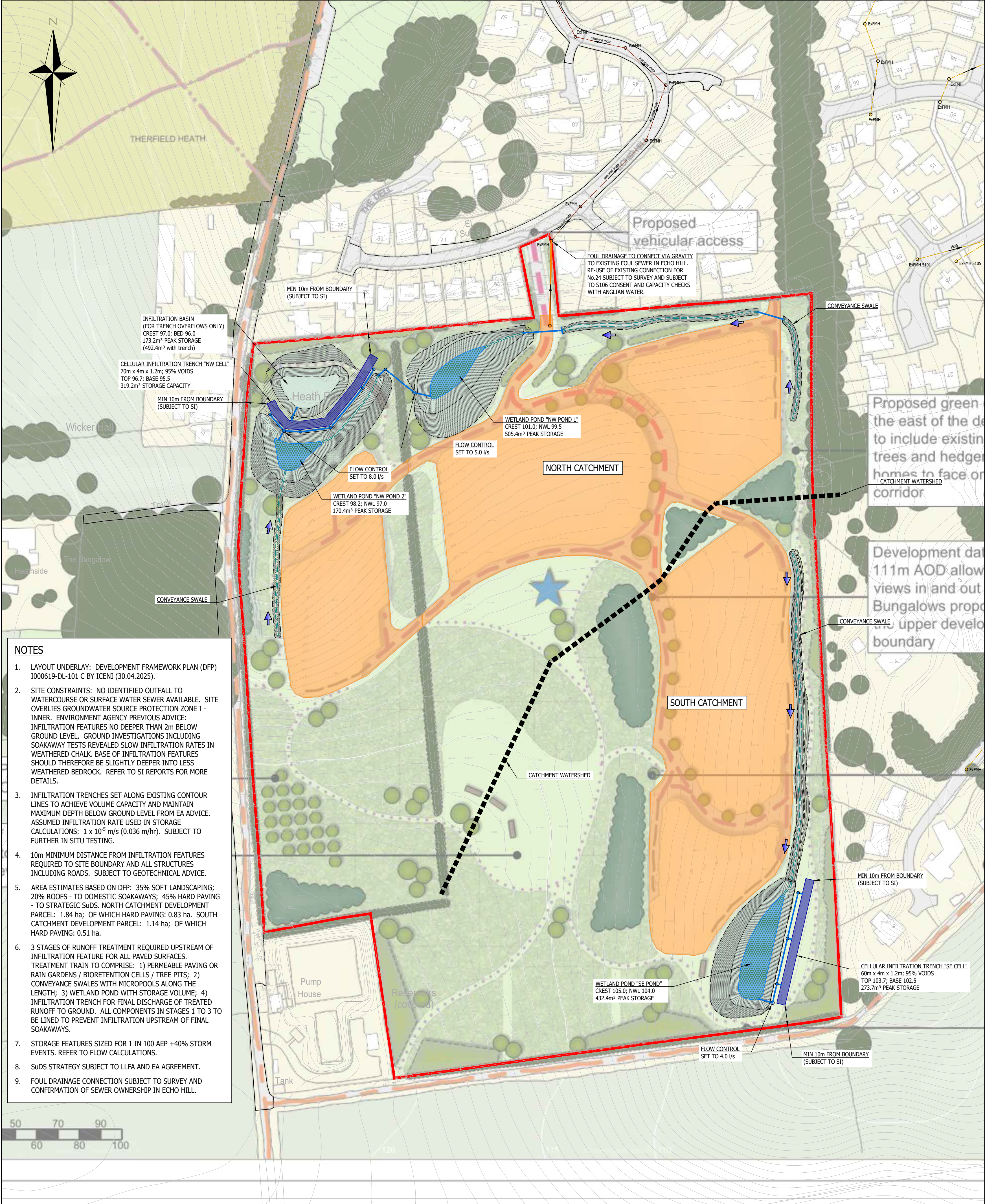


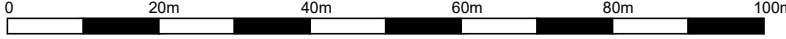


- NOTES**
- LAYOUT UNDERLAY: DEVELOPMENT FRAMEWORK PLAN (DFP) 1000619-DL-101 C BY ICENI (30.04.2025).
 - SITE CONSTRAINTS: NO IDENTIFIED OUTFALL TO WATERCOURSE OR SURFACE WATER SEWER AVAILABLE. SITE OVERLIES GROUNDWATER SOURCE PROTECTION ZONE 1 - INNER. ENVIRONMENT AGENCY PREVIOUS ADVICE: INFILTRATION FEATURES NO DEEPER THAN 2m BELOW GROUND LEVEL. GROUND INVESTIGATIONS INCLUDING SOAKAWAY TESTS REVEALED SLOW INFILTRATION RATES IN WEATHERED CHALK. BASE OF INFILTRATION FEATURES SHOULD THEREFORE BE SLIGHTLY DEEPER INTO LESS WEATHERED BEDROCK. REFER TO SI REPORTS FOR MORE DETAILS.
 - INFILTRATION TRENCHES SET ALONG EXISTING CONTOUR LINES TO ACHIEVE VOLUME CAPACITY AND MAINTAIN MAXIMUM DEPTH BELOW GROUND LEVEL FROM EA ADVICE. ASSUMED INFILTRATION RATE USED IN STORAGE CALCULATIONS: 1×10^{-5} m/s (0.036 m/hr). SUBJECT TO FURTHER IN SITU TESTING.
 - 10m MINIMUM DISTANCE FROM INFILTRATION FEATURES REQUIRED TO SITE BOUNDARY AND ALL STRUCTURES INCLUDING ROADS. SUBJECT TO GEOTECHNICAL ADVICE.
 - AREA ESTIMATES BASED ON DFP: 35% SOFT LANDSCAPING; 20% ROOFS - TO DOMESTIC SOAKAWAYS; 45% HARD PAVING - TO STRATEGIC SUDS. NORTH CATCHMENT DEVELOPMENT PARCEL: 1.84 ha; OF WHICH HARD PAVING: 0.83 ha. SOUTH CATCHMENT DEVELOPMENT PARCEL: 1.14 ha; OF WHICH HARD PAVING: 0.51 ha.
 - 3 STAGES OF RUNOFF TREATMENT REQUIRED UPSTREAM OF INFILTRATION FEATURE FOR ALL PAVED SURFACES. TREATMENT TRAIN TO COMPRISE: 1) PERMEABLE PAVING OR RAIN GARDENS / BIORETENTION CELLS / TREE PITS; 2) CONVEYANCE SWALES WITH MICROPOLS ALONG THE LENGTH; 3) WETLAND POND WITH STORAGE VOLUME; 4) INFILTRATION TRENCH FOR FINAL DISCHARGE OF TREATED RUNOFF TO GROUND. ALL COMPONENTS IN STAGES 1 TO 3 TO BE LINED TO PREVENT INFILTRATION UPSTREAM OF FINAL SOAKAWAYS.
 - STORAGE FEATURES SIZED FOR 1 IN 100 AEP +40% STORM EVENTS. REFER TO FLOW CALCULATIONS.
 - SUDS STRATEGY SUBJECT TO LLFA AND EA AGREEMENT.
 - FOUL DRAINAGE CONNECTION SUBJECT TO SURVEY AND CONFIRMATION OF SEWER OWNERSHIP IN ECHO HILL.

- GENERAL NOTES**
- The location, size, depth and identification of existing services that may be shown or referred to on this drawing have been assessed from non intrusive observations, record drawings or the like. The contractor shall safely carry out intrusive investigations, trial holes or soundings prior to commencing work to satisfy himself that it is safe to proceed and that the assessments are accurate. Any discrepancies shall be notified to gta prior to works commencing.
 - Tender or billing drawings shall not be used for construction or the ordering of materials.
 - Do not scale. All dimensions and levels to be site confirmed.
 - This drawing shall be read in conjunction with all relevant architects, consultants drawings and specifications, together with H&S plan requirements.
 - Copyright : This drawing must not be copied, amended nor reproduced without the prior written agreement of gta.
 - All drawings specifications and recommendations made by gta are subject to Local Authority and other relevant Statutory Authorities approval. Any works or services made abortive due to the client proceeding prior to these approvals is considered wholly at the Clients risk. gta hold no responsibility for resulting abortive works or costs.
 - If viewing this drawing as an Autocad file (.dwg) in digital format then it is done so with this Disclaimer due to the fact that it can be altered and manipulated following its issue by GTA Civils & Transport and therefore, any alteration or modification of DWG data files provided by GTA Civils & Transport, by you or a third party, without GTA Civils and Transport's express written approval, is done so entirely at your own risk. Modification includes (but is not limited to) turning layers on and off, unfreezing layers and reloading, turning on and off print functions and unloading x-refs.
 - Your attention is also drawn to the fact that the information contained within this file may be subject to alteration at any time, pending technical approval from an approving authority or at the client's instruction. It is therefore strongly recommended that multiple and regular cross checks are made against the current contract drawings.
 - It is your responsibility to ensure that the correct issue or revision of the DWG data file is being used and requests for updated information made accordingly.
 - Should any apparent discrepancies between the data contained within the DWG file and the current contract drawings become evident, it must be reported back to GTA Civils & Transport as soon as reasonably practicable. Precedence should be given to the current contract drawings (PDF) unless advised otherwise.

- Key**
- Site Boundary (8.97 ha)
 - 0.5m Ground Level Contours (from topographical survey within site, otherwise from LIDAR data)
 - Proposed swales
 - Proposed wetland pond
 - Proposed cellular infiltration trench
 - Proposed surface water drainage
 - Existing foul sewers (from Anglian Water records)
 - Assumed existing foul sewers (from topo survey and street photos - these are likely public sewers following 2013 sewer transfers, but not yet mapped)
 - Proposed foul drainage

1:1000



P3	DFP UPDATED	08.05.25	PH	FV
P2	DFP UPDATED	20.02.25	PH	FV
P1	INITIAL ISSUE	27.12.24	PH	MR
Rev	Amendments	Date	Dsn	Chk
Status				
PRELIMINARY				
Client				
GLADMAN DEVELOPMENTS LTD				
Architect				
Project				
LAND SOUTH OF ECHO HILL, ROYSTON				
Title				
DRAINAGE STRATEGY PLAN				
Date		Scale @ A1		
DECEMBER 2024		1:1000		
Clients Ref.		Project Ref.		
		13378		
 Civils & Transport Maple House, 192-198 London Road, Burgess Hill, West Sussex, RH15 9RD Tel.01444 871444 Web: www.gtacivils.co.uk				
Drawing Number				Rev.
13378-1100				P3

Appendix F

Calculations

Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	100	Maximum Rainfall (mm/hr)	999.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
NW POND 1	0.610	5.00	101.000	10	535328.000	240078.000	1.500
NW POND 2	0.220	5.00	98.200	10	535260.000	240045.000	1.200
NW CELL			97.000	10	535265.000	240056.000	0.550

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	1440	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0	100	40	0	0
30	35	0	0				

Node NW POND 1 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	99.500	Product Number	CTL-SHE-0103-5000-1200-5000
Design Depth (m)	1.200	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	0

Node NW POND 1 Online Weir Control

Flap Valve	x	Invert Level (m)	100.700	Discharge Coefficient	0.590
Replaces Downstream Link	✓	Width (m)	3.000		

Node NW POND 2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	97.000	Product Number	CTL-SHE-0133-8000-0900-8000
Design Depth (m)	0.900	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	8.0	Min Node Diameter (mm)	0

Node NW POND 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	99.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	976

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	267.5	0.0	0.500	447.3	0.0	1.000	658.5	0.0	1.500	894.8	0.0

Node NW POND 2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	97.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	464

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	193.1	0.0	0.300	303.9	0.0	0.600	461.3	0.0	0.900	669.8	0.0	1.200	894.4	0.0
0.100	225.9	0.0	0.400	350.4	0.0	0.700	528.8	0.0	1.000	741.9	0.0			
0.200	262.6	0.0	0.500	402.6	0.0	0.800	599.0	0.0	1.100	815.4	0.0			

Node NW CELL Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.03600	Porosity	0.95	Pit Width (m)	4.000	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.03600	Invert Level (m)	95.500	Pit Length (m)	70.000	Number Required	1
Safety Factor	2.0	Time to half empty (mins)	1443	Depth (m)	1.200		

Node NW CELL Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.03600	Safety Factor	2.0	Invert Level (m)	96.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1578

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	312.1	312.1	0.500	469.1	312.1	1.000	651.3	312.1

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	NW POND 1	240	99.705	0.205	19.5	62.3433	0.0000	SURCHARGED
480 minute summer	NW POND 2	296	97.136	0.136	10.1	29.2220	0.0000	OK
960 minute winter	NW CELL	975	95.898	-0.552	6.0	105.8617	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)
360 minute summer	NW POND 1	Hydro-Brake®	NW POND 2	4.8
360 minute summer	NW POND 1	Weir	NW POND 2	0.0
480 minute summer	NW POND 2	Hydro-Brake®	NW CELL	6.9
960 minute winter	NW CELL	Infiltration		1.7
960 minute winter	NW CELL	Infiltration		0.0

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	NW POND 1	352	100.374	0.874	53.5	375.5002	0.0000	SURCHARGED
240 minute winter	NW POND 2	232	97.443	0.443	31.4	121.8256	0.0000	SURCHARGED
2880 minute winter	NW CELL	2820	96.417	-0.033	7.7	401.5915	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)
360 minute winter	NW POND 1	Hydro-Brake®	NW POND 2	5.0
360 minute winter	NW POND 1	Weir	NW POND 2	0.0
240 minute winter	NW POND 2	Hydro-Brake®	NW CELL	8.0
2880 minute winter	NW CELL	Infiltration		2.1
2880 minute winter	NW CELL	Infiltration		1.6

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	NW POND 1	472	100.574	1.074	54.2	505.3676	0.0000	SURCHARGED
360 minute summer	NW POND 2	360	97.563	0.563	42.9	170.4419	0.0000	SURCHARGED
4320 minute winter	NW CELL	3780	96.542	0.092	7.7	492.4170	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)
480 minute winter	NW POND 1	Hydro-Brake®	NW POND 2	5.0
480 minute winter	NW POND 1	Weir	NW POND 2	0.0
360 minute summer	NW POND 2	Hydro-Brake®	NW CELL	8.0
4320 minute winter	NW CELL	Infiltration		2.2
4320 minute winter	NW CELL	Infiltration		1.6

Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	100	Maximum Rainfall (mm/hr)	999.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
SE POND	0.510	5.00	105.000	10	535486.000	239803.000	1.000
SE CELL			104.500	10	535500.000	239806.000	1.000

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	1440	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Normal	Additional Storage (m ³ /ha)	0.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0	100	40	0	0
30	35	0	0				

Node SE POND Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	104.000	Product Number	CTL-SHE-0099-4000-0700-4000
Design Depth (m)	0.700	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	4.0	Min Node Diameter (mm)	0

Node SE POND Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	104.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1008

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	504.4	0.0	0.500	758.6	0.0	1.000	1048.1	0.0

Node SE CELL Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.03600	Porosity	0.95	Pit Width (m)	4.000	Inf Depth (m)
Side Inf Coefficient (m/hr)	0.03600	Invert Level (m)	102.500	Pit Length (m)	60.000	Number Required
Safety Factor	2.0	Time to half empty (mins)	1439	Depth (m)	1.200	1

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute summer	SE POND	312	104.114	0.114	13.0	60.7810	0.0000	OK
960 minute summer	SE CELL	975	102.703	-0.797	3.5	46.2131	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)
480 minute summer	SE POND	Hydro-Brake®	SE CELL	3.7
960 minute summer	SE CELL	Infiltration		1.3

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	SE POND	472	104.508	0.508	35.1	321.7823	0.0000	SURCHARGED
2880 minute winter	SE CELL	2940	103.644	0.144	4.0	260.8943	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)
480 minute winter	SE POND	Hydro-Brake®	SE CELL	4.0
2880 minute winter	SE CELL	Infiltration		1.9

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	SE POND	472	104.646	0.646	45.3	432.4414	0.0000	SURCHARGED
2880 minute winter	SE CELL	2940	104.189	0.689	4.0	273.7140	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)
480 minute winter	SE POND	Hydro-Brake®	SE CELL	4.0
2880 minute winter	SE CELL	Infiltration		2.0

Appendix G

Draft Drainage Maintenance Plan

DRAFT

Drainage Maintenance Plan

Land South of Echo Hill, Royston, Herts

Contents

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4	Health and Safety	6
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6	Schedule B – Attenuation Ponds, Swales and Control Chambers	10
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Schedule of Appendices

A Site Drainage Plans

Issue	Issue date	Compiled	Checked
First Draft Issue	19.05.2025	PH	FVV

1 Introduction

- 1.1 This report has been prepared by GTA Civils & Transport Ltd for Gladman Developments Ltd in relation to the development at Land south of Echo Hill, Royston, Herts. No responsibility is accepted to any third party for all or part of this study in connection with this or any other development.
- 1.2 This Draft Drainage Maintenance Plan (DMP) has been prepared for inclusion as an Appendix to the Flood Risk Assessment (FRA) report required by North Herts District Council (NHDC) as part of the Application.
- 1.3 The Draft DMP sets out the framework for the management of the proposed sustainable drainage systems (SuDS) at the development. The document will be updated with further information through the next stage of detailed design and coordination. At this stage, what is set out herein is intended to be sufficient to demonstrate the viability of the proposed SuDS maintenance regime for planning purposes.

2 Summary Description of Drainage Systems

- 2.1 Existing: the pre-development Site comprises existing agricultural fields.
- 2.2 The proposals comprise construction of c.84 residential units along with access roads, parking and soft landscaping.
- 2.3 Drainage design: the drainage layout drawings, by GTA Civils & Transport Ltd, are included in Appendix A (for the Draft DMP – see FRA Appendix E).
- 2.4 The surface water drainage design is based on treated surface water runoff discharging to ground via infiltration. The site lies within a groundwater Source Protection Zone I – Inner, thus the treatment of runoff prior to discharge is key.
- 2.5 Runoff from paved areas is to be treated within a SuDS treatment train upstream of the final infiltration features in the lower parts of the site. The treatment train is lined to prevent untreated flows entering the aquifer. The SuDS treatment train comprises permeable paving, bioretention features, swales and wetland ponds. The wetland ponds include flow controls to provide attenuation storage upstream of the infiltration cells. The final infiltration features comprise cellular trenches with an additional basin in the north catchment.
- 2.6 All features mentioned above have been included in this draft DMP; however, this document will be updated at detailed design stage.
- 2.7 Foul drainage will connect to Anglian Water's existing foul sewer network in Echo Hill to the north.

3 Ownership & Maintenance Responsibilities

3.1 Responsibility for the maintenance of the drainage system will be apportioned generally as follows:

- The developer will remain responsible for each drainage component until such time as it is handed over to the adopting authority, agent or end user.
- Individual property drainage will be cared for by the property owner.
- Drainage features in adopted highway areas will be the responsibility of Hertfordshire County Council as the Highway Authority. This includes highway SuDS features and the associated pipes and structures as far as their connections to the strategic drainage system.
- Adopted sewers and SuDS components will be the responsibility of Anglian Water, or will be vested in a sewerage company under a NAV agreement. The final arrangements will be confirmed at the next stage.
- The remaining drainage features along with the site-wide infrastructure will be cared for by the Estate Management Company. This includes permeable pavements in non-adopted areas and the piped systems that are not owned by the public bodies mentioned above.
- The main piped foul sewer networks downstream of each individual property will be adopted by the sewerage authority.

3.2 The drainage layout plans in Appendix A are colour-coded to illustrate the various ownerships across the development [...TO BE COMPLETED AT THE NEXT STAGE...].

3.3 The following sections set out schedules detailing the maintenance requirements for each of the main drainage items used within the scheme. The Estate Management Company will undertake the inspections and maintenance activities in accordance with these schedules. Public bodies will maintain adopted features in line with their established procedures.

- 3.4 Additional reference should be made to currently established best practice and guidance documents such as The SuDS Manual (CIRIA C753, 2015) and other resources available at the susdrain website (www.susdrain.org).
- 3.5 This DMP should be considered a live document. The frequency of maintenance intervals may need to be increased or decreased based on the observed performance of the drainage systems over time. Changes should be agreed with the drainage authority and recorded and dated in the DMP.
- 3.6 Important safety information is set out in the next section.

4 Health and Safety

- 4.1 All those responsible for and involved in the maintenance of the site drainage systems should be safety-conscious and comply with the relevant health and safety legislation. This includes:
- The Health and Safety at Work etc Act 1974
 - The Management of Health and Safety at Work Regulations 1999
 - The Workplace (Health, Safety and Welfare) Regulations 1992
- 4.2 The Estate Management Company is responsible for suitable risk assessment and management to ensure safe working conditions and practices. Measures to protect potential visitors also need to be considered.
- 4.3 Specialist contractors used should work to industry guidelines and be able to demonstrate safe working practices.
- 4.4 Employers have a duty to employees to inform them about the risks of their work environment and to decrease the risk as far as reasonably practicable. Appropriate personal protective equipment (PPE) should be provided and policies implemented based on risk assessment.
- 4.5 Operatives should be trained for working near water. Risks of contaminated water should be considered. Checking for open cuts and using nitrile gloves, waterproof plasters etc is advised.
- 4.6 Entry of pipes, chambers, tanks and culverts should be avoided. Work should be carried out from the surface using appropriate equipment. In the event that entry cannot be avoided to perform a critical task, the required safety training, protection measures and precautions must be implemented prior to entry. Lone working should never be attempted.
- 4.7 For further information refer to Section 36 of The SuDS Manual (CIRIA C753).

5 Schedule A – Sewers, Manholes, Gullies, Channel Drains

- 5.1 Regular inspection and maintenance is required to ensure the effective long-term operation of private drains, manholes, gullies & channel drains.
- 5.2 Prior to construction: a CCTV survey to be carried out on all receiving existing public sewer systems prior to connection with adopted sewers.
- 5.3 Post Completion: a CCTV survey to be carried out on all new and retained existing drainage systems and any downstream receiving systems, prior to connection with adopted sewers.
- 5.4 The report will be used to prove the integrity of the as-built drainage system prior to issue of practical completion certificate and will be handed over to the Client & Management Company for future reference.
- 5.5 Ongoing maintenance responsibility for all adopted sewers is by the sewerage authority and for adoptable highway drainage is by Hertfordshire County Council. All other private gullies and drainage marked black on the layouts to be maintained by the Management Company in shared areas and the homeowner within any conveyed land. Operation and maintenance requirements for all sewers, manholes, gullies and channel drains are described in the following table:

Schedule	Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	6 Monthly intervals.
	Common yard & car park & other hard standing areas to be swept clear of debris, to prevent possibility of blockages to the receiving drainage systems.	Monthly.
	Debris removal from gullies & channel drains (where may cause risks to performance).	6 Monthly intervals, after autumn leaf fall, or as required based on specific observations.
	Lift and inspect receiving manholes to check for any blockages.	Monthly.
Remedial Actions	Repair any damaged gully or channel drain gratings.	As required.
	Replace / fix any loose channel drain covers.	As required.
Monitoring	Carry out full CCTV survey to confirm ongoing integrity of all drains. Inspect all gullies and silt pits & drainage channels during the survey.	10-yearly intervals.

5.6 Where appropriate refer also to specialist drainage manufacturer's information and maintenance requirements.

5.7 In all instances, inspection and cleaning should be carried out only by a specialist contractor and in accordance with the guidelines given in 'Safe Working in Sewers and

at Sewage Works' published by National Joint Health and Safety Committee for the Water Services.

5.8 Further information on safety is set out in Section 4.

6 Schedule B – Attenuation Ponds, Swales and Control Chambers

6.1 Inspection Frequency and Maintenance Requirements: as per table below.

Schedule	Action	Frequency
Regular Maintenance	Remove litter and debris	Monthly, or as required
	Cut grass.	Monthly (during growing season),
	Manage other vegetation and remove nuisance plants.	Monthly at start, then as required.
	Inspect permanent water depth for silt accumulation. Silt removal is only to be carried out after consultation with Environmental Officers.	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
Occasional Maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required.	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial Actions	Repair erosion or other damage by re-turfing or reseeded.	As required.
	Relevel uneven surfaces and reinstate design levels.	As required.
	Remove build-up of silt accumulation from permanent water depth. Silt removal is only to be carried out after consultation with Environmental Officers.	Monthly for 6 months, quarterly for 2 years, then half yearly

	Remove and dispose of oils or petrol residues using safe standard practices.	As required.
Control Chambers and Hydrobrakes	Check hydrobrake orifices are clear and retention tank door is closed. Check function of retention tank door and oil if necessary. Similarly, check outfalls and inlets of attenuation ponds to ensure pipes are clear and free-flowing.	First 2 years of occupation – Monthly Then annually

6.2 Safety information is set out in Section 4.

7 Schedule C – Permeable Pavements

7.1 Inspection Frequency and Maintenance Requirements: as per table below.

Schedule	Action	Frequency
Regular Maintenance	Standard road sweeper	Annually after autumn leaf fall
Occasional Maintenance	Weed removal	Annually
Remedial Actions	Remediate adjacent landscaping to original levels	As required
	Paving repairs including replenishment of lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required if infiltration is reduced by clogging
Monitoring	Initial inspection	Monthly for first three months
	Inspection for evidence of poor operation and/or weed growth	Quarterly, 48 hrs after large storms in first six months
	Inspection for silt accumulation to establish sweeping frequencies	Annually
	Monitor inspection chambers	Annually

7.2 Safety information is set out in Section 4.

8 Schedule D – Rain Gardens, Bioretention Features, Tree Pits

8.1 Inspection Frequency and Maintenance Requirements: as per table below.

Schedule	Action	Frequency
Regular Inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time and assess standing water levels in underdrain	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease, poor growth, invasive species etc and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly; monthly for tree pits
Regular Maintenance	Remove litter, debris and weeds	At least quarterly; monthly for tree pits
	Replace any plants, to maintain planting density	As required
	Manage other vegetation and remove nuisance plants from tree pits	Monthly (at start, then as required)
	Remove sediment, build-up from around inlets and forebays	Quarterly to biannually
Occasional Maintenance	Infill any holes or scour, improve erosion protection	As required
	Repair minor accumulations of silt by raking away surface mulch,	As required

	scarifying surface of filter medium and replacing mulch Tree pits: check tree health and manage tree appropriately Tree pits: remove silt build-up from inlets and surface and replace mulch as necessary Tree pits: watering	Annually Annually, or as required As required in periods of drought
Monitoring	Inspect silt accumulation rates and establish appropriate removal frequencies	Half yearly
Remedial Actions	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years

8.2 Safety information is set out in Section 4.

9 Schedule E – Cellular Soakaways

9.1 Inspection Frequency and Maintenance Requirements: as per table below.

Schedule	Action	Frequency
Regular Maintenance	Remove debris which could impact performance from catchment surface	Monthly
	Remove sediment from upstream catchpits	Annually
Remedial Actions	Repair inlets, outlets, overflow weirs and vents	As required
	Reconstruct soakaway if performance deteriorates, geotextile is clogged or failure occurs	As required
Monitoring	Inspect full system to ensure good condition and operating correctly	Monthly for first 3 months, then annually
	Inspect soakaway to ensure emptying is occurring	Annually
	CCTV survey inside tanks for sediment build-up	5 years

9.2 Safety information is set out in Section 4.

10 Schedule F – Infiltration Basin

10.1 Inspection Frequency and Maintenance Requirements: as per table below.

Schedule	Action	Frequency
Regular Maintenance	Remove litter and debris	Monthly
	Mowing	Monthly or as required
	Mowing meadow grass	Twice a year: spring (before nesting season) and autumn
	Manage vegetation and remove nuisance plants	Monthly at start, then as required
Occasional Maintenance	Reseed areas of poor growth	Annually or as required
	Prune trees and remove cuttings	As required
	Remove sediment from inlet forebay when 50% full	As required
Remedial Actions	Repair erosion damage etc with seed/turf	As required
	Repair inlet structure	As required
	Rehabilitate infiltration surface by scarifying etc if performance decreases	As required
	Reinstate design levels	As required
Monitoring	Inspect inlet for blockage	Monthly
	Inspect banksides and structures for damage	Monthly

	Inspect silt accumulation and establish removal frequency	Twice a year
	Inspect infiltration surface for compaction and ponding	Monthly

10.2 Safety information is set out in Section 4.

11 Contamination or Dilution of Spillage

11.1 In the event of a spillage it is the responsibility of the landowner to clear up any spillage before it enters the drainage system. The primary method of dealing with any spillage of hydrocarbons should be using sand to soak up the leak and prevent any hydrocarbons entering the drainage system. Once sand has been contaminated it should not be washed into the drainage system but disposed of by a Licensed Contractor.

11.2 Environment Agency – Emergency Contact Number

In the event of a spillage the Environment Agency should be contacted to notify the event and seek advice. The Environment Agency Incident Hotline is **0800 80 70 60** (Freephone 24hrs).

- End of Report -

Appendix A

Site Drainage Layouts

[Refer to FRA Appendix E]

Appendix H

Consultations

From: GW&CL_ANGLIAN CENTRAL <GWCL.EANWest@environment-agency.gov.uk>
Sent: 27 December 2024 12:15
To: [REDACTED]
Cc: EastAnglia, Planning
Subject: GE38152 SPZ and SuDS Enquiry - Land south of Echo Hill, Royston, SG8 9BB

Categories: Saved

Dear [REDACTED],

Reference: GE38152

Please find our response from the Groundwater and Contaminated Land (GWCL) team to your enquiry below.

Site: Land south of Echo Hill, Royston, Herts, SG8 9BB (TL 35400 39950)

Enquiry Response:

Site Location:

The site is located within a groundwater SPZ I – Inner. This is due to two public water supply abstraction points being situated to the northwest and east within 500m of the proposed development. Additionally, the geology of the area is composed of unconfined chalk bedrock of the New Pit Formation which is classified as a principal aquifer with a high vulnerability to contamination. Principal aquifers are geological strata that exhibit high permeability and provide a high level of water storage. They support water supply and river base flow on a strategic scale, so their protection is paramount.

Parameters for Sustainable Drainage Systems (SuDS) strategy compliance:

The planned SuDS measures mentioned in your email are acceptable and should be expanded upon in the planning submission.

Here is some information regarding compliance for Sustainable Drainage Systems (SuDS):

1. Infiltration sustainable drainage systems (SuDS) such as soakaways, unsealed porous pavement systems or infiltration basins shall only be used where it can be demonstrated that they will not pose a risk to the water environment.
2. Infiltration SuDS have the potential to provide mobilise pollutants and must not be constructed in contaminated ground. They would only be acceptable if a site investigation showed the presence of no significant contamination.
3. Only clean water from roofs can be directly discharged to any soakaway or watercourse. Systems for the discharge of surface water from associated hard-standing, roads and impermeable vehicle parking areas shall incorporate appropriate pollution prevention measures and a suitable number of SuDS treatment train components appropriate to the environmental sensitivity of the receiving waters.
4. The maximum acceptable depth for infiltration SuDS is 2.0 m below ground level, with a minimum of 1.2 m clearance between the base of infiltration SuDS and peak seasonal groundwater levels.
5. Deep bore and other deep soakaway systems are not appropriate in areas where groundwater constitutes a significant resource (that is where aquifer yield may support or already supports abstraction). This would include the principal chalk aquifer comprising this area.
6. SuDS should be constructed in line with good practice and guidance documents which include the SuDS Manual (CIRIA C753, 2015) and the Susdrain website.

For further information on our requirements regarding SuDS, see our Groundwater protection position statements (2018), particularly G1 and G9 – G13 available at: [Groundwater protection position statements - GOV.UK](#)

While SuDS can negate the need for oil interceptors (for if oil is used as part of the proposed development) this is not necessarily always the case. As such, you may need to install an oil separator (interceptor) or other device to remove oil from water draining off hard surfaces (e.g., roads and car parks, or loading areas).

Typically, a separator is needed for any site with a risk of oil contamination, such as:

- Car parks larger than 800m² in area or for 50 or more car parking spaces.
- Smaller car parks discharging to a sensitive environment, such as a marsh that has been designated as a nature reserve.
- Vehicle maintenance areas.
- Roads.
- Refuelling facilities.

The East Anglia Planning team will be able to advise at what stage a DQRA will be required.

We trust this response answers your enquiry. Should you require further information please contact us again at GWCL.EANWest@environment-agency.gov.uk

Kind regards,

[Redacted]

[Redacted]

Hydrogeologist – Brampton - East Anglia Area (West)

Work: Tuesday-Friday

Mobile Telephone: [Redacted]

E-mail: [Redacted]@environment-agency.gov.uk

Information in this message may be confidential and may be legally privileged. If you have received this message by mistake, please notify the sender immediately, delete it and do not copy it to anyone else. We have checked this email and its attachments for viruses. But you should still check any attachment before opening it. We may have to make this message and any reply to it public if asked to under the Freedom of Information Act, Data Protection Act or for litigation. Email messages and attachments sent to or from any Environment Agency address may also be accessed by someone other than the sender or recipient, for business purposes.

[REDACTED]

From: [REDACTED]
Sent: 18 December 2024 15:57
To: 'enquiries_eastanglia@environment-agency.gov.uk'
Cc: [REDACTED]
Subject: Land south of Echo Hill, Royston, Herts - SPZ and SuDS
Attachments: 20-00744-OP_Location Plan.pdf; Soakaway tests from previous app.pdf; IPX1026 Soil Infiltration Test Report.pdf

Dear EAn Enquiries Team,

We are preparing an outline SuDS strategy for a proposed development at the site named above. A location plan is attached as well as some initial GI information. The site NGR is 535400, 239950.

There are no watercourses or sewers available, so the development will rely on infiltration drainage. We note the site is within a groundwater SPZ I – Inner and we assume the abstraction source is the water pumping station immediately south-west of the site. Please could we have your comments on the parameters that the SuDS strategy would need to comply with?

The planning submission will be outline, but it will be useful to know the requirements for detailed stage as well. At what stage might a DQRA be required?

We envisage the following SuDS measures at this stage:

- Explore rainwater re-use options.
- Use permeable surfacing wherever practicable.
- Use the Simple Index Approach (CIRIA SuDS Manual, C753) to achieve mitigation for each land use, then add 1 further treatment type/stage to polish prior to discharge to ground:
 - e.g. Permeable paving or rain garden outflows → Swales → Wetland pond → Soakaway trench

Many thanks and kind regards,

[REDACTED]
Senior Civil Engineer



Consulting Engineers
Office: 01444 871 444
Mobile: [REDACTED]
www.gtacivils.co.uk

[REDACTED]

Civil Engineering - Transport Planning - Flood Risk

From: [REDACTED]<[REDACTED]@anglianwater.co.uk>
Sent: 14 May 2025 08:05
To: [REDACTED]
Subject: RE: Royston STW capacity

Hello [REDACTED],

When assessing the receiving water recycling centre's (WRC) dry weather flow (DWF) headroom we take the latest Q90 DWF figures, as verified by the Environment Agency and add to this, sites with planning consent.

Based on the above, there is currently some available headroom at Royston WRC.

Kind regards

[REDACTED]
Pre-Development Senior Engineer (West)

Mobile: [REDACTED]

For details on how to submit a pre-planning enquiry to the Pre-Development Team, please visit the "[how to apply](#)" section on our website.

Anglian Water Services Limited



For further information please email us at planningliaison@anglianwater.co.uk or visit our website at: <https://www.anglianwater.co.uk/developing/planning--capacity/planning-and-capacity/>

From: [REDACTED]<[REDACTED]@gtacivils.co.uk>
Sent: 13 May 2025 15:45
To: Planning Liaison <planningliaison@anglianwater.co.uk>
Subject: Royston STW capacity

EXTERNAL MAIL - Please be aware this mail is from an external sender - THINK BEFORE YOU CLICK

Dear Planning Liaison,

We note from the North Hertfordshire DC Infrastructure Delivery Plan, published in 2016, that Royston Sewage Treatment Works was mentioned as having capacity issues relating to projected growth at Royston.

Please could you update us on whether the capacity issues remain or have been resolved since 2016? If capacity issues remain, is an improvement scheme included in the latest AMP?

Appendix I

LLFA Proforma

Surface Water Drainage Statement

In order to provide the required information on surface water drainage from the proposed development this pro-forma must be completed in full and be submitted with any planning application which seeks permission for 'major' development. This information contained in this form will be used by Hertfordshire County Council in its role as Lead Local Flood Authority and 'statutory consultee' on SuDs for all 'major' planning applications. The pro-forma is supported by the [Defra/EA Guidance on Rainfall Runoff Management](#). The pro-forma should be considered alongside other supporting SuDS Guidance, but focuses on ensuring flood risk is not made worse elsewhere. The SuDS solution must operate effectively for as long as the development exists. This pro-forma is based upon current industry standard practice.

1. Site Details

Site	Land south of Echo Hill, Royston, Herts
Address & post code or LPA reference	Echo Hill SG8 9BB
Grid reference	535400, 239950
Is the existing site developed or Greenfield?	Greenfield
Total Site Area served by drainage system (excluding open space) (Ha)*	See FRA Appendix E & F
Topographical survey plan showing existing site layout, site levels and drainage system	See FRA Appendix B & E

* The Greenfield runoff off rate from the development which is to be used for assessing the requirements for limiting discharge flow rates and attenuation storage from a site should be calculated for the area that forms the drainage network for the site whatever size of site and type of drainage technique. Please refer to the Rainfall Runoff Management document or CIRIA manual for detail on this.

2. Impermeable Area

	Existing	Proposed	Difference (Proposed-Existing)	Notes for developers & Local Authorities
Impermeable area (ha) (catchment areas to be shown on a plan)	0	1.94	1.94	If the proposed amount of impermeable surface is greater, then runoff rates and volumes will increase. Section 6 must be filled in. If proposed permeability is equal or less than existing, then section 6 can be skipped & section 7 filled in.
Drainage Method (infiltration/sewer/watercourse)	Infiltration		N/A	If different from the existing, please fill in section 3. If existing drainage is by infiltration and the proposed is not, discharge volumes may increase. Fill in section 6.

PPG Paragraph 080

3. Proposing to Discharge Surface Water via

	Yes	No	Evidence that this is possible	Notes for developers & Local Authorities
Existing and proposed calculations	☒	☐	Infiltration test results	Please provide Hydraulic modelling calculations of existing and proposed run-off rates and volumes in accordance with a recognised methodology or the results of a full infiltration test (see line below) if infiltration is proposed.
Infiltration	☒	☐		e.g. soakage tests. Section 6 (infiltration) must be filled in if infiltration is proposed.
To watercourse	☐	☒		e.g. Is there a watercourse nearby? Please provide details of any watercourse to which the site drains including cross-sections of any adjacent water courses for appropriate distance upstream and downstream of the discharge point (as agreed with the LLFA and/or EA).
To surface water sewer	☐	☒		Confirmation from sewer provider that sufficient capacity exists for this connection.
Combination of above	☐	☒		e.g. part infiltration part discharge to sewer or watercourse. Provide evidence above.
Has the drainage proposal had regard to the SuDS hierarchy?	☒	☐		Evidence must be provided to demonstrate that the proposed Sustainable Drainage proposal has had regard to the SuDS hierarchy.
Layout plan showing where the sustainable drainage infrastructure will be located on site.	☒	☐	FRA Appendix E, drawing 13378/1100	Please provide plan reference numbers showing the details of the site layout showing where the sustainable drainage infrastructure will be located on the site. If the development is to be constructed in phases this should be shown on a separate plan and confirmation should be provided that the sustainable drainage proposal for each phase can be constructed and can operate independently and is not reliant on any later phase of development.

Technical Standards S2 and S3

4. Peak Discharge Rates – This is the maximum flow rate at which surface water runoff leaves the site during a particular storm event.

	Existing Rates (l/s)	Proposed Rates (l/s)	Difference (l/s) (Proposed-Existing)	Notes for developers & Local Authorities
Greenfield QBAR		N/A	N/A	Mean annual Greenfield peak flow - QBAR is approx. 1 in 2 storm events. Use that figure in Section 7a.
1 in 1				Proposed discharge rates (with mitigation) should be as close as reasonably practicable to predevelopment greenfield run-off rates with long term storage or Qbar, they must be no greater than existing rates for all corresponding storm events. e.g. discharging all flow from site at the existing 1 in 100 event increases flood risk during smaller events. If discharging to watercourse post development results need to be with and without a surcharged outfall. The critical results need to be provided for both the critical storm by level and critical storm by outflow.
1 in 30				
1 in 100				
1 in 100 plus climate change	N/A		N/A - infiltration	To mitigate for climate change the proposed 1 in 100 +CC must be no greater than the existing 1 in 100 runoff rate. If not, flood risk increases under climate change should be added to the peak rainfall intensity. EA Guidance - Flood Risk Assessments: Climate Change Allowances https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Technical Standards S4 to S9

5. Calculate discharge volumes –The total volume of water leaving the development site for a particular rainfall event. Introducing new impermeable surfaces increases surface water runoff and may increase flood risk outside the development.

	Existing Volume (m ³)	Proposed Volume (m ³)	Difference (m ³) (Proposed-Existing)	Notes for developers & Local Authorities
1 in 1				Proposed discharge volumes (without mitigation) should be no greater than existing volumes for all corresponding storm events. Any increase in volume increases flood risk elsewhere. Where volumes are increased section 6 must be filled in.
1 in 30				
1 in 100				
1 in 100 plus climate change			N/A - infiltration	To mitigate for climate change the volume discharge from site must be no greater than the existing 1 in 100 storm event. If not, flood risk increases under climate change.

6. Calculate attenuation storage – In order to minimise the negative impact on flood risk resulting from increased volumes runoff from the proposed development, storage must be provided.

		Notes for developers & Local Authorities
Storage volume required to retain discharge rates as existing (m ³)		Volume of water to attenuate on site if discharging at existing rates. Can't be used where discharge volumes are increasing
Where will the storage be provided on site?		

7. How is Storm Water stored on site?

Storage is required for the additional volume from site but also for holding back water to slow down the rate from the site. This is known as attenuation storage and long term storage. The intention is to not discharge that volume into the watercourses so as not to increase flood risk elsewhere.

			Notes for developers & Local Authorities
Infiltration	State the Site's Geology/drift material overlaying)	New Pit Chalk Formation	Avoid infiltrating in made ground.
	Does the site have a high ground water table? Yes/No?	No	If yes, please provide details of the site's hydrology.
	Is the site within a known Source Protection Zones (SPZ)? Yes/No?	Yes	Infiltration rates are highly variable and refer to Environment Agency website to identify and source protection zones (SPZ)
	Are infiltration rates suitable?	Yes	Infiltration rates should be no lower than 1x10 ⁻⁶ m/s.
	Is the site contaminated? If yes, consider advice from others on whether infiltration can happen.	No	Water should not be infiltrated through land that is contaminated. The Environment Agency may provide bespoke advice in planning consultations for contaminated sites that should be considered.
	State the distance between a proposed infiltration device base and the ground water (GW) level	Anticipated 30m+	Need 1m (min) between the base of the infiltration device & the water table to protect Groundwater quality & ensure GW doesn't enter infiltration devices. Avoid infiltration where this isn't possible.
	Were infiltration rates obtained by desk study or infiltration test?	In situ testing	Infiltration rates can be estimated from desk studies for outline planning permission if a back-up attenuation scheme is provided. Site specific BRE 365 tests should be provided for Full planning Permission
Is infiltration feasible?	Yes/No?	Yes	If infiltration is not feasible how will the additional volume be stored?. The applicant should then consider the following options in the next section.

7a. Storage requirements

Where infiltration is not possible, then the developer must confirm that either of the two options below will be implemented for dealing with the amount of water that needs to be stored on site.

Option 1 Simple – Store both the additional volume and attenuation volume in order to make a final discharge from site at **QBAR**. This is preferred if no infiltration can be made on site. This very simply satisfies the runoff rates and volume criteria.

Option 2 Complex – If some of the additional volume of water can be infiltrated back into the ground, the remainder can be discharged at a very low rate of 2 l/sec/hectare. A combined storage calculation using the partial permissible rate of 2 l/sec/hectare and the attenuation rate used to slow the runoff from site.

		Notes for developers & Local Authorities
Please confirm what option has been chosen and how much storage is required on site.		The developer at this stage should understand the site characteristics and be able to explain what the storage requirements are on site and how it will be achieved.

8. Additional Consideration to comply with the Technical Standards and PPG

		Notes for developers & Local Authorities
Which Drainage Systems measures have been used?	SuDS treatment train includes permeable paving, bioretention, swales, wetland ponds - all lined	SUDS can be adapted for most situations even where infiltration isn't feasible e.g. impermeable liners beneath some SUDS devices allows treatment but not infiltration. See CIRIA SUDS Manual C753.
How will exceedance events be catered on site without increasing flood risks (both on site and outside the development)?	Green spaces provided to facilitate flow routes; to be assessed at detailed stage	Safely: not causing property flooding or posing a hazard to site users i.e. no deeper than 300mm on roads/footpaths.
How are rates being restricted?	Hydrobrakes on ponds to manage inflow to infiltration cells	Hydrobrakes to be used where rates are between 2l/s to 5l/s. Orifices not be used below 5l/s as the pipes may block. Pipes with flows < 2l/s are prone to blockage.
Drainage during construction period	To be provided at detailed stage	Provide details of how drainage will be managed during the construction period including any necessary connections, impacts, diversions and erosion control.
Key Drainage components / Features	Infiltration cells	Which component if blocked (even partial) will lead to flooding?

Technical Standards S10 to S12

9. Management and Maintenance of SuDs

Details are required to be provided of the management and maintenance plan for the SUD, including for the individual plots in perpetuity.

How is the entire drainage system to be maintained in perpetuity?	Refer to FRA Appendix G	Clear details of the maintenance proposals of all elements of the proposed drainage system must be provided to show that all parts of SuDs are effective and robust. Provide a management plan to describe the SUDS scheme and set out the management objectives for the site. It should consider how the SuDs will perform and develop over time anticipating any additional maintenance tasks to ensure the system continues to perform as designed. — Specification notes that describe how work is to be undertaken and the materials to be used. — A maintenance schedule describes what work is to be done and when it is to be done using frequency and performance requirements as appropriate. — A site plan showing maintenance areas, control points and outfalls. Responsibility for the management and maintenance of each element of the SUDS scheme will also need to be detailed within the Management Plan. Where open water is involved please provide a health and safety plan within the management plan.
Please confirm the owners/adopters of the entire drainage systems throughout the development. Please list all the owners.	Refer to FRA Appendix G	If these are multiple owners then a drawing illustrating exactly what features will be within each owner's remit must be submitted with this Proforma. Please give details of each feature and how it will be managed in accordance with the details in the management plan.
Please provide details demonstrating that any third party agreements required using land outside the application site have been secured.	n/a	

The above form should be completed using evidence from information which should be appended to this form. The information being submitted should be proportionate to the site conditions, flood risks and magnitude of development. It should serve as a summary of the drainage proposals and should clearly show that the proposed discharge rate and volume as a result of development will not be increasing. Where there is an increase in discharge rate or volume, then the relevant section of this form must be completed with clear evidence demonstrating how the requirements will be met.

This form is completed using factual information and can be used as a summary of the surface water drainage strategy on this site.

Form Completed By **Florence Van Vaerenbergh**

Qualification of person responsible for signing off this pro-forma **MEng MICE**

Company **GTA Civils & Transport Ltd**

On behalf of (Client's details) **Gladman Developments Ltd**

Date: **19.05.2025**



Civil Engineering - Transport Planning - Flood Risk

GTA Civils & Transport, Maple House, 192-198 London Road, Burgess Hill, West Sussex, RH15 9RD
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