

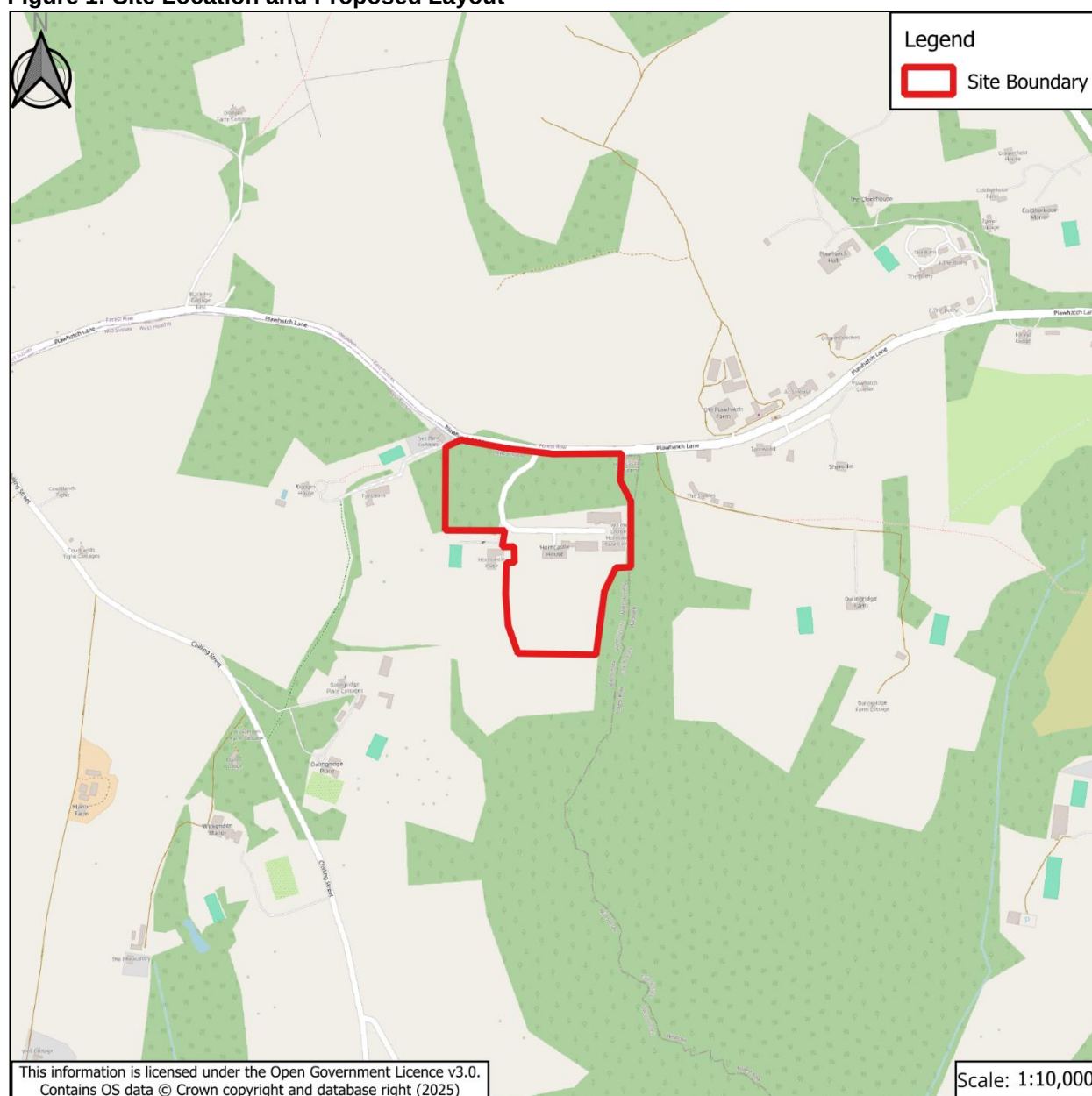
Horncastle Care Centre, Plawhatch Lane, Sharpthorne
Our Ref: 29528-FLD-0101
Drainage Technical Note
April 2025

Introduction

MEC Consulting Group has been commissioned by Splendid Projects Ltd (hereafter referred to as 'the Client') to prepare a drainage strategy to support a planning application for the construction of care facilities at Horncastle House, Plawhatch Lane, Sharpthorne (hereafter referred to as 'the Site').

In total, the site covers approximately 5.61ha, with proposals comprising an 80-bedroom care home with associated road infrastructure, green space, and SuDS systems. The proposed site location is shown in Figure 1.

Figure 1: Site Location and Proposed Layout



Surface Water Drainage

Surface water arising from the development should, as far as practicable, be managed in a sustainable manner to mimic the surface water flows if the site was undeveloped. When considering surface water discharge the SuDS hierarchy needs to be adhered to and is as follows;

- Water reuse, where a need is identified;
- Into the ground (infiltration), where ground conditions permit;
- To a surface water body
- To a surface water sewer, highway drain, or other drainage systems; or
- To a combined sewer

Discharge at Source

British Geological Survey (BGS) mapping suggests the site has no recorded superficial geology, with the site being wholly underlain by a bedrock geology comprising Ashdown Formation – sandstone and siltstone.

A review of boreholes TQ33SE11 and TQ33SE30, to the southwest and northeast respectively, reported superficial geology comprising areas of head and clayey deposits, with deeper strata comprising clay layers and hard sandstone. These areas of clays and hard sandstone were recorded to occur within 2m bgl. This suggests that, at this stage and subject to further testing, infiltration is unlikely to be a suitable means of surface water disposal for the site.

Discharge to a Surface Water Body

An existing ditch network is found within Horncastle Wood to the east of the site, and likely serves as the existing Horncastle House Nursing Homes' discharge location for surface water and treated foul water. This drain runs southwards where it converges with several other unnamed watercourses and ditches, converging with the Cockhaise Brook approximately 5km south of the site.

As this watercourse is the current point of discharge from the site, it is deemed that a gravity fed solution is considered feasible. The assumed outfall manhole has a cover level of 164.53m AOD and an invert level of 162.15m AOD. A topographical survey has been included as **Appendix A**.

In accordance with the drainage hierarchy, surface water will discharge at a restricted rate into the existing ditch network to the east of the site.

Discharge to a Sewer

In accordance with the drainage hierarchy, surface water will discharge into the existing ditch network to the east of the site.

A review of sewer records, provided by Southern Water and included as **Appendix B**, show no public sewers nearby to the site.

Land Use

To calculate the drainage requirements, the existing and proposed land use are required. Table 1 below, summarises the proposed land uses within the site. The site currently comprises a mixture of open green space and the former Horncastle House Nursing Home. The current land use has been calculated using the existing site plan and the post-development land has been measured from the proposed layout. Due to the proposed use of the development, it is considered that urban creep will not be required to be added to the calculations due to the low likelihood of expansion in the future without the need for additional planning applications.

Table 1: Land Use Summary

Land Use Type	Existing Site Areas		Proposed Site Areas	
	ha	%	Ha	%
Impermeable Areas	0.88	16	0.95	17
Green Landscape / Permeable Areas	4.73	84	4.66	83
Total	5.61	100	5.61	100

Climate Change Allowances

The influence of climate change on rainfall intensity is likely to increase the frequency of flood events and the overall volume of water that passes the site. When considering surface water runoff from the site, the increases in peak rainfall intensity varies over the lifetime of the development. Where residential developments with a lifetime beyond the 2070s are proposed, the NPPF states that the Upper End allowances should be used, as highlighted in green in Table 2.

Table 2: Peak Rainfall intensity allowances from Flood Risk Assessments: Climate Change Allowances Guidance

Annual Exceedance Probability	Total potential change anticipated for the '2050s' (2022 to 2060)		Total potential change anticipated for the '2070s' (2061 to 2125)	
	Central	Upper End	Central	Upper End
3.3% AEP	20%	35%	20%	40%
1% AEP	20%	45%	25%	45%

Discharge Rates

Brownfield runoff conditions have been calculated using the Modified Rational Method to calculate the Brownfield Discharge Rates. For the existing impermeable area of 0.88ha, the peak discharge rate has been calculated as 110.09l/s based on a rainfall intensity of 50mm/hr.

Greenfield runoff conditions have been calculated using the FEH module within Causeway Flow. For the proposed impermeable area of 0.95ha, the peak discharge rate has been calculated as 6.1l/s. Calculations for the greenfield rate can be found within **Appendix C**. This is a 95% betterment from the original site.

In accordance with the National SuDS standards the drainage strategy involves conveying surface water flows to a geo-cellular tank via permeable paving. This geo-cellular tank will then discharge at the greenfield discharge rate of 6.1l/s into the existing assumed discharge manhole in the east of the site into the ditch network within Horncastle Wood.

Geo-Cellular Tank

Surface water flows for an impermeable area of 0.95ha will be conveyed to a proposed geo-cellular tank within the road/parking areas. A storage volume of 947.43m³ is required within the geo-cellular tank to allow sufficient water to discharge into the proposed attenuation basin at a rate of 6.1l/s and cater for all events up to and including the 1 in 100-year + 45% climate change. The geo-cellular tank has been designed to a depth of 1.60m, with an allowance of 0.6m cover. The calculations for the proposed design can be seen in **Appendix C**, and the drainage strategy based on the principles above is shown in drawing ref: 29528_01_230_01 in **Appendix D**.

Additional drainage features such as permeable paving, tree pits, and rain gardens can be used across the site and will provide additional storage and treatment. Permeable paving will act as a first treatment stage for any runoff and will ensure adequate surface water treatment is provided. These features have been excluded from calculations at this stage.

Applicable SuDS Techniques

The Non-Statutory Technical Standards for Sustainable Drainage Systems that deals with SuDS, covers a whole range of sustainable approaches to surface water drainage management including;

- Source control measures including rainwater recycling and drainage;
- Filter strips and swales, which are vegetated features that hold and drainage water mimicking natural drainage patterns;
- Filter drains and permeable pavements to allow rainwater and runoff to infiltrate into permeable paving below ground and provide storage if needed; and
- Basins and ponds to hold excess water after rain and allow controlled discharge that avoids flooding.

Each of the five SuDS components listed above is discussed below in Table 3, with reference to their suitability for the proposed development.

Table 3: Suitability of SuDS Techniques

	COMPONENT	SUITABILITY	REASONS
Source Control	Rainwater Harvesting	Yes	Rainwater harvesting could be used across the site.
	Green Roofs	No	Green roofs are not generally suitable for residential developments.
	Bio-retention Systems / Rain Gardens	Yes	Open green space can be converted to provide additional water quality improvements.
Proprietary Systems	Proprietary bio-retention systems	No	More appropriate SuDS features can be accommodated within the development and are preferred.
Infiltration Devices	Permeable Paving	Yes	Permeable paving is suitable for the proposed development within parking spaces.
	Infiltration trenches / Soakaways	No	Infiltration is not considered suitable for the development.
Filtration	Open swales / Filter Strips / Drains	No	Due to the size and location of the site, open swales are not considered suitable.
Retention / Detention	Detention Basin, Attenuation Pond / Tanks	Yes	The proposed geo-cellular tank will provide surface water storage.

Surface Water Quality

The CIRIA SuDS Manual C753, indicates the minimum treatment indices appropriate for contributing pollution hazards for different land use classifications. To deliver adequate treatment, the selected SuDS components should have a total pollution mitigation index (for each contaminant) that equals or exceeds the pollution hazard index.

Surface water runoff from residential roofs will have a very low pollution hazard levels, whilst the residential parking areas will have a low pollution hazard index.

The pollution hazard indices, mitigation indices of each SuDS component and the accompanying calculations are provided in Table 4.

Table 4: SuDS Mitigation Indices (from CIRIA SuDS Manual)

SuDS Component	Mitigation Indices		
	<i>Total Suspended Solids</i>	<i>Metals</i>	<i>Hydrocarbons</i>
Residential Roofs	0.2	0.2	0.05
Residential Parking Areas	0.5	0.4	0.4
Permeable Paving	0.7	0.6	0.7
SuDS Mitigation Index	0.7	0.6	0.7
Mitigation Requirement Met?	Yes	Yes	Yes

For the very low to low pollution hazard levels generated at the site, the proposed permeable paving would provide sufficient treatment in accordance with the Simple Index Approach.

Exceedance and Flow Routing

The risk of overland flowing from adjacent land to the care home is low. The design of levels and features on the site will follow best practice by ensuring any overland flow is routed safely away from the care home and to areas of lowest risk. Any surcharging and subsequent flooding of sewers on or in the vicinity of the site will also be mitigated by the flood routing described above. As such, the risk of flooding on site from exceedance events and flood flow routes is low.

Maintenance and Management

An integrated approach to the maintenance and management of SuDS is a requirement of the NPPF and the Flood and Water Management Act 2010. The aim of a maintenance and management plan is to ensure that there is a clear understanding of drainage responsibilities and that a maintenance regime is implemented for all new drainage systems, for the lifetime of the development.

All private drainage, including SuDS, will be maintained by the landowners, or by an appointed management company.

A proposed maintenance schedule, which breaks down the maintenance requirements of the proposed SuDS features, is shown in **Appendix E**.

Foul Water Strategy

According to The Buildings Regulations (2010), foul water drainage from new developments should be discharged into the following, in order of priority;

- A public sewer;
- A private sewer communicating with a public sewer;
- A septic tanks, which has an appropriate form of secondary treatment; or
- A cesspool

Sewer asset plans have been received from Southern Water and have been included in **Appendix B**. The maps show there are no public sewers within the vicinity of the site.

It is understood that the site currently treats existing foul water from the site and the surrounding cottages via a Sewage Treatment Plant (STP). The treated discharge flows into the existing manhole to the east of the site and outfalls into the watercourse within Horncastle Wood. It is assumed that the remaining effluent is pumped away from the site at regular intervals.

A service of the STP conducted in February 2025 states the STP is generally in good condition, see report in **Appendix F**. In accordance with The Building Regulations, foul water flows from the proposed development will discharge into the existing STP and outfall into the watercourse.

REGISTRATION OF AMENDMENTS

Date	Rev	Comment	Prepared By	Checked By	Approved By
April 2025	-	First issue	Thomas Sturtridge BSc (Hons) MSc PIEMA Flood Risk Engineer	Zoe Jordan BSc (Hons) Flood Risk Engineer	Tim Rose BA (Hons) MCIHT MTPS Regional Director

Appendices

- A. Topographical Survey
- B. Sewer Asset Plans
- C. Surface and Foul Water Indicative Drainage Calculations (29528-CALC-0101)
- D. Surface and Foul Water Indicative Drainage Strategy (29528_01_230_01)
- E. Maintenance and Management Plan
- F. On-site Sewage Treatment Works Service Report, February 2025

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APPENDICES



APPENDIX A

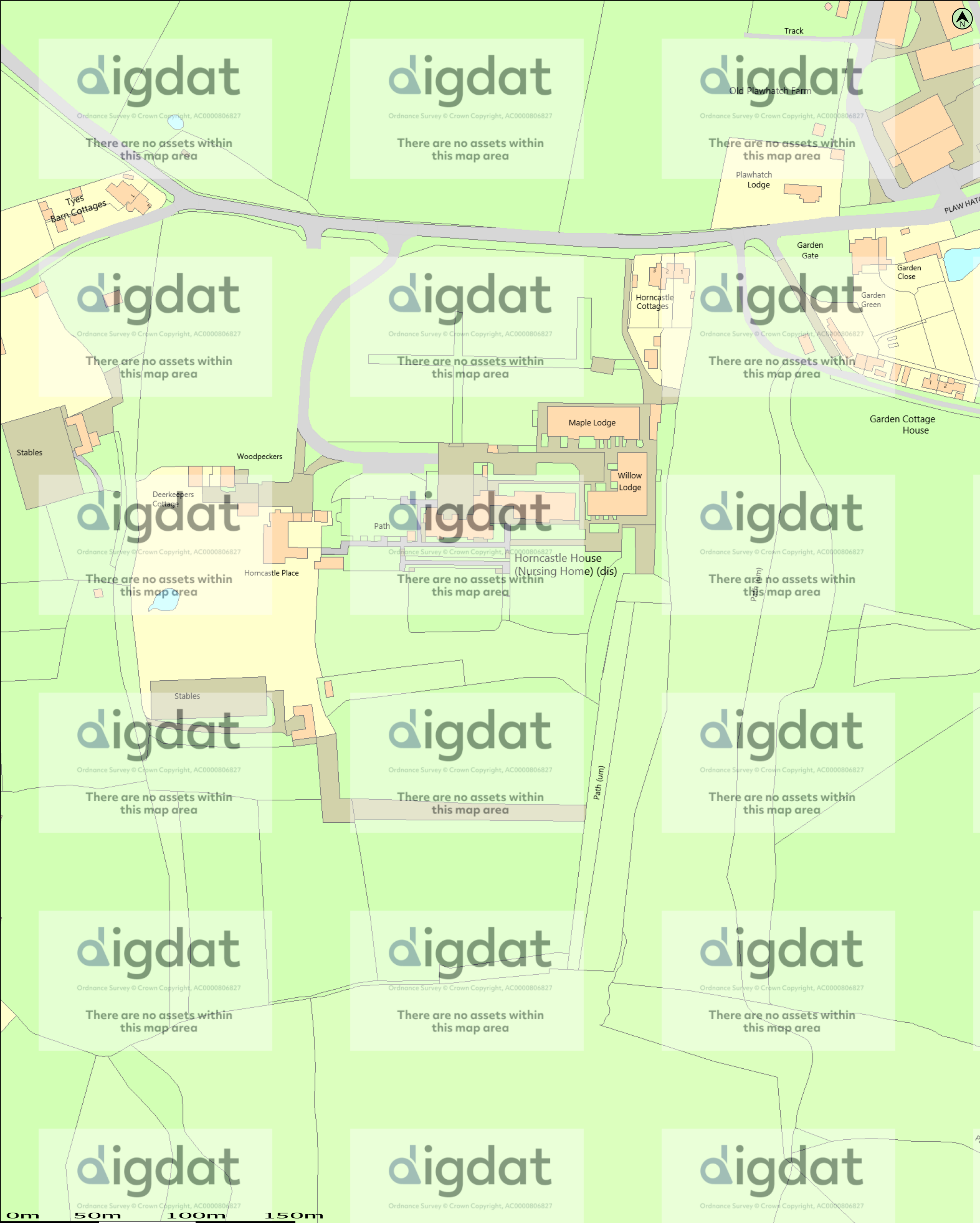


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APPENDICES



APPENDIX B

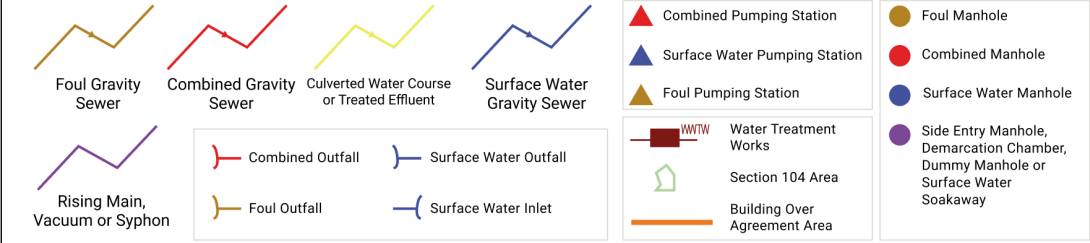


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Data updated: 26/02/25

Scale: 1:1250
Map Centre: 539176.132210

Date: 27/03/25
Our Ref: 1728417 - 1

Wastewater Plan A2
Powered by digdat



emma.harris@m-ec.co.uk

29528



The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2025 Ordnance Survey AC0000806827. This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.



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APPENDICES



APPENDIX C

Doc. Ref.	29528-CALC-0101
Sheet	1 of 7
Engineer	Z. Jordan
Date	23 Apr 25
Revision	-

DESIGN CALCULATIONS FRONT SHEET

SCHEME	Horncastle House Nursing Home, Plawhatch Lane, Sharpthorne
CLIENT	QED Planning
ASPECTS OF SCHEME TO BE DESIGNED	Brownfield Calculations Greenfield Calculations Surface water attenuation design and simulation results for the 50%AEP, 3.3%AEP40CC and 1%AEP45CC event for the development site.
CODES OF PRACTICE, DESIGN SPECIFICATIONS & BRITISH STANDARDS	• Design and analysis of urban storm drainage. Wallingford Procedure Vol.1 • Sustainable Drainage Systems- Non-Statutory technical standards for Sustainable drainage systems- 2015 • The SuDS Manual – CIRIA C753
NOTES	Brownfield runoff conditions have been calculated using the Modified Rational Method to calculate the Brownfield Discharge Rates. For the existing impermeable area of 0.88ha, the peak discharge rate has been calculated as 110.09l/s based on a rainfall intensity of 50mm/hr. Greenfield runoff conditions have been calculated using the FEH module within Causeway Flow. For the proposed impermeable area of 0.95ha, the peak discharge rate has been calculated as 6.1l/s. This is a 95% betterment from the original site. In accordance with the National SuDS standards the drainage strategy involves conveying surface water flows to a geo-cellular tank via permeable paving. This geo-cellular tank will then discharge at the greenfield discharge rate of 6.1l/s into the existing assumed discharge manhole in the east of the site into the ditch network within Horncastle Wood.

INDEX

Pages	Calculations	Checked by	Date
2	Modified Rational Method to calculated Brownfield Discharge Rate based on a rainfall intensity of 50mm/hr.	TS	23.04.2025
3 - 7	Surface Water Sewer design details for the 50%, 3.3%AEP40CC and 1%AEP45CC simulation results	TS	23.04.2025



Brownfield Run-off Calculation

Project: Horncastle House Nursing Home, Plawhatch Lane, Sharpthorne

File Ref: 29528

O.S. Grid Ref: 539175 , 132267

The Rational Method equation used to calculate peak stormwater runoff rate is:

$$Q = 2.78 CiA$$

Where;

Q = The peak stormwater runoff rate from the drainage area (L/S).

2.78 = Conversion factor to use standard units.

C = Runoff coefficient for drainage area (A).

i = The intensity of the design storm for peak runoff calculation (mm/hr).

A = The area of the watershed that drains to the point for which the peak runoff rate is calculated (ha).

The following figures will be used to calculate the peak runoff for the site;

C = 0.9, as not all run-off will discharge from the site.

i = 50 mm/hr

A = 0.88 ha

Peak run-off for the site;

$$Q = 2.78 \times 0.9 \times 50 \times 0.88$$

$$Q = 110.088 \text{ l/s}$$



Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	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)	4.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	100.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
Attenuation Tank	0.950	4.00	167.500	1500	2.200
HydroBrake			167.500	1500	2.300
Outfall			164.530	1500	2.930

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	Attenuation Tank	HydroBrake	10.000	0.600	165.300	165.200	0.100	100.0	525	4.07	100.0
1.001	HydroBrake	Outfall	15.000	0.600	165.200	161.600	3.600	4.2	525	4.10	100.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	2.240	484.8	343.3	1.675	1.775	0.950	0.0	327	2.420
1.001	11.023	2386.2	343.3	1.775	2.405	0.950	0.0	133	7.939

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	10.000	100.0	525	Circular	167.500	165.300	1.675	167.500	165.200	1.775
1.001	15.000	4.2	525	Circular	167.500	165.200	1.775	164.530	161.600	2.405

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	Attenuation Tank	1500	Manhole	Adoptable	HydroBrake	1500	Manhole	Adoptable
1.001	HydroBrake	1500	Manhole	Adoptable	Outfall	1500	Manhole	Adoptable

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Attenuation Tank	167.500	2.200	1500				
				0	1.000	165.300	525
HydroBrake	167.500	2.300	1500		1	1.000	165.200
							525
				0	1.001	165.200	525
Outfall	164.530	2.930	1500		1	1.001	161.600
							525

**Simulation Settings**

Rainfall Methodology	FEH-22	Skip Steady State	x	2 year (l/s)	5.5
Summer CV	1.000	Drain Down Time (mins)	240	30 year (l/s)	12.2
Winter CV	1.000	Additional Storage (m ³ /ha)	0.0	100 year (l/s)	15.2
Analysis Speed	Normal	Check Discharge Rate(s)	✓	Check Discharge Volume	x

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 %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	100	45	0	0
30	40	0	0				

Pre-development Discharge Rate

Site Makeup	Greenfield	Region	1	QMed	5.5
Greenfield Method	FEH	QBar/QMed conversion factor	1.111	QBar	6.1
Positively Drained Area (ha)	0.950	Growth Factor 1 year	0.85	Q 1 year (l/s)	
SAAR (mm)	865	Growth Factor 30 year	1.95	Q 30 year (l/s)	
Host	1	Growth Factor 100 year	2.48	Q 100 year (l/s)	
BFIHost	0.441	Betterment (%)	0		

Node HydroBrake Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	165.200	Product Number	CTL-SHE-0106-6100-1700-6100
Design Depth (m)	1.700	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	6.1	Min Node Diameter (mm)	1200

Node Attenuation Tank Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	165.300
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

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	635.0	0.0	1.600	635.0	0.0	1.601	0.0	0.0

Results for 2 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
480 minute summer	Attenuation Tank	360	165.588	0.288	38.8	173.9992	0.0000	OK
360 minute summer	HydroBrake	304	165.599	0.399	20.9	0.7050	0.0000	OK
15 minute summer	Outfall	1	161.600	0.000	5.5	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute summer	Attenuation Tank	1.000	HydroBrake	19.7	0.261	0.041	1.4858	
360 minute summer	HydroBrake	Hydro-Brake®	Outfall	5.8				174.6

Results for 30 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
720 minute winter	Attenuation Tank	705	166.410	1.110	51.1	671.3210	0.0000	SURCHARGED
720 minute winter	HydroBrake	705	166.410	1.210	19.6	2.1373	0.0000	SURCHARGED
15 minute summer	Outfall	1	161.600	0.000	5.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	Attenuation Tank	1.000	HydroBrake	19.6	0.439	0.041	2.1603	
720 minute winter	HydroBrake	Hydro-Brake®	Outfall	5.8				278.9

Results for 100 year +45% 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
1440 minute winter	Attenuation Tank	1380	166.866	1.566	40.4	947.4270	0.0000	SURCHARGED
1440 minute winter	HydroBrake	1380	166.866	1.666	21.1	2.9437	0.0000	SURCHARGED
15 minute summer	Outfall	1	161.600	0.000	5.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute winter	Attenuation Tank	1.000	HydroBrake	21.1	0.413	0.043	2.1603	
1440 minute winter	HydroBrake	Hydro-Brake®	Outfall	6.0				528.6

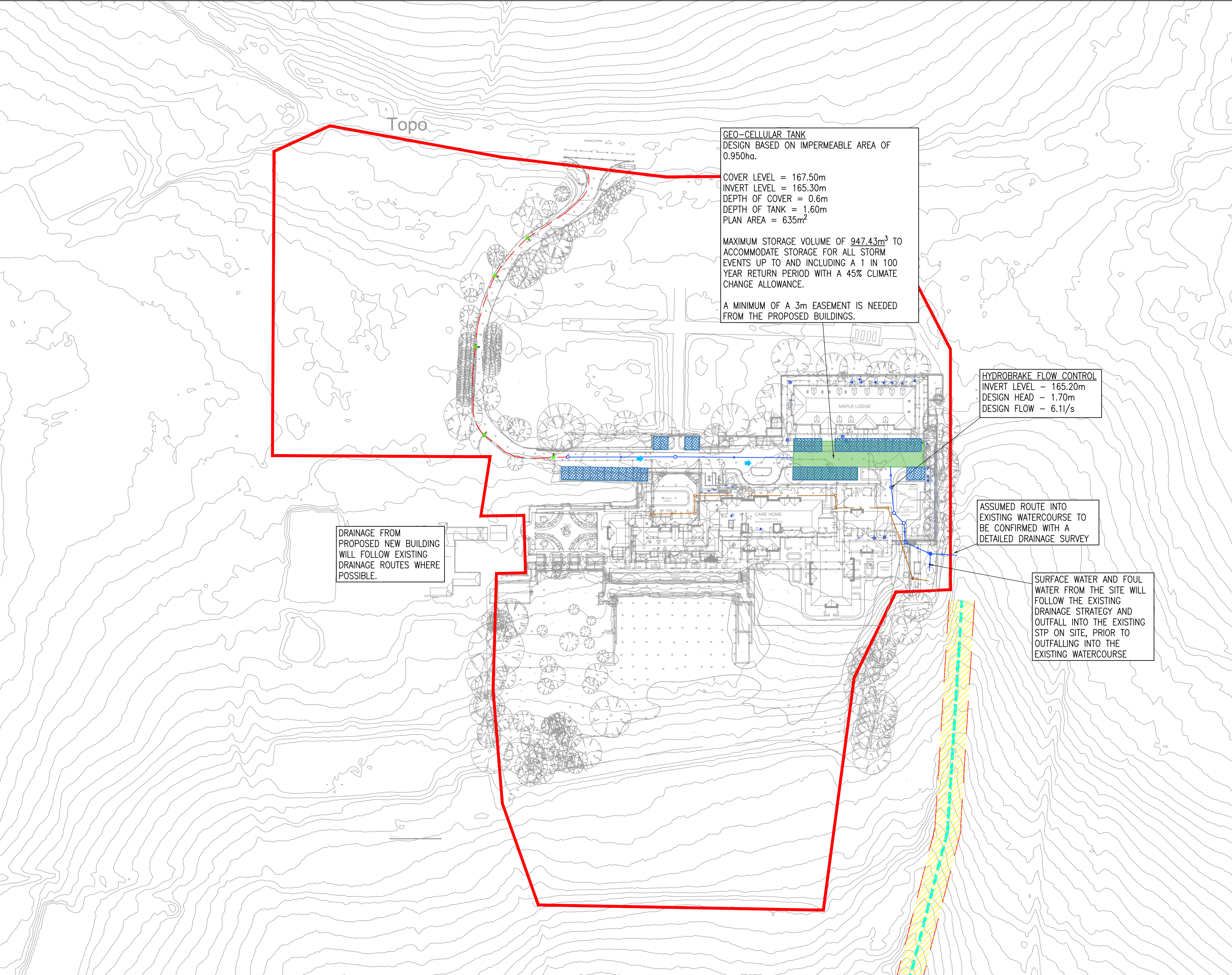


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APPENDICES



APPENDIX D



NOTES:

- DO NOT SCALE THIS DRAWING.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERS, ARCHITECTS AND SPECIALIST DESIGN DRAWINGS AND DETAILS.
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE. ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.
- THIS DRAWING IS FOR STRATEGY PURPOSES ONLY AND IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.
- DESIGN BASED ON EXISTING LEVELS AND SUBJECT TO CHANGE WITH EXTERNAL WORKS DESIGN / CONFIRMATION OF FFLS.
- DRAINAGE STRATEGY IS SUBJECT TO AGREEMENT WITH RELEVANT THIRD PARTIES, INCLUDING ENVIRONMENT AGENCY, LOCAL PLANNING AUTHORITY, LEAD LOCAL FLOOD AUTHORITY AND WATER AUTHORITY.
- THE DRAINAGE STRATEGY WILL NEED UPDATING IF THE LAYOUT IS REVISED.
- SURFACE WATER AND FOUL WATER FLOWS FROM THE SITE WILL DISCHARGE INTO THE EXISTING SEWAGE TREATMENT PLANT WITHIN THE SITE AND CLEANED EFFLUENT WILL OUTFALL INTO A WATERCOURSE WITHIN HORNCASTLE WOOD TO THE EAST OF THE SITE, SUBJECT TO CONFIRMATION OF EXISTING DRAINAGE STRATEGY. THIS IS LIKELY TO BE A GRAVITY FED SOLUTION.
- SURFACE WATER FLOWS WILL DISCHARGE AT A QBAR GREENFIELD RATE OF 6.1l/s.
- IT IS RECOMMENDED FURTHER INVESTIGATION OF THE DITCH IS UNDERTAKEN TO DETERMINE ITS EXTENT.

KEY

- SITE BOUNDARY
- PROPOSED SURFACE WATER SEWER
- PROPOSED FOUL WATER SEWER
- PROPOSED COMBINED SEWER
- EXISTING DITCH NETWORK
- PROPOSED GEO-CELLULAR TANK
- PROPOSED PERMEABLE PAVING
- PROPOSED EXCEEDANCE FLOWS
- PROPOSED ROAD GULLIES

* FIRST ISSUE		JJ	TS	TR	15.04.25
REV:	AMENDMENTS:	DRN:	CHK:	APP:	DATE:
PROJECT: HORNCASTLE HOUSE CARE HOME PLAWHATCH LANE SHARPTHORNE					
DRAWING TITLE: OUTLINE DRAINAGE STRATEGY					
CLIENT: SPLENDID PROJECTS LTD					
DRAWING NUMBER: 29528_01_230_01					
REVISION: -	SHEET SIZE: A1	SCALE: 1:1000			
STATUS: FOR INFORMATION / APPROVAL					
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APPENDICES



APPENDIX E

MAINTENANCE AND MANAGEMENT

A proposed maintenance plan is shown in the table below and breaks down the maintenance requirements of the various proposed assets in accordance with the CIRIA C753 SuDS Manual guidance.

Table 1.1: Proposed Maintenance Regime

Drainage Asset	Responsible Organisation	Maintenance Work	Frequency
Pipework / Manholes	Private Ownership / Management Company	Inspect pipework and clear blockages	Annually or after severe storms.
		Inspect manholes and clear blockages	
		Repair any defects in the network	
		Inspect flow control, ensure operating freely and pivoting bypass door and penstock valve operating correctly	
Headwalls	Private Ownership / Management Company	Inspect the structure and remove any debris/litter on the structure.	Annually or after severe storms
		Replace malfunctioning parts or structures	As required
Gullies	Private Ownership / Management Company	Inspect structure and remove any debris/litter on structure	Annually or after severe storms
		Replace malfunctioning parts or structures	As required
Flow Control Chamber	Private Ownership / Management Company	Inspect structure and remove excessive silt build-up	Monthly during construction and then annually or after severe storms
		Inspect pipework and manholes also clear blockages	Annually or after severe storms
		Inspect manholes and clear blockages	
		Inspect flow control, ensure operating freely and pivoting bypass door and penstock valve operating correctly	
		Replace malfunctioning parts or structures	
		Inspect for evidence of poor operation	6 monthly
		Inspect sediment accumulation rates and establish appropriate removal frequencies	
		Test control structure to ensure operating as per original design	5 yearly
Permeable Pavements	Private Ownership / Management Company	Brushing and vacuuming (standard cosmetic sweep over the whole surface)	Once a year after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging of manufacturer's recommendations.
		Stabilise and mow contributing and adjacent areas	As required
		Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than sweeping	



		Remediate any landscaping which, through vegetation maintenance of soil slip, has been raised to within 50 mm of the level of the paving	
		Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users and replace lost jointing material	
		Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required
		Initial inspection	Monthly for 3 months after installation
		Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	3 monthly, 48 hours after large storms in first 6 months
		Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
		Monitor inspection chambers	
Attenuation Storage Tanks	Private Ownership / Management Company	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months then annually
		Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
		For systems where rainfall infiltrates into the tank from above, check the surface of the filter for blockages by sediment, algae or other matter; remove and replace surface infiltration medium as necessary	Annually
		Remove the sediment from pre-treatment structures and/or internal forebays	
		Repair/rehabilitate inlets, outlets, overflows and vents	As required
		Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
		Survey inside of the tank for sediment build-up and remove if necessary	Every 5 years or as required



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APPENDICES



APPENDIX F

Inspection Report – Sewage Treatment Plant (STP)

Dirk Daude Wastewater Consultancy Services

t: +44 (0) 7903 296772

e: dirk@dirkdaude.com

Site and STP Details

Site Name: Horncastle Contract/Ref.: SA121
Site Address: Plawhatch Lane, Sharpthorne Date: 11 February 2025
East Grinstead, East Sussex, RH19 4JH

STP/Equipment:

EnSo Ocean Professional sewage treatment plant, incl. 1x PST (approx. 25m3), 2x Bioclere Trickling Filters (incl. HST section) and 1x above ground SAF/HST (approx. 15m3) - Access is only via prior arrangement – please contact David or Graham

General Condition and Effluent Quality of STP

Installation (civil and electrical): ☐ good ☒ acceptable ☐ poor (see comment below)
Effluent Quality (visual): ☒ good ☐ acceptable ☐ poor (see comment below)
Effluent Turbidity: 5 NTU Effluent Ammonia: <10 mg/l

Note: effluent sample (from final HST) taken for laboratory analysis

Primary Settlement Stage

Sludge levels: ☒ low ☐ normal ☐ high Desludged during service: ☐ yes ☒ no

Biological Treatment Stages

Blowers/pumps in operation: ☒ yes ☐ no Air Filter: ☒ good ☐ changed
Aeration/Biomass growth: ☐ good ☒ poor

Note: Both irrigation pumps are faulty and have been disconnected. The air blower is working.

Final Clarification (Humus Settlement)

Sludge levels: ☒ low ☐ normal ☐ high Desludged during service: ☐ yes ☒ no
SSR Pumps in operation: ☐ yes ☒ no SSR Timer Settings: ☒ good ☐ changed

Note: The SSR pump has been disconnected.

Comments and Notes

As previously stated in reports the STP system remains in the same condition.

As no forward flow then effluent sample taken from HST and remains as previous service visit. Treated effluent is "trapped " in HST as not enough forward flow.

Above ground tank continues to leak but condition as before.

Ground water witnessed entering the primary tank.

Lawrence M on site during inspection and all findings were discussed.

Parts and Consumables

Service undertaken by:



Christian Rubra

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2796565/2025**
Laboratory Number: **25000613**
Sample Source: **Dirk Daude Wastewater Con**
Sample Point Description:
Sample Description: **SA121-FINAL EFFLUENT**
Sample Matrix: **Treated Sewage**
Sample Date/Time: **11 February 2025**
Sample Received: **26 February 2025**
Analysis Complete: **10 March 2025**

Issue 1
Sample 4 of 7

Test Description	Result	Units	Completed	Accreditation	Method
pH	7.2	pH units	27/02/2025	Y Cov	WAS039
Ammoniacal Nitrogen as N	12.1	mg/l	26/02/2025	Y Cov	WAS036
Total Suspended Solids	1.00	mg/l	27/02/2025	Y Cov	WAS006
BOD + ATU (5 day)	2	mg/l	04/03/2025	Y Cov	WAS001
COD (Total)	32.0	mg/l	27/02/2025	Y Cov	WAS040

Analyst Comments for 25000613:

This sample has been analysed for pH, Total Suspended Solids, BOD + ATU (5 day), Ammoniacal Nitrogen as N, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Che = Chester(CH5 3US), Cov = Coventry(CV4 9GU), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **A. Zunzunegui**

Date: **10 March 2025**

Title: **Organics Chemistry Manager**



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