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FLOOD RISK ASSESSMENT and SUDS STRATEGY

Falcon Park, Hophurst Lane, Crawley, RH10 4XF

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<i>Revision</i>	<i>V01</i>
Date	13/03/2026
Prepared by	A Wallace
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1 EXECUTIVE SUMMARY

This Flood Risk Assessment (FRA) and drainage strategy reviews the existing drainage arrangement at the application site and proposes a surface water drainage strategy in line with Local Authority and Lead Local Flood Authority (LLFA) guidance.

The development involves the redevelopment of the two acre site into a Motor Museum and Storage Facility, showcasing an automotive collection to the public and providing a base for Premier GT's car club and sales operations. These will be housed in the two existing warehouses, which are to be retained and repurposed with minimal intervention. Several smaller dilapidated structures will be demolished and replaced with a new office building.

This report assesses existing flood risk issues at the site and proposes mitigation where necessary to reduce the risk of flooding to occupant's post-development with no increased risk of flooding off-site.

The development area of the site is located in the Environment Agency's (EA) flood zone 1 (low risk), and at low risk of flooding from all other sources.

The sources of flooding assessed and proposed mitigation measures are listed in the table below.

Source	Risk Category (after mitigation)	Comments
Fluvial (Rivers and Sea)	Low	Site at low risk of flooding.
Coastal and tidal	Negligible	Not near coast or tidal waterbody
Groundwater	Very Low	Low due to local geology
Surface water	Very Low	Low due to natural topography and floor levels
Sewers	Very Low	Low due to natural topography and sewer location
Reservoirs	Negligible	Site not near reservoir and reservoir at very low danger of failure

Surface Water Drainage

Site discharge should be as close to greenfield values as possible. However, as the site is mostly remaining as existing, with some extra hardstanding added, it is proposed to maintain most of the existing drainage system and add attenuation to enable discharge rates to be reduced.

In accordance with best practice, outflow controls will be set to discharge at less than half the existing 1-year discharge rate and no more than 18 litres/second for all storm events up to and including the 100 year +40% climate change storm.

An additional 10% allowance for urban creep has been included in the sizing of surface water storage.

Attenuation is provided in below ground tanks with further SUDS measures including water butts and permeable paving.

Maintenance/management of all onsite drainage infrastructure has been considered within a separate maintenance plan appended to this report. This will be updated through the development process.

Overall, the proposals provide a high level of water treatment, runoff reduction and flooding protection for the proposed development and are in accordance with the NPPF and NPG as well as all requirements of the Lead Local Flood Authority (LLFA) and SUDS guidance.

Foul Drainage

It is proposed to discharge the foul drainage from the site into the existing foul sewer which is assumed to discharge into the Southern Water sewer within the street.

2 INTRODUCTION

- 2.1.1 Jomas was commissioned to undertake a Drainage Assessment for the proposed development of land located adjacent to Falcon Park, Hophurst Lane, Crawley, RH10 4XF
- 2.1.2 The development involves the redevelopment of the two acre site into a Motor Museum and Storage Facility, showcasing an automotive collection to the public and providing a base for Premier GT's car club and sales operations. These will be housed in the two existing warehouses, which are to be retained and repurposed with minimal intervention. Several smaller dilapidated structures will be demolished and replaced with a new office building.
- 2.1.3 This Flooding and Drainage Assessment has been produced in support of a planning application and should be read in conjunction with the other planning documents.

3 SITE DESCRIPTION

- 3.1.1 The site is approximately 6892 square metres in size and is brownfield.
- 3.1.2 Pre-development, the site is 38% impermeable (2646 square metres). Post development, the impermeable area will increase to 56% (3892 square metres).
- 3.1.3 The site location information is as follows:
- Nearest Postcode: RH10 4XF.

3.2 Topography

Site Topography

- 3.2.1 The site survey is provided in appendix B. The site is brownfield and falls from northwest to the southeast and the existing road.

4 DESIGN PRINCIPLES AND POLICY REQUIREMENTS

4.1.1 Since April 2015, Lead Local Flood Authorities (LLFA's) have become a statutory consultee on surface water drainage for many planning applications. For this site, the following is considered to be the required level of detail required for planning approval:

4.1.2 Report to be prepared in accordance with the National Planning Policy Framework (NPPF), the accompanying Planning Practice Guidance (PPG), and the Local Strategic Flood Risk Assessment (SFRA), Preliminary Flood Risk Assessment (PFRA), Surface Water Management Plan (SWMP) and SUDS policies as the Lead Local Flood Authority (LLFA).

4.2 General Principles for Flooding

4.2.1 The National Planning Policy Framework (NPPF) states that when determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where informed by a site-specific FRA. This assessment is required for:

“Proposals of 1 hectare (ha) or greater in Flood Zone 1, all new development (including minor development and change of use) in Flood Zones 2 and 3 and an area within Flood Zone 1, which has critical drainage problems as notified to the local planning authority by the Environment Agency (EA).”

4.2.2 In accordance with the Planning Practice Guidance (PPG), which supports the NPPF, the objectives of this FRA are to establish:

- *Whether a proposed development is likely to be affected by current or future flooding from any source;*
- *Whether it will increase flood risk elsewhere;*
- *Whether the measures proposed to deal with these effects and risks are appropriate.*

4.3 General Principles for Surface Water Drainage

4.3.1 The DEFRA Sustainable Drainage Systems Non-Statutory Technical Standards for Sustainable Drainage Systems, National standards for sustainable drainage systems (SuDS) and Local Flood Risk Management Strategy require sustainable drainage systems in all development to reduce surface water runoff and provide water treatment on site. This includes but is not limited to addressing the following issues in order of preference:

- store rainwater for later use
- use infiltration techniques, such as porous surfaces in non-clay areas
- attenuate rainwater in ponds or open water features for gradual release
- attenuate rainwater by storing in tanks or sealed water features for gradual release
- discharge rainwater direct to a watercourse
- discharge rainwater to a surface water sewer/drain
- discharge rainwater to the combined sewer.

Consideration must be given to the direction of water flow across the site and where this may be dispersed and incorporating any features that will help reduce surface water run-off. All developments should achieve greenfield rates where possible, or at least a 50% reduction in surface water discharge and this needs to be demonstrated as part of the planning submission.

5 FLOODING INFORMATION

5.1 Flood Risk from Rivers (Fluvial)

- 5.1.1 As the site is within flood zone 1, there is a low risk of fluvial flooding to the site, the risk of flooding is considered to be Very Low.

5.2 Coastal and Tidal Flood Risk

- 5.2.1 The site is located inland and is not near any tidally influenced watercourses; therefore, there is negligible risk of flooding from this source.

5.3 Geology and Hydrogeology (Groundwater)

- 5.3.1 Information provided by the British Geological Survey indicates that the site is directly underlain by bedrock of:

Upper Tunbridge Wells Sand-Sandstone and siltstone, interbedded. These sedimentary rocks are fluvial, palustrine and shallow-marine in origin. They are detrital, forming deposits reflecting the channels, floodplains and deltas of a river in a coastal setting (with periodic inundation from the sea).

The MAGIC Map indicates the area is not of any note regarding ground conditions.

- 5.3.2 As the geology indicates low permeability, it is unlikely that groundwater will rise above ground level, hence the risk of flooding from ground water is considered very low.

5.4 Surface Water Flood Risk (Overland Flows)

- 5.4.1 Surface water flooding occurs when the rainwater does not drain away through the normal drainage system or infiltrate the ground, but instead lies on or flows over the ground.

- 5.4.2 The EA produced a Risk of Flooding from Surface Water Map in December 2013. The maps were produced using 'direct rainfall' modelling. Although they consider local drainage capacity, non-surface water influences such as rivers, seas or groundwater are not considered. The map is based on LIDAR topographic data which is not suitable for site specific assessment and therefore, where available, topographic survey data should be used to provide a more accurate understanding of potential flow paths.

- 5.4.3 The map shows the entire country within four different risk categories, defined below in Table 1.

Table 1: EA Surface Water Flood Risk Categories

Risk Category	Definition
High	Each year, there is a chance of flooding of greater than 1 in 30 (3.3%)

Medium	Each year, there is a chance of flooding of between 1 in 30 (3.3%) and 1 in 100 (1%)
Low	Each year, there is a chance of flooding of between 1 in 100 (1%) and 1 in 1000 (0.1%)
Very Low	Each year, there is a chance of flooding of less than 1 in 1000 (0.1%)

5.4.4 An extract of the map, provided below, shows that the area is generally not susceptible to surface water flooding.

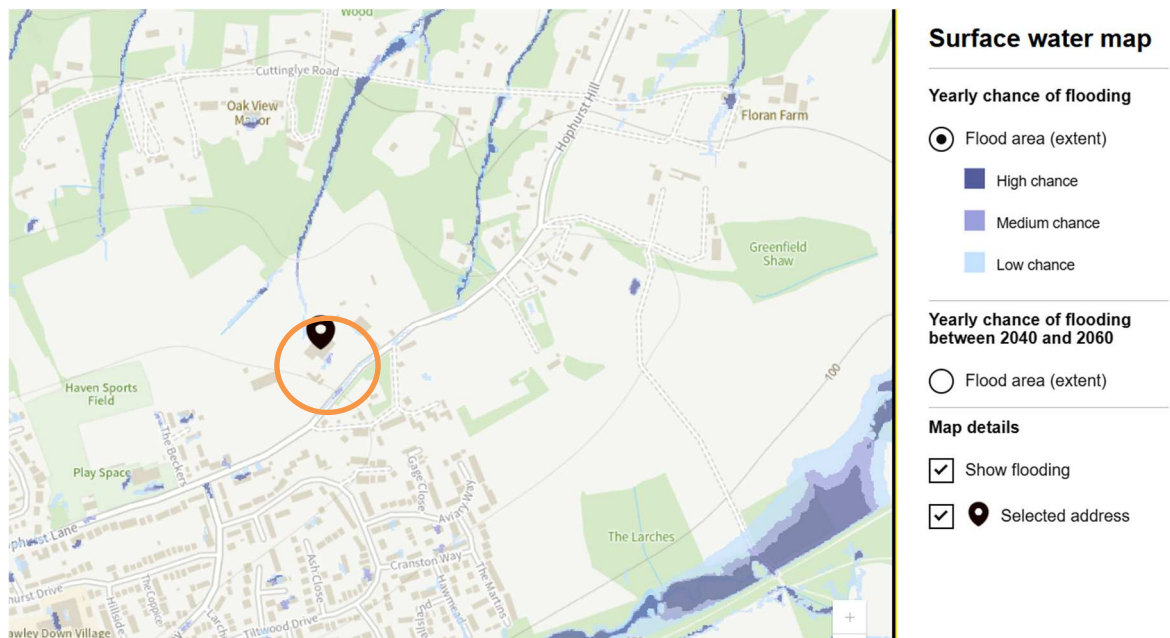


Figure 1: EA Flood Risk from Surface Water Map

5.4.5 There is no flooding shown within or near to the site.

5.4.6 Based on the EA's mapping, the local SFRA, historical data and local topography, the risk of surface water flooding to the site is considered to be very low.

5.5 Sewer/Drainage Flood Risk

5.5.1 Sewer flooding is often caused by excess surface water entering the drainage system when there is insufficient sewer capacity to cope with this excess water, but also due to 'one off' events such as blockages.

5.5.2 Southern Water is the statutory undertaker for the local public sewer network. The Southern water sewer records indicate no sewers within the area. However, a review of the local area

confirms there are sewers within the street. Details of these sewers will need to be confirmed via survey.

- 5.5.3 As the natural topography of the site falls away towards the street, this indicates that the site is at very low risk of sewer flooding.

5.6 Reservoir Flood Risk

- 5.6.1 The EA has produced a Reservoir Flood Map that indicates a very low risk of reservoir flooding at the site.

- 5.6.2 It should be emphasised that the risk of flooding from reservoir breach is very small since the EA is the enforcement authority for the Reservoirs Act (1975) and all large raised reservoirs are inspected and supervised by reservoir panel engineers.

- 5.6.3 On the basis there is considered to be a negligible risk of reservoir flooding to the site.

5.7 Summary of risk levels

- 5.7.1 Pre-development, the risk of flooding is summarised below.

Table 2: Flood Risk Categories

Source	Risk Category
Fluvial (Rivers and Sea)	Very Low
Coastal and tidal	Negligible
Groundwater	Very low
Surface water	Very low
Sewers	Very low
Reservoirs	Negligible

6 SITE DRAINAGE INFORMATION

6.1.1 The DEFRA Sustainable Drainage Systems Non-Statutory Technical Standards for Sustainable Drainage Systems and the National standards for sustainable drainage systems (SuDS) states that the following options must be considered for disposal of surface water runoff in order of preference:

- Collect for non-potable use
- Discharge to ground
- Discharge to a surface water body
- Discharge to a surface water sewer
- Discharge to a combined sewer

Collect for non-potable use

6.1.2 The potential for collection of surface water has been assessed through a review of the potential for reuse on this site.

As there are extensive green areas, it is proposed to install water butts to the buildings for rainwater reuse.

Discharge to Ground

6.1.3 The potential for surface water to discharge to ground has been assessed through a review of the likely ground conditions and possible infiltration structures.

6.1.4 The surface geology of this site is within an area generally underlain by impermeable grounds and so not suitable for infiltration. This will be confirmed via testing prior to detailed design and should infiltration prove to be possible, the design will be revised to suit.

Discharge to Surface Water Body

6.1.5 There are no watercourses near the site suitable for discharge of surface water.

Discharge to Surface Water Sewer/Combined Sewer

6.1.6 Discharge to the public sewer network should only be considered once all other options for draining surface water from the site have been exhausted.

6.1.7 It is proposed to connect to the sewer via the existing connections. There are a number of manholes located on site which will be surveyed to confirm the outfalls and whether the sewers are suitable for reuse.

6.2 Sustainable Drainage Systems (SuDS)

6.2.1 To maximise the potential use of SuDS at the site, a review has been undertaken as shown in Table 3 in accordance with the SuDS Hierarchy. This review highlights the components referenced in the SuDS Hierarchy and provides recommendations on whether the components could be incorporated into the development.

Table 3: SuDS Selection Based on the SuDS Hierarchy

Component	Recommendation
Green/Blue roofs	Whilst the use of green and blue roofs provides additional environmental benefits such as enhanced aesthetics and ecology, its exposure to wind and orientation must be considered. Access to undertake the construction and maintenance easily and safely is also a high priority. If feasible, depending on the roof design, a green/blue roof will provide water quality, biodiversity and aesthetic benefits to the site. Additionally, the green/blue roof/s will offer some attenuation for run-off, reducing volumes of run-off and in higher frequency events (i.e. 1 in 2 year storms) will result in no run-off for the building. The roofs are lightweight and not suitable for green roofs.
Basins and Ponds	Ponds and attenuation basins can provide overland storage of surface water whilst also providing additional biodiversity and aesthetic/amenity value. There is no space for a pond within the site.
Filter Strips and Swales	Swales are linear vegetated drainage features, which provide overland conveyance and storage of surface water whilst trapping sediments and hydrocarbons within run-off. They also create biodiverse areas for planting and habitat. Swales are not considered suitable for this site due to the urban setting restricting the availability of space.
Infiltration Devices	Infiltration devices can provide treatment through filtration of silt (and attached pollutants), settlement and retention of solids, adsorption of pollutants and biodegradation of organic pollutants, including petrol and diesel. Infiltration devices are unlikely to be suitable for the main drainage system due to the impermeable nature of the existing ground.
Permeable Paving	Whilst incorporating attenuation storage, permeable paving also provides treatment through filtration of silt (and attached pollutants), settlement and retention of solids, adsorption of pollutants and biodegradation of organic pollutants, including petrol and diesel. Tanked permeable paving is proposed for some external areas.
Tanked Systems	This is the least sustainable option in terms of the SuDS Hierarchy. However, the use of tanked systems would still be of benefit compared to traditional drainage systems as it does allow run-off to be slowed down to an acceptable discharge rate.

Component	Recommendation
	There is a single tank proposed for the site.
Other	Water Butts are proposed for the site

7 SURFACE WATER DRAINAGE DESIGN

7.1 Site Areas

7.1.1 The development area currently comprises existing buildings and parking areas. The existing and proposed areas are summarised below.

Table 4: Site Areas

Parameter	Existing (m2)	Existing (%)	Proposed (m2)	Proposed (%)
Impermeable area	2646	38	3892	56
Permeable area	4246	62	3000	44
Total area	6892	100	6892	100

7.1.2 It is assumed that the surface water runoff from the site currently drains to ground or the existing sewers.

7.2 Design Considerations

7.2.1 Consideration has been given to the following when calculating the proposed impermeable areas.

- The 2013 EA 'Rainfall Run-off Management for Developments' Report (SC030219) states that urban creep, the process of gradually increasing impermeable area within an urban area (through paving soft landscaped surfaces and constructed outbuildings etc), is an acknowledged issue. To include an allowance for urban creep, the impermeable area used in the drainage calculations has been increased by 10% in accordance with the recommendation made in SC030219.

7.2.2 The climate change allowance used in the Drainage Strategy is in line with updated EA guidance values published in February 2016 for increased rainfall intensities by 2115.

7.3 Existing Run-Off Rates

7.3.1 The existing run-off rates for a variety of return periods have been calculated using the Wallingford method.

7.3.2 The total site area is 6892 square metres and is 36% impermeable, resulting in an impermeable area of 2646 square metres. Taking conservative peak 1 year, 30 year and 100 year rainfall rates of 50mm/hr, 125mm/hr and 185mm/hr respectively, the maximum existing peak discharge rates have been calculated as follows.

Contributing Area (ha) x 1 yr Rainfall (mm/hr) x 2.78

2646/1000 x 50 x 2.78 = **36.8 l/s**

Contributing Area (ha) x 30 yr Rainfall (mm/hr) x 2.78

2646/1000 x 125 x 2.78 = **91.9 l/s**

Contributing Area (ha) x 100yr Rainfall (mm/hr) x 2.78

2646/1000 x 185 x 2.78 = **136.1 l/s**

7.4 Greenfield Run-Off Rates

7.4.1 The greenfield runoff rates have been calculated using the Wallingford method and are summarised below with calculations provided in Appendix B.

7.4.2 The discharge rates for the existing and proposed site are summarised below.

Table 5: Existing Greenfield Run-off Rates

Parameter	Greenfield Discharge (l/s)	Existing Discharge (l/s)	Proposed Discharge (l/s)
QBar	4.0	NA	NA
1 year	3.4	36.8	18
30 year	9.2	91.9	18
100 year	12.8	136.1	18
100 year +40%	NA	NA	18

7.4.3 Site discharge should be as close to greenfield values as possible. However as the site is mostly remaining as existing, with some extra hardstanding added, it is proposed to maintain most of the existing drainage system and add attenuation as required.

7.4.4 In accordance with best practice, outflow controls will be set to discharge at less than half the existing 1-year discharge rate and no more than 18 litres/second for all storm events up to and including the 100 year +40% climate change storm.

7.5 Flood Risk Reduction

7.5.1 As infiltration is assumed not possible on this site, reducing the post development run-off discharge rate to 18l/s is achieved through attenuation. Site discharge is via gravity to the existing sewer in the street.

7.5.2 By controlling run-off rates to less than existing and providing attenuation for all storm events up to and including a 1 in 100-year storm plus 40% climate change allowance, the risk of downstream flooding will be minimised.

7.5.3 Details of the drainage system and attenuation structures are presented in the design drawings and calculations in Appendix B.

7.5.4 Attenuation is provided in a below ground tank with a hydrobrake outlet to the existing sewer in the street. A total attenuation volume of approximately 160 cubic metres is proposed within a below ground tank to cater for the 100 year +40% storm event.

7.5.5 The calculations include an assessment of the attenuation for all storm events up to the 100-year storm +40% climate change.

7.6 Exceedance Flooding and Overland Flow

7.6.1 The area is not subject to overland flow routes or surface water flooding as discussed in the Flooding section above.

7.6.2 The drainage system has been designed to cater for the 1 in 100 year + 40% climate change storm. ie in this storm event all surface water will be collected on site and slowly released. Thus, the overland flow route will only be in use in the event of drainage network failure, storms in excess of the 1 in 100 year + 40% climate change storm or flows from offsite flowing through the site.

7.6.3 Due to the site levels falling away to the street, all overland flow will run through the site to the street or infiltrate into the ground. See overland flow plan in Appendix B.

7.7 Consents, Offsite Works and Diversions

7.7.1 The proposed surface water drainage strategy is accommodated totally on-site, with the only requirement for off-site works being the reuse of the existing connections to the sewers.

7.8 Maintenance

7.8.1 A SuDS maintenance plan has been prepared to outline the management of the potential SuDS features. The maintenance plan is provided in Appendix C.

8 DRAINAGE DURING CONSTRUCTION

8.1 Construction Run-off Management

- 8.1.1 Installing the surface water and foul drainage system, whilst managing temporary run-off, are key aspects of the construction works involved in any development. The information provided below is in accordance with the 'C698 Site handbook for the construction of SuDS' (CIRIA, 2007).
- 8.1.2 Please note that the measures recommended below are recommendations only and need to be confirmed at the construction stage by the client and the contractor.

8.2 Management of Construction (Including Drainage)

- 8.2.1 Drainage is typically an early activity in the construction stage of a development, taking form during the earthworks phase. However, final construction i.e. piped drainage system connections to the SuDS devices, should not take place until the end of site development work, unless a robust strategy for silt-removal is implemented prior to occupation of the site.
- 8.2.2 A plan for the management of construction (including phasing of works, details of any offsite works etc.) cannot be provided at this early stage, as construction work plans are not yet known. However, the following key points are general construction issues associated with SuDS which will be addressed when these plans are complete:
- Silt-laden waters from construction sites represent a common form of waterborne pollution;
 - These silt-laden waters cannot enter SuDS drainage systems unless specifically designed to accept this as it can clog the systems and pollute receiving waters. Therefore, piped drainage systems should not be connected to the attenuation SuDS devices until the late stages of construction.
 - Any gullies and piped systems should be capped off during construction and fully jetted and cleaned prior to connection to the attenuation SuDS devices.

8.3 Temporary Drainage During Construction

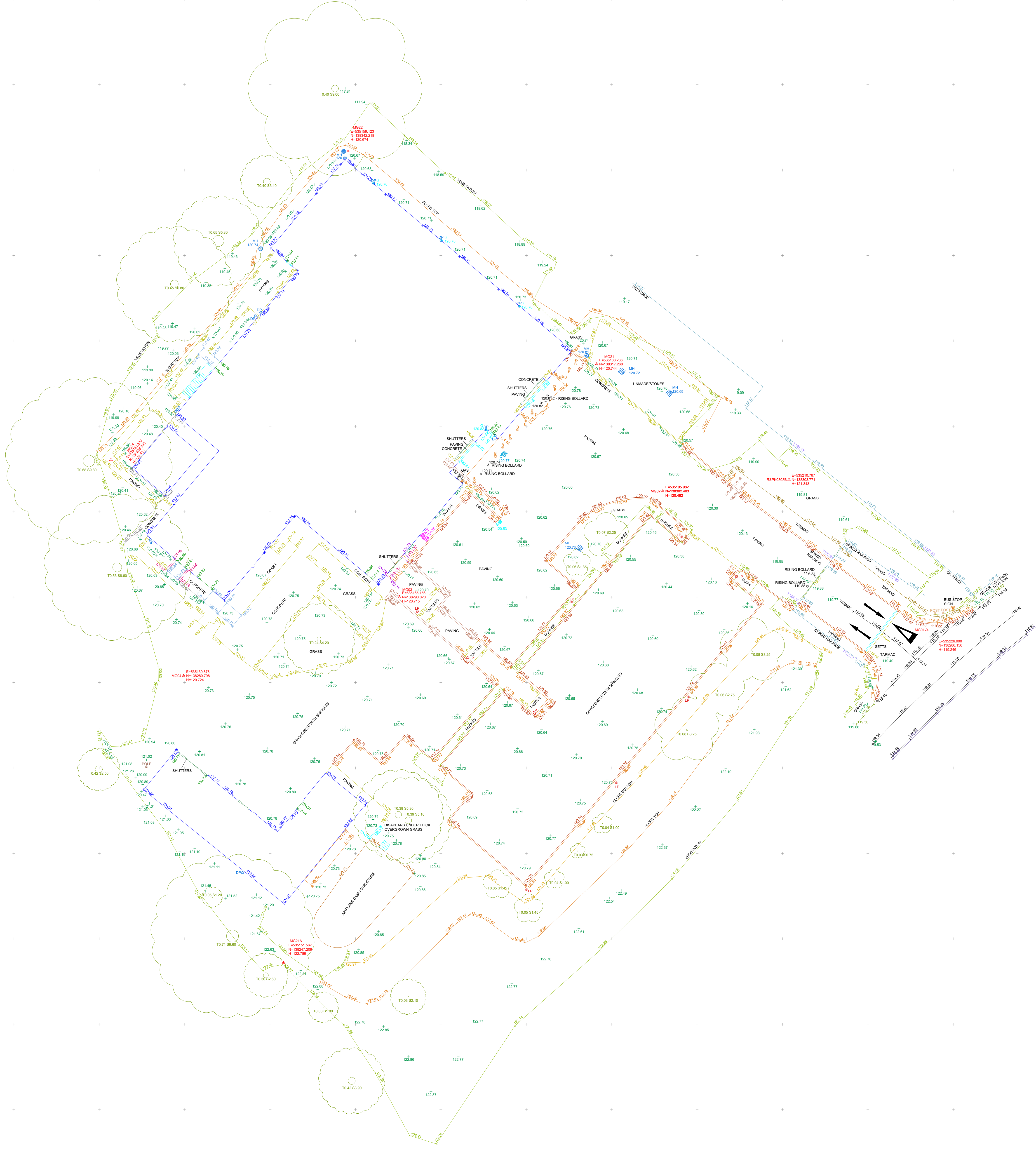
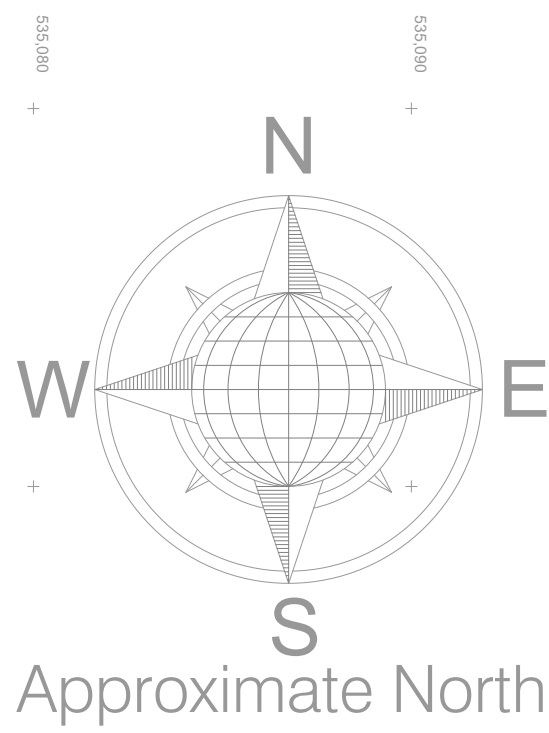
- 8.3.1 The three principal aspects of drainage control during construction are trapping sediment, conveying run-off, and controlling run-off.
- 8.3.2 Sediment traps and barriers can include basin traps and sediment fences (with any necessary boundary controls). The principal basins are to be installed after the construction site is accessed. Sediment fences and barriers will then be installed as needed during grading.
- 8.3.3 Conveyance of run-off can be achieved through small ditches/stream, storm drains, channels and sloped drains with sufficient inlet/outlet protection.
- 8.3.4 Slope stability needs to be considered when using any channels to convey run-off across the site into any basins etc.
- 8.3.5 Run-off control measures will need to be implemented in order not overwhelm the temporary system and cause flooding issues. Run-off rates from the site will be managed so they are no greater than pre-development or in keeping with the best practice guidance to minimise risk of blockage. Any additional conveyance measures are to be installed as needed during grading.

- 8.3.6 Run-off control to include provision of perimeter ditches or appropriate levels grading to direct any water from the construction site to remain on site.
- 8.3.7 Any necessary surface stabilisation measures are to be applied immediately on all disturbed areas where construction work is either delayed or incomplete.
- 8.3.8 Maintenance inspections are to be performed weekly, and maintenance repairs to be made immediately after periods of rainfall.

8.4 Protection of Drainage Infrastructure during Construction

- 8.4.1 All drainage infrastructure should be protected from damage by construction traffic and heavy machinery through the implementation of measures such as protective barriers, and storing construction materials away from the drainage infrastructure.

Appendix A: Proposed Development Details



LEGEND		
Topographic Linework Features		
Hand Rail	Hand Rail	Sky Light
Barrier	Hedge	Slope Bottom
Beam Line	Hoarding	Slope Top
Bench	Kerb Bottom	Slope Drain
Bin	Kerb Drop	Speed Bump
Bollard Illuminated	Kerb Top	Steel Cladding
Bollard	Lake	Steel Structure
Bridge	Land Drain	Step Line
Building Facade	Lift	Surface Change
Building	Opening - Slab	Tank
Bus Stop Shelter	Overhang	Telephone Box (TB)
Cable Trough	Overhead Cables	Ticket Machine(TVM)
Canopy	Parapet	Toilet
Ceiling Line	Partition	Top of Fence Line
Centre Line	Parking Meter (PM)	Top of Wall Line
Column	Pipe Line	Track
Column Bottom Line	Platform Train/Tram	Traffic Ctrl Box(TCB)
Column Top Line	Plinth	Tree Drip Line
Concrete Base/Slab	Pond	Tree Line
Contour Major	Post-box	Tree Pit
Contour Minor	Rail	Vegetation Line
Cycle Lane	Ramp	Vent
Ditch	Red Line Dashed	Verge Line
Door	Red Line Solid	Wall Line
Duct	Red Line Double	Window
Electric Box (EBOX)	River Edge	Window Glazing
Fence	Road Edge	White Line Dashed
Fixture	Road Scar Line	White Line Double
Flowerbed	Road Text	White Line Solid
Footpath	Road	Yellow Line Dashed
Grating	Sanitary	Yellow Line Double
Grid Line	Service	Yellow Line Solid

Topographic Point Features		
AV Air Valve	IC Inspection Cover	RS Road Sign
APIX Apex Building	ICATV IC - CATV	RE Rodding Eye
BL Bed Level	IC - Comms	SA Sector Antenna
BB Bellisha Beacon	ICE IC - Electric	SIGN Sign (General)
B Bollard	IC Round	SOFF Soffit Level
BOLT Bolt	IC - Telecom	SP Spot Height
BH Borehole	IC - Traffic	SC Stop Cock
BUSH Bush	IC - Traffic	TE Telegraph Pole
CC CCTV Camera Pole	IL Invert Level	T12.24 Top of Fence Level
CCE Ceiling Elevation	LI Lamp Post	T12.24 Top of Tree Level
CP Pipe	MA Manhole	T12.24 Top of Wall Level
EAR Earth Rod	MH - Foul	TL Traffic Light
EAVE Eave	MH - Round	Tree (TXXX SX-XX)
EP Electrical Pole	MH - Surface Water	Tree Deciduous
FI Fire Hydrant	MA Marker Post	Tree Trunk
FL Floor Level	MW Microwave Dish	Valve General
GA Gas Meter	POLE Pole - Down	WL Water Level
GV Gate	POLE Pole	WM Water Meter
G Gully	POST Post	WV Water Valve
GR Gully Round		

Special Features		
DATUM Datum Point	E=XXXXXXX Survey Station	
Photo Point	N=YYYYYYY	
Panoramic Photo Point	N=YYYYYYY Scan Target	

Fence Types		
B/W Barbed Wire	CL Chain Link	OB Open Boarded
C/B Close Boarded	H Heras	P/W Post and Wire
C/I Corrugated Iron	IR Iron Railings	P/R Post and Rail

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Revisions				
Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	OO - 18/08/2025	DA - 21/08/2025	IB - 21/08/2025



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London Manchester Birmingham Glasgow Belfast Cork Kildare

Client	MAA Architects
Project	Falcon Park (CAD)
Site Address	Hophurst Lane Crawley RH10 4XF
Description	Topographical Survey
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	1:200 @ A0
Drawing Number	MGS64795-T



P03 Issued for Planning 09/01/26 JG MA
P02 Issued for information 22/12/25 JG MA
P01 Issued for information 15/10/25 JG MA
Rev: Description: Date: Drw: Chk:

Scale 0m 2 5 10 20

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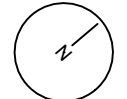
Client: Anthony Robinson

Project Name: Falcon Park

Drawing Title: Site & General Setting Out:
Proposed Site

Drawing Status: Stage 2 - Prelim Status Code: S0 Project No: WCL01 Scale at A1: 1:200

Drawing No: WCL01-MAA-02-XX-DG-A-0001 Revision: P03 Date: SEP 25 Scale at A3: 1:400



Appendix B: Drainage Drawings and Calculations

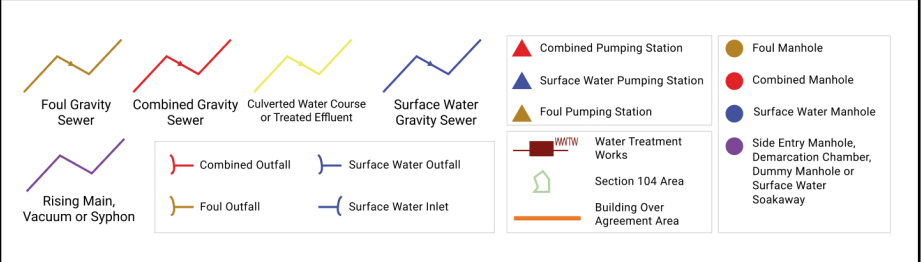


(c) Crown copyright and database rights 2026 Ordnance Survey AC0000808122 Date: 09/03/26 Scale: 1:1250 Map Centre: 535160,138313 Data updated: 22/02/26 Our Ref: 2052016 - 1 Wastewater Plan A3
Powered by digdat

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 2026 Ordnance Survey AC0000808122. 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.

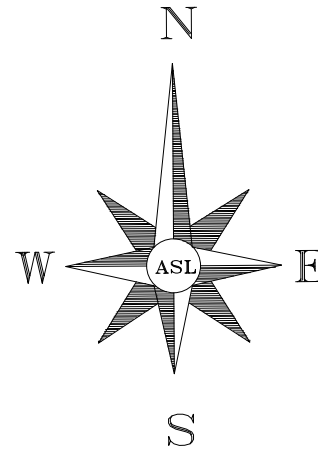
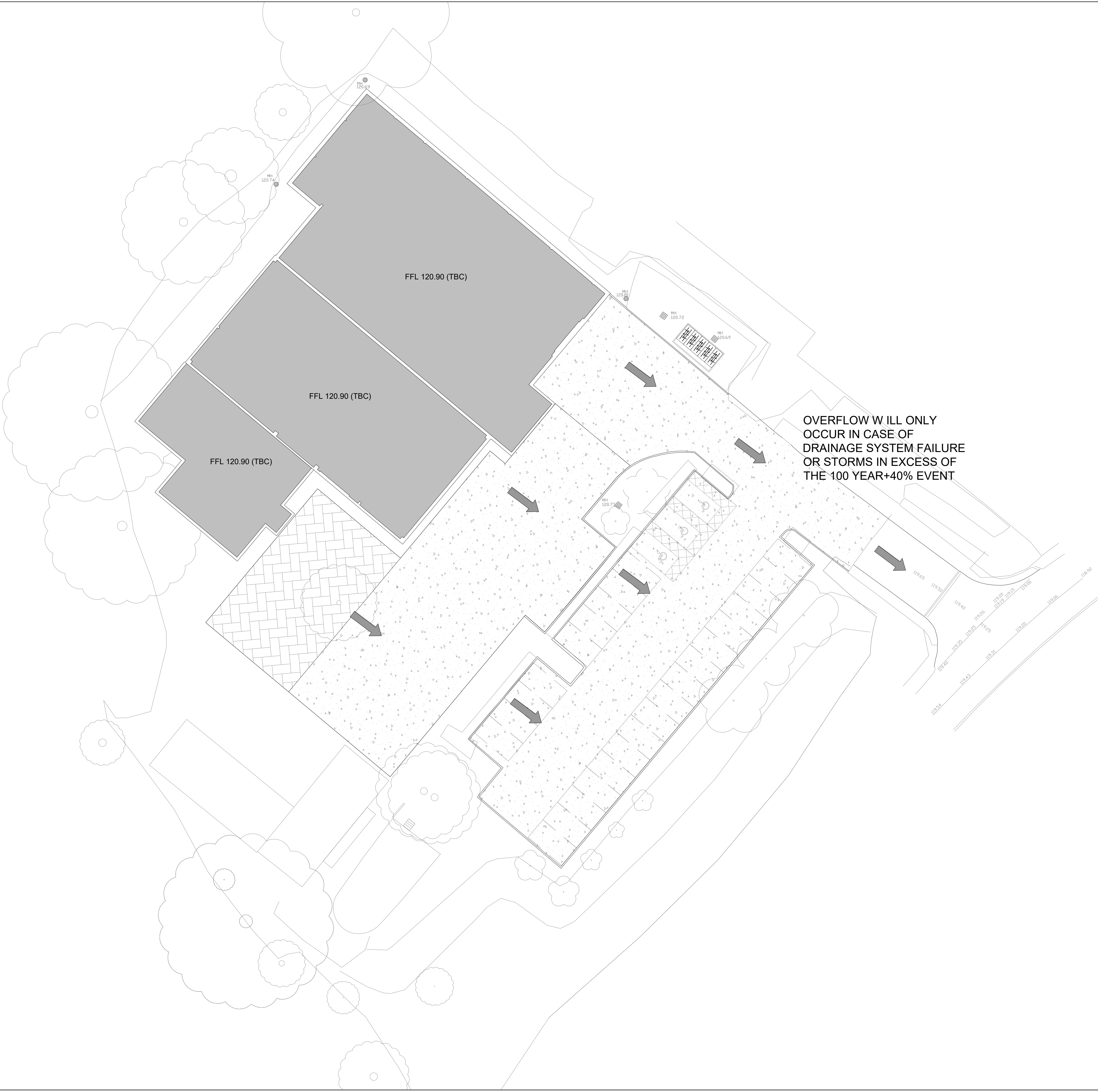
WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

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



andrew@wallaceengineering.co.uk
Falcon





Job. No.

P6883J3352

Rev.

DRAINAGE NOTES

1. THIS DRAWING IS FOR PLANNING ONLY AND IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT SERIES DESIGN DRAWINGS, SPECIFICATIONS AND DOCUMENTATION.

2. CONSTRUCTION TO BE IN ACCORDANCE WITH ALL BRITISH AND EUROPEAN STANDARDS AND BUILDING REGULATIONS.

3. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES ABOVE LOCAL DATUM.

4. ANY DISCREPANCIES IN THE DETAILS SHOWN ARE TO BE REPORTED TO THE EMPLOYER'S REPRESENTATIVE/ENGINEER PRIOR TO CONSTRUCTION.

5. ALL EXISTING SERVICES ARE TO BE LOCATED PRIOR TO THE COMMENCEMENT OF ANY WORKS. THE CONTRACTOR MUST NOTIFY THE ENGINEER IMMEDIATELY OF ANY CONFLICT WITH THE PROPOSED WORKS.

6. THE GENERAL SPECIFICATION OF MATERIALS AND WORKMANSHIPS FOR THE CONSTRUCTION OF THE ACCESS ROAD, FOOTPATHS AND OTHER AREAS OF HARDSTANDING SHALL BE THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, VOLUME 1, SPECIFICATION OF HIGHWAY WORKS (SHW) PUBLISHED BY THE STATIONARY OFFICE.

7. ALL RWP AND FO SHOWN ARE INDICATIVE ONLY AND SUBJECT TO APPROVAL AND SETTING OUT BY THE ARCHITECT.

8. UNLESS NOTED OTHERWISE, PIPES TO BE:
FOUL PIPES UNDER BUILDING #100#1:40,
FOUL PIPES EXTERNAL #100#1:80
SURFACE WATER PIPES #150#1:100

STORMWATER CONCEPT
LEGEND

Overland flow

Notes.

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Key dimensions to be checked by engineer before major structural works commence on site.

1. This survey has been computed and drawn about O S National Grid.

2. All levels are in metres and relate to O S National Datum by GPS instruments.

3. This survey was measured for a scale of 1:100, any subsequent enlargements should be verified on site.

Amendments

Rev	Date		By	Chkd

JOMAS

ENGINEERING
ENVIRONMENTAL

Jomas Associates Ltd.
Unit 24 Sarum Complex,
Salisbury Road,
Uxbridge, UB8 2RZ

Client

Matthew Allchurch
Architects

Project

Falcon Park, Hophurst Lane,
Crawley, RH10 4XF

Drawing

Proposed Overland Flow

Dwg no	Checked	Surveyor
C03	AW	NA
Date	13.03.26	Scale 1:200 @ A1
Job No.	P6883J3352	Rev. -
Grid	Contours	Level Datum

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	10	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	0.600
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Adoptable Manhole Type

Max Width (mm)	Diameter (mm)	Max Width (mm)	Diameter (mm)
374	1200	749	1500
499	1350	900	1800

>900 Link+900 mm

Max Depth (m)	Diameter (mm)	Max Depth (m)	Diameter (mm)
1.500	1050	99.999	1200

Circular Link Type

Template	Freeform Carrier	Auto Increment (mm)	75
Shape	Circular	Follow Ground	x
Barrels	1		

Available Diameters (mm)

100 | 150

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1			119.000	1200	100.000	100.000	1.000
2			119.700	1200	95.000	105.000	1.600
3	0.072	2.00	119.700	1800	93.000	108.000	1.500
4	0.072	2.00	120.700	1200	67.000	130.000	1.900
5	0.073	2.00	120.800	1200	62.000	135.000	1.300
6	0.073	2.00	120.800	1200	40.000	165.000	1.100
7	0.100	2.00	120.700	1200	27.000	135.000	1.200

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)
1.004	2	1	7.071	0.600	118.100	118.000	0.100	70.7	150	3.13	50.0
1.003	3	2	3.606	0.600	118.200	118.100	0.100	36.1	225	3.03	50.0
1.002	4	3	34.059	0.600	118.800	118.200	0.600	56.8	225	3.00	50.0
1.001	5	4	7.071	0.600	119.500	118.800	0.700	10.1	225	2.68	50.0
1.000	6	5	37.202	0.600	119.700	119.500	0.200	186.0	225	2.65	50.0
2.000	7	4	40.311	0.600	119.500	118.800	0.700	57.6	225	2.39	50.0

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)
1.004	1.197	21.2	52.9	1.450	0.850	0.390	0.0	150	1.219
1.003	2.185	86.9	52.9	1.275	1.375	0.390	0.0	127	2.289
1.002	1.739	69.1	43.1	1.675	1.275	0.318	0.0	129	1.831
1.001	4.140	164.6	19.8	1.075	1.675	0.146	0.0	52	2.815
1.000	0.955	38.0	9.9	0.875	1.075	0.073	0.0	78	0.804
2.000	1.727	68.6	13.6	0.975	1.675	0.100	0.0	67	1.347

Pipeline Schedule

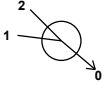
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.004	7.071	70.7	150	Circular	119.700	118.100	1.450	119.000	118.000	0.850
1.003	3.606	36.1	225	Circular	119.700	118.200	1.275	119.700	118.100	1.375
1.002	34.059	56.8	225	Circular	120.700	118.800	1.675	119.700	118.200	1.275
1.001	7.071	10.1	225	Circular	120.800	119.500	1.075	120.700	118.800	1.675
1.000	37.202	186.0	225	Circular	120.800	119.700	0.875	120.800	119.500	1.075
2.000	40.311	57.6	225	Circular	120.700	119.500	0.975	120.700	118.800	1.675

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.004	2	1200	Manhole	Adoptable	1	1200	Manhole	Adoptable
1.003	3	1800	Manhole	Adoptable	2	1200	Manhole	Adoptable
1.002	4	1200	Manhole	Adoptable	3	1800	Manhole	Adoptable
1.001	5	1200	Manhole	Adoptable	4	1200	Manhole	Adoptable
1.000	6	1200	Manhole	Adoptable	5	1200	Manhole	Adoptable
2.000	7	1200	Manhole	Adoptable	4	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	MH Type	Connections	Link	IL (m)	Dia (mm)	
1	100.000	100.000	119.000	1.000	1200	Adoptable		1	1.004	118.000	150
2	95.000	105.000	119.700	1.600	1200	Adoptable		1	1.003	118.100	225
								0	1.004	118.100	150
3	93.000	108.000	119.700	1.500	1800	Adoptable		1	1.002	118.200	225
								0	1.003	118.200	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	MH Type	Connections	Link	IL (m)	Dia (mm)
4	67.000	130.000	120.700	1.900	1200	Adoptable		2.000 1.001 1.002	118.800 118.800 118.800	225 225 225
5	62.000	135.000	120.800	1.300	1200	Adoptable		1.000	119.500	225
6	40.000	165.000	120.800	1.100	1200	Adoptable		1.001	119.500	225
7	27.000	135.000	120.700	1.200	1200	Adoptable		1.000	119.700	225
							0	2.000	119.500	225

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.750	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	0.840	Additional Storage (m³/ha)	0.0		

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 %)
1	0	10	0
30	0	10	0
100	0	10	0
100	40	10	0

Node 3 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	118.200	Product Number	CTL-SHE-0182-1800-1500-1800
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	18.0	Min Node Diameter (mm)	1800

Node 4 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	119.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	47

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	210.0	0.0	0.800	210.0	0.0	0.801	0.1	0.0

Approval Settings

Node Size	x	Proportional Velocity	x
Node Losses	x	Surcharged Depth	✓
Link Size	x	Return Period (years)	10
Link Length	x	Maximum Surcharged Depth (m)	0.100
Coordinates	x	Flooding	x
Crossings	x	Time to Half Empty	✓
Cover Depth	x	Return Period (years)	100
Backdrops	x	Discharge Rates	✓
Full Bore Velocity	x	Discharge Volume	x

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year +10% A 15 minute summer	64.487	18.248
1 year +10% A 15 minute winter	45.254	18.248
1 year +10% A 30 minute summer	41.108	11.632
1 year +10% A 30 minute winter	28.848	11.632
1 year +10% A 60 minute summer	27.306	7.216
1 year +10% A 60 minute winter	18.141	7.216
1 year +10% A 120 minute summer	21.645	5.720
1 year +10% A 120 minute winter	14.380	5.720
1 year +10% A 180 minute summer	18.098	4.657
1 year +10% A 180 minute winter	11.764	4.657
1 year +10% A 240 minute summer	14.875	3.931
1 year +10% A 240 minute winter	9.883	3.931
1 year +10% A 360 minute summer	11.674	3.004
1 year +10% A 360 minute winter	7.588	3.004
1 year +10% A 480 minute summer	9.218	2.436
1 year +10% A 480 minute winter	6.124	2.436
1 year +10% A 600 minute summer	7.522	2.057
1 year +10% A 600 minute winter	5.139	2.057
1 year +10% A 720 minute summer	6.666	1.787
1 year +10% A 720 minute winter	4.480	1.787
1 year +10% A 960 minute summer	5.414	1.426
1 year +10% A 960 minute winter	3.586	1.426
1 year +10% A 1440 minute summer	3.859	1.034
1 year +10% A 1440 minute winter	2.594	1.034
1 year +10% A 2160 minute summer	2.739	0.757
1 year +10% A 2160 minute winter	1.888	0.757
1 year +10% A 2880 minute summer	2.286	0.613
1 year +10% A 2880 minute winter	1.536	0.613
1 year +10% A 4320 minute summer	1.778	0.465
1 year +10% A 4320 minute winter	1.171	0.465
1 year +10% A 5760 minute summer	1.518	0.389
1 year +10% A 5760 minute winter	0.983	0.389
1 year +10% A 7200 minute summer	1.342	0.342
1 year +10% A 7200 minute winter	0.866	0.342
1 year +10% A 8640 minute summer	1.219	0.311
1 year +10% A 8640 minute winter	0.787	0.311
1 year +10% A 10080 minute summer	1.132	0.289
1 year +10% A 10080 minute winter	0.731	0.289
30 year +10% A 15 minute summer	253.641	71.772
30 year +10% A 15 minute winter	177.994	71.772

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
30 year +10% A 30 minute summer	165.360	46.791
30 year +10% A 30 minute winter	116.042	46.791
30 year +10% A 60 minute summer	110.300	29.149
30 year +10% A 60 minute winter	73.280	29.149
30 year +10% A 120 minute summer	69.870	18.464
30 year +10% A 120 minute winter	46.420	18.464
30 year +10% A 180 minute summer	53.663	13.809
30 year +10% A 180 minute winter	34.883	13.809
30 year +10% A 240 minute summer	42.092	11.124
30 year +10% A 240 minute winter	27.965	11.124
30 year +10% A 360 minute summer	31.407	8.082
30 year +10% A 360 minute winter	20.415	8.082
30 year +10% A 480 minute summer	24.147	6.381
30 year +10% A 480 minute winter	16.043	6.381
30 year +10% A 600 minute summer	19.344	5.291
30 year +10% A 600 minute winter	13.217	5.291
30 year +10% A 720 minute summer	16.902	4.530
30 year +10% A 720 minute winter	11.359	4.530
30 year +10% A 960 minute summer	13.413	3.532
30 year +10% A 960 minute winter	8.885	3.532
30 year +10% A 1440 minute summer	9.280	2.487
30 year +10% A 1440 minute winter	6.237	2.487
30 year +10% A 2160 minute summer	6.356	1.756
30 year +10% A 2160 minute winter	4.379	1.756
30 year +10% A 2880 minute summer	5.148	1.380
30 year +10% A 2880 minute winter	3.459	1.380
30 year +10% A 4320 minute summer	3.814	0.997
30 year +10% A 4320 minute winter	2.511	0.997
30 year +10% A 5760 minute summer	3.131	0.801
30 year +10% A 5760 minute winter	2.026	0.801
30 year +10% A 7200 minute summer	2.676	0.683
30 year +10% A 7200 minute winter	1.727	0.683
30 year +10% A 8640 minute summer	2.363	0.603
30 year +10% A 8640 minute winter	1.525	0.603
30 year +10% A 10080 minute summer	2.137	0.545
30 year +10% A 10080 minute winter	1.379	0.545
100 year +10% A 15 minute summer	320.546	90.703
100 year +10% A 15 minute winter	224.945	90.703
100 year +10% A 30 minute summer	211.163	59.752
100 year +10% A 30 minute winter	148.184	59.752
100 year +10% A 60 minute summer	141.717	37.452
100 year +10% A 60 minute winter	94.154	37.452
100 year +10% A 120 minute summer	88.806	23.469
100 year +10% A 120 minute winter	59.001	23.469
100 year +10% A 180 minute summer	68.256	17.565
100 year +10% A 180 minute winter	44.368	17.565
100 year +10% A 240 minute summer	53.687	14.188
100 year +10% A 240 minute winter	35.668	14.188
100 year +10% A 360 minute summer	40.309	10.373
100 year +10% A 360 minute winter	26.202	10.373
100 year +10% A 480 minute summer	31.170	8.237
100 year +10% A 480 minute winter	20.709	8.237

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year +10% A 600 minute summer	25.067	6.856
100 year +10% A 600 minute winter	17.127	6.856
100 year +10% A 720 minute summer	21.959	5.885
100 year +10% A 720 minute winter	14.758	5.885
100 year +10% A 960 minute summer	17.468	4.600
100 year +10% A 960 minute winter	11.571	4.600
100 year +10% A 1440 minute summer	12.058	3.232
100 year +10% A 1440 minute winter	8.104	3.232
100 year +10% A 2160 minute summer	8.185	2.262
100 year +10% A 2160 minute winter	5.640	2.262
100 year +10% A 2880 minute summer	6.564	1.759
100 year +10% A 2880 minute winter	4.411	1.759
100 year +10% A 4320 minute summer	4.758	1.244
100 year +10% A 4320 minute winter	3.133	1.244
100 year +10% A 5760 minute summer	3.830	0.981
100 year +10% A 5760 minute winter	2.479	0.981
100 year +10% A 7200 minute summer	3.224	0.823
100 year +10% A 7200 minute winter	2.081	0.823
100 year +10% A 8640 minute summer	2.810	0.717
100 year +10% A 8640 minute winter	1.814	0.717
100 year +10% A 10080 minute summer	2.514	0.641
100 year +10% A 10080 minute winter	1.622	0.641
100 year +40% CC +10% A 15 minute summer	448.764	126.985
100 year +40% CC +10% A 15 minute winter	314.922	126.985
100 year +40% CC +10% A 30 minute summer	295.628	83.652
100 year +40% CC +10% A 30 minute winter	207.458	83.652
100 year +40% CC +10% A 60 minute summer	198.404	52.432
100 year +40% CC +10% A 60 minute winter	131.815	52.432
100 year +40% CC +10% A 120 minute summer	124.329	32.856
100 year +40% CC +10% A 120 minute winter	82.601	32.856
100 year +40% CC +10% A 180 minute summer	95.559	24.590
100 year +40% CC +10% A 180 minute winter	62.116	24.590
100 year +40% CC +10% A 240 minute summer	75.162	19.863
100 year +40% CC +10% A 240 minute winter	49.936	19.863
100 year +40% CC +10% A 360 minute summer	56.433	14.522
100 year +40% CC +10% A 360 minute winter	36.683	14.522
100 year +40% CC +10% A 480 minute summer	43.638	11.532
100 year +40% CC +10% A 480 minute winter	28.992	11.532
100 year +40% CC +10% A 600 minute summer	35.094	9.599
100 year +40% CC +10% A 600 minute winter	23.978	9.599
100 year +40% CC +10% A 720 minute summer	30.742	8.239
100 year +40% CC +10% A 720 minute winter	20.661	8.239
100 year +40% CC +10% A 960 minute summer	24.455	6.440
100 year +40% CC +10% A 960 minute winter	16.199	6.440
100 year +40% CC +10% A 1440 minute summer	16.882	4.524
100 year +40% CC +10% A 1440 minute winter	11.345	4.524
100 year +40% CC +10% A 2160 minute summer	11.459	3.167
100 year +40% CC +10% A 2160 minute winter	7.896	3.167
100 year +40% CC +10% A 2880 minute summer	9.190	2.463
100 year +40% CC +10% A 2880 minute winter	6.176	2.463
100 year +40% CC +10% A 4320 minute summer	6.661	1.742
100 year +40% CC +10% A 4320 minute winter	4.387	1.742

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year +40% CC +10% A 5760 minute summer	5.362	1.373
100 year +40% CC +10% A 5760 minute winter	3.471	1.373
100 year +40% CC +10% A 7200 minute summer	4.514	1.152
100 year +40% CC +10% A 7200 minute winter	2.913	1.152
100 year +40% CC +10% A 8640 minute summer	3.934	1.004
100 year +40% CC +10% A 8640 minute winter	2.539	1.004
100 year +40% CC +10% A 10080 minute summer	3.519	0.898
100 year +40% CC +10% A 10080 minute winter	2.271	0.898

Results for 1 year +10% A Critical Storm Duration. Lowest mass balance: 97.41%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	1	35	118.106	0.106	18.0	0.0000	0.0000	OK
60 minute summer	2	35	118.222	0.122	18.0	0.1378	0.0000	OK
15 minute winter	3	11	119.029	0.829	37.5	2.1104	0.0000	SURCHARGED
15 minute winter	4	12	119.057	0.257	34.4	1.7539	0.0000	SURCHARGED
15 minute summer	5	9	119.550	0.050	17.8	0.0562	0.0000	OK
15 minute summer	6	9	119.778	0.078	8.9	0.0884	0.0000	OK
15 minute summer	7	9	119.564	0.064	12.1	0.0719	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)
60 minute summer	2	1.004	1	18.0	1.254	0.851	0.1012	23.1
15 minute winter	3	Hydro-Brake®	2	18.0				
15 minute winter	4	1.002	3	29.8	0.896	0.431	1.3546	
15 minute summer	5	1.001	4	17.7	1.323	0.108	0.1590	
15 minute summer	6	1.000	5	8.9	0.959	0.234	0.3483	
15 minute summer	7	2.000	4	12.1	0.834	0.176	0.9467	

Results for 30 year +10% A Critical Storm Duration. Lowest mass balance: 99.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	1	176	118.106	0.106	18.0	0.0000	0.0000	OK
60 minute winter	2	20	118.222	0.122	18.0	0.1378	0.0000	OK
30 minute winter	3	28	119.282	1.082	30.2	2.7546	0.0000	SURCHARGED
30 minute winter	4	30	119.305	0.505	98.3	51.4561	0.0000	SURCHARGED
15 minute summer	5	9	119.617	0.117	69.9	0.1327	0.0000	OK
15 minute summer	6	9	119.875	0.175	34.9	0.1976	0.0000	OK
15 minute summer	7	9	119.637	0.137	47.8	0.1550	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)
60 minute winter	2	1.004	1	18.0	1.254	0.851	0.1012	105.1
30 minute winter	3	Hydro-Brake®	2	18.0				
30 minute winter	4	1.002	3	24.0	0.864	0.348	1.3546	
15 minute summer	5	1.001	4	69.5	2.012	0.422	0.2146	
15 minute summer	6	1.000	5	35.0	1.285	0.923	1.0047	
15 minute summer	7	2.000	4	47.8	1.321	0.696	1.3118	

Results for 100 year +10% A Critical Storm Duration. Lowest mass balance: 99.29%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	1	92	118.106	0.106	18.0	0.0000	0.0000	OK
240 minute winter	2	92	118.222	0.122	18.0	0.1378	0.0000	OK
60 minute winter	3	54	119.397	1.196	28.3	3.0451	0.0000	SURCHARGED
60 minute winter	4	56	119.422	0.622	78.1	74.9750	0.0000	SURCHARGED
15 minute summer	5	9	119.645	0.145	86.7	0.1639	0.0000	OK
15 minute summer	6	9	119.956	0.256	44.1	0.2895	0.0000	SURCHARGED
15 minute summer	7	9	119.682	0.182	60.4	0.2053	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)
240 minute winter	2	1.004	1	18.0	1.254	0.851	0.1012	204.0
60 minute winter	3	Hydro-Brake®	2	18.0				
60 minute winter	4	1.002	3	22.7	0.773	0.329	1.3546	
15 minute summer	5	1.001	4	85.5	2.324	0.519	0.2361	
15 minute summer	6	1.000	5	42.6	1.347	1.122	1.2423	
15 minute summer	7	2.000	4	59.4	1.521	0.866	1.4937	

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 98.55%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute summer	1	208	118.106	0.106	18.0	0.0000	0.0000	OK
60 minute summer	2	15	118.222	0.122	18.0	0.1378	0.0000	OK
60 minute winter	3	57	119.631	1.431	24.4	3.6417	0.0000	FLOOD RISK
60 minute winter	4	58	119.660	0.860	114.0	122.7138	0.0000	SURCHARGED
15 minute summer	5	9	119.836	0.336	118.1	0.3798	0.0000	SURCHARGED
15 minute summer	6	9	120.359	0.659	61.7	0.7452	0.0000	SURCHARGED
15 minute summer	7	9	120.405	0.905	84.6	1.0235	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	2	1.004	1	18.0	1.254	0.851	0.1012	168.9
60 minute winter	3	Hydro-Brake®	2	18.0				
60 minute winter	4	1.002	3	19.2	0.845	0.278	1.3546	
15 minute summer	5	1.001	4	115.2	2.896	0.700	0.2812	
15 minute summer	6	1.000	5	56.4	1.419	1.485	1.4796	
15 minute summer	7	2.000	4	81.4	2.047	1.186	1.6032	

Appendix C: Maintenance Report

WE LISTEN, WE PLAN, WE DELIVER

Geotechnical Engineering and Environmental Services across the UK

DRAINAGE MAINTENANCE PLAN

Falcon Park, Hophurst Lane, Crawley, RH10 4XF

Report Title: Drainage Maintenance Report for Falcon Park, Hophurst Lane, Crawley, RH10 4XF

Report Status: Final

Job No: P6883J3352

Date: March 2026

Control: Previous Release

Version	Date	Issued By
V1.0	13/03/2026	A Wallace

Prepared by: JOMAS ASSOCIATES LTD **For:** Matthew Allchurch Architects

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1.1 General

1.1.1 Sustainable Drainage Systems (SuDS) are an environmentally friendly approach to managing rainfall. SuDS techniques use landscape features to deal with surface water with the aim to:

- Control the flow, volume and frequency of water leaving a development.
- Prevent pollution by intercepting silt and cleaning runoff from hard surfaces.
- Provide attractive surroundings for the community.

1.1.2 The surface water drainage strategy for this development utilises below ground tanks and permeable paving as the main SUDS features. The following sections provides a brief description of these features and outlines the maintenance programme that should be adopted.

1.2 Cleaning of the Drainage System

1.2.1 Drainage systems should be inspected at regular intervals and where necessary, thoroughly cleaned out at the same time. Any defects discovered should be made good.

1.2.2 The following operations should be carried out during the periodic cleaning of a drainage system.

Table 1: Drainage Maintenance

Product Type	Period	Responsibility	Maintenance Methods
Silt Trap	As necessary and before wet season	Maintenance Company	• Sediment and debris that accumulated during summer needs to be removed before the wet season. • Inspect and clean out routinely prior to inlet pipework to minimise debris reaching the tank. • Conduct inspections more frequently during the wet season for the area where sediment or trash accumulates more often. Clean and repair as needed.
Standard Manholes/ Inspection Chambers	As necessary	Maintenance Company	• Remove and clean any soil and vegetation that covers the manhole cover to prevent blockage of the drainage system at the manhole. • Renew/replace any damaged/missing bolts and damaged/missing manhole covers.
Drainage Pipes	Six monthly interval	Maintenance Company	• Inspect underground drainage pipes to ensure that the distribution pipework arrangement is operational and free from blockages. If required, take remedial action.

Product Type	Period	Responsibility	Maintenance Methods
Attenuation Tank			• Inspection/check of all inlets to ensure that they are in good condition and operating as designed. • Debris removal from catchment surface (where may cause risks to performance). • Conduct inspections more frequently during the wet season for the area where sediment or trash accumulates more often. Clean and repair as needed.
Flow Control	As required	Maintenance Company	• Inspection/check of all inlets to ensure that they are in good condition and operating as designed. • Debris removal from catchment surface (where may cause risks to performance). • Renew/replace any damaged/missing bolts and damaged/missing manhole covers. • Conduct inspections more frequently during the wet season for the area where sediment or trash accumulates more often. Clean and repair as needed.
Permeable Paving	As required	Maintenance Company	• Inspect the roof after any precipitation to ensure no displacement of any debris onto the surface.
	As Required		• Inspect the paving after any precipitation to ensure no displacement of any organic matter onto the surface of the pavement.
	Six monthly		• Agitate (e.g. brush, vacuum, etc.) the block paving to ensure no vegetation of any sort is allowed to grow and develop in the joints (where may affect performance).

1.3 Sketches and Plans

- 1.3.1 The locations of the above features can be found by examining Drawing P6883J3352-C01

1.4 Maintenance Checklist

- 1.4.1 As well as the above checklist, the below Inspection Regime should be completed on a 6 monthly basis and the above inspection checklist table updated as required.

Inspection date								
	Details	Y/N	Action required	Date completed	Details	Y/N	Action required	Date Completed
General inspection items								
Is there any evidence of erosion, channelling, ponding (where not desirable) or other poor hydraulic performance?								
Is there any evidence of accidental spillages, oils, poor water quality, odours or nuisance insects?								
Have any health and safety risks been identified to either the public or maintenance operatives?								
Is there any deterioration in the surface of permeable or porous surfaces (eg rutting, spreading of blocks or signs of ponding water)?								

Silt/sediment accumulation								
Is there any sediment accumulation at inlets (or other defined accumulation zones such as the surface of filter drains or infiltration basins and within proprietary devices)? If yes, state depth (mm) and extent. Is removal required? If yes, state waste disposal requirements and confirm that all waste management requirements have been complied with (consult environmental regulator)								

Is surface clogging visible (potentially problematic where water has to soak into the underlying construction or ground (eg underdrained swale or infiltration basin)?								
Does permeable or porous surfacing require sweeping to remove silt?								
System blockages and litter build-up								
Is there evidence of litter accumulation in the system? If yes, is this a blockage risk?								
Is there any evidence of any other clogging or blockage of outlets or drainage paths?								
Vegetation								
Is the vegetation condition satisfactory (density, weed growth, coverage etc)? (Check against approved planting regime.)								
Does any part of the system require weeding, pruning or mowing? (Check against maintenance frequency stated in approved design.)								
Is there any evidence of invasive species becoming established? If yes, state action required								

Infrastructure								
Are any check dams or weirs in good condition?								
Is there evidence of any accidental damage to the system (eg wheel ruts?)								
Is there any evidence of cross connections or other unauthorised inflows?								
Is there any evidence of tampering with the flow controls?								
Are there any other matters that could affect the performance of the system in relation to the design objectives for hydraulic, water quality, biodiversity and visual aspects? (Specify.)								
Other observations								
Information appended (eg photos)								
Suitability of current maintenance regime								
Continue as current Increase maintenance Decrease maintenance								
Next inspection								
Proposed date for next inspection								

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Geotechnical Engineering and Environmental Services across the UK



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