

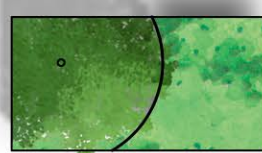


APPENDIX H: PROPOSED PLANNING LAYOUT

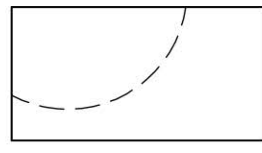
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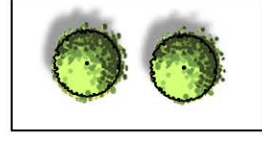
KEY & NOTES



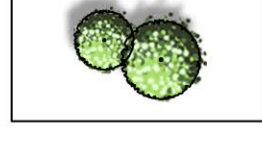
Existing Trees & Vegetation to be Retained
Refer to drawings and report by Iain Tavendale for further information



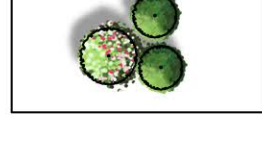
Trees to be Removed
Refer to drawings and report by Iain Tavendale for further information



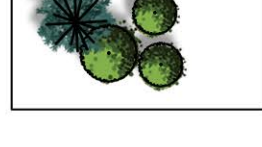
Proposed Avenue Trees
Pyrus calleryana 'Chanticleer' or similar appropriate street tree
16-18cm Extra Heavy Standard



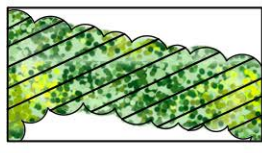
Proposed Street and Front Garden Trees
Mix of appropriate 12-14cm Heavy Standard native and ornamental tree species to include:
Acer campestre 'Elegant'
Betula albosinensis 'Fascination'
Crataegus prunifolia 'Splendens'
Gleditsia triacanthos 'Sunburst'
Robinia pseudoacacia 'Bessoniana'
Sorbus aria 'Lutescens'
Sorbus aucuparia
Sorbus 'Joseph Rock'



Proposed Back Garden Trees
Mix of appropriate 12-14cm Heavy Standard native and ornamental species to include:
Amelanchier lamarkii
Crataegus prunifolia 'Splendens'
Magnolia stellata
Prunus 'Tai Haku'
Prunus 'Charles Sargentii'
Sorbus vilmorinii



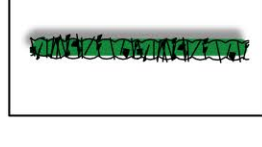
Proposed Native Species Trees
Mix of appropriate 12-14cm Heavy Standard (Pines to be 2-2.5m high) native species trees to include:
Acer campestre
Betula pendula
Malus sylvestris
Quercus robur
Pinus sylvestris
Sorbus aucuparia



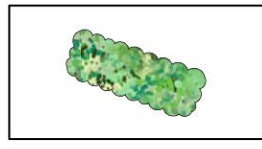
Proposed Native Understorey/Scrub Mix
To be a mix of appropriate 60-80cm bareroot native scrub species to include:
Crataegus monogyna
Corylus avellana
Ilex aquifolium
Rosa canina
Rubus fruticosus
Viburnum opulus



Proposed Ornamental Hedge
Ornamental hedgerows to properties to be 90-120cm bareroot Fagus sylvatica (Beech) or similar



Proposed Native Species Hedge
Mix of appropriate 60-80cm bareroot native species to include:
Crataegus monogyna
Corylus avellana
Prunus spinosa
Ilex aquifolium
Viburnum opulus



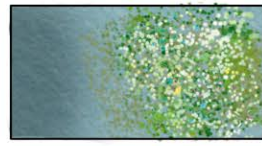
Proposed Ornamental Shrub Planting
Plants to be selected from a palette of appropriate ornamental/amenity species using a mix of 3lt, 5lt and 10lt cg plants



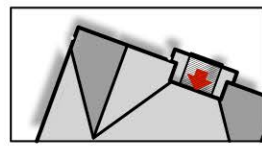
Proposed Amenity Grass



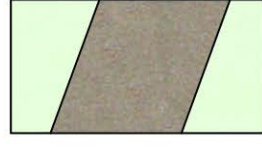
Proposed Wildflower Meadow
To be seeded with species rich wildflower meadow such as Emorsgate EM1 General Purpose Meadow Mix or similar



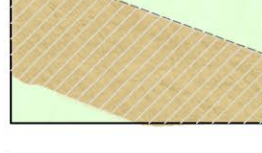
Proposed SuDS Pond with Wet Meadow
To be seeded with species rich meadow such as Emorsgate EM8 Meadow Mixture for Wetlands or similar



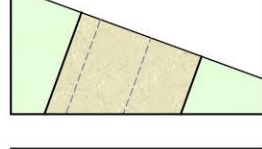
Proposed Houses



Proposed Roads



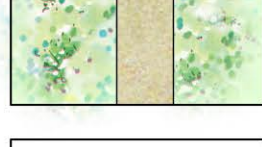
Proposed Shared Access Surfacing



Proposed Driveways



Proposed Paths and Patios



Proposed Pedestrian/Cycle Tracks
3m wide to enable maintenance vehicles (occasional) access to the ponds - Paths to be surfaced with compacted gravel.



Proposed Fences



Easement to Existing Power Lines

APPENDIX I: SURFACE WATER RUN-OFF CALCULATIONS

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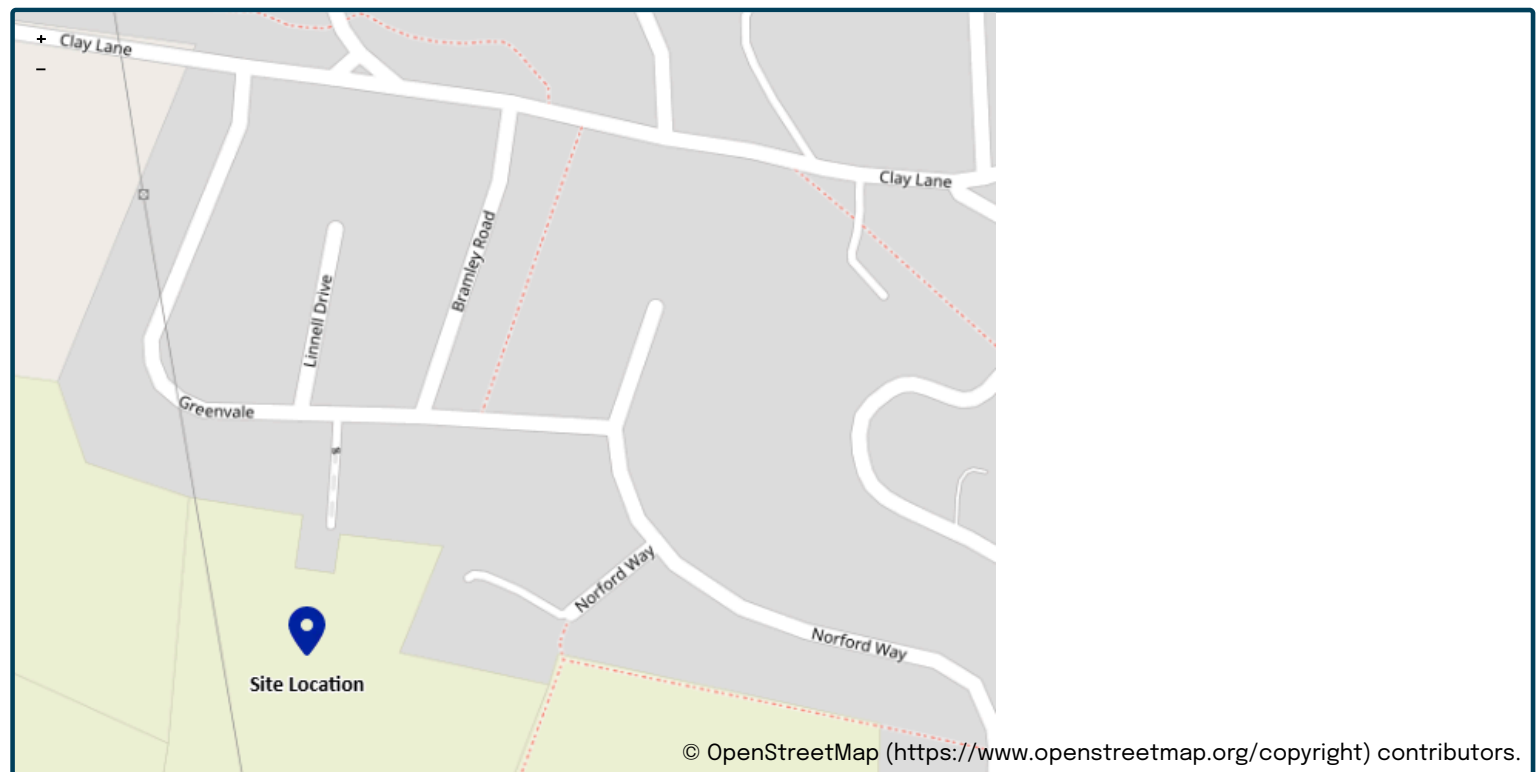
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	24/03/2025
Calculated by	
Reference	
Model version	0.6.5

Location

Site name	Greenvale
Site location	Bamford



Site easting	386026
Site northing	413446

Site details

Total site area (ha)	1	ha
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Greenfield runoff

Method

Method	FEH statistical
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FEH statistical

	<u>My value</u>		<u>Map value</u>
SAAR (mm)	1174	mm	1157
BFIHOST	0.531		
QMed-QBar conversion	1.075		1.075
QMed (l/s)	7.84	l/s	
QBar (FEH statistical) (l/s)	8.4	l/s	

Growth curve factors

	<u>My value</u>		<u>Map value</u>
Hydrological region	10		10
1 year growth factor	0.87		
2 year growth factor	0.93		
10 year growth factor	1.38		
30 year growth factor	1.7		
100 year growth factor	2.08		
200 year growth factor	2.37		

Results

Method	FEH statistical	
Flow rate 1 year (l/s)	7.3	l/s
Flow rate 2 year (l/s)	7.8	l/s
Flow rate 10 years (l/s)	11.6	l/s
Flow rate 30 years (l/s)	14.3	l/s
Flow rate 100 years (l/s)	17.5	l/s
Flow rate 200 years (l/s)	20	l/s

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (0.6.5) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>).

The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

SURFACE WATER RUN-OFF CALCULATION SHEET



Development	Greenvale, Bamford
Project No.	HYD883

Revision	B	Completed by	SM
Date	02/12/2024	Checked by	HB

Areas			
Total Site	2.695	ha	
Development Area ¹	2.274	ha	
Existing Impermeable		ha	
Existing Impermeable ²		ha	
Existing Pervious	2.695	ha	
Existing Pervious ²	0.000	ha	
Proposed total impermeable	1.478	ha	65%
*55% impermeable Post-Dev. + 10% Allowance For Urban Creep			

Catchment Characteristics			
SAAR	1174	mm	
SPR	0.367	est. Using BFI	
BFI	0.531		
i ₁	17.8	mm/hr	d ₁ 26.4 mm
i ₃₀	33.1	mm/hr	d ₃₀ 51.4 mm
i ₁₀₀	42.6	mm/hr	d ₁₀₀ 63.5 mm

Run-off Rates-FEH Method			
Pre-development			
Impermeable -----	1yr	0.0	l/s
	30yr	0.0	l/s
	100yr	0.0	l/s
	50mm/hr ³	0.0	l/s
Pervious ⁴ -----	1yr	16.6	l/s
	30yr	32.5	l/s
	100yr	39.8	l/s
	QBar ⁵	17.7	l/s
Total -----	1yr	16.6	l/s
	30yr	32.5	l/s
	100yr	39.8	l/s
Post-development (without control)			
Impermeable ⁶ -----	1yr	73.1	l/s
	30yr	135.9	l/s
	100yr+45%CC	253.6	l/s

Volumes			
Pre-development			
Impermeable -----	1yr	0.0	cu.m
	30yr	0.0	cu.m
	100yr	0.0	cu.m
Pervious ⁴ -----	1yr	225.4	cu.m
	30yr	446.3	cu.m
	100yr	603.3	cu.m
Total -----	1yr	225.4	cu.m
	30yr	446.3	cu.m
	100yr	603.3	cu.m
Post-development			
Impermeable ⁶ -----	1yr	390.5	cu.m
	30yr	759.2	cu.m
	100yr	937.9	cu.m

Stormwater Storage Estimates				
Based on Greenfield run-off QBar				
Microdrainage Quick Storage Estimates (using FEH catchment data)				
Return Period	Rate	lower	upper	mean
1yr	17.7 l/s	154	312	233 cu.m
30yr	17.7 l/s	438	693	565.5 cu.m
100yr+45%CC	17.7 l/s	1024	1670	1347 cu.m

1/ The 'development area' removes areas of POS and/or landscaped areas of the wider site that are to remain as existing.
 2/ On occasion the existing impermeable area cannot be evidenced to connect and a reduction is applied.
 3/ 50mm/hr is used for BRE calculations and often used by Water Companies when considering allowable post-development rates of discharge. (Rational Method)
 4/ The Greenfield rates and of run-off have been calculated using the UK SUDS Calculator
 5/ QBar is the estimated flood flow for the 2.33yr return period event and is often used as a post-development rate restriction.
 6/ Post-development run-off is only considered from the impermeable area when the proposed post-development impermeable area >50% in accordance with the EA Guidance Preliminary rainfall runoff management for developments (W5-074/A/TR1/1 rev E (2012)).

NB. The catchment characteristics are from the FEH catchment, the UK SUDS Calculator and Microdrainage.
 NB. The rainfall intensities and depths are calculated for the 6hr duration rainfall event (peak summer intensity)