

P e l l F r i s c h m a n n

Land South of Adisham Station

Flood Risk & Drainage Statement

Project	Land South of Adisham Station
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Date	23/05/2024

1 Introduction

1.1 Scope of Report

- 1.1.1 Pell Frischmann has been appointed by The Church Commissioners for England to undertake an initial flood risk and drainage appraisal for a proposed development located at The Land South of Adisham Station.
- 1.1.2 The purpose of this Flood Risk and Drainage Statement (FRDS) is to review freely available information and provide an overview of flood risk and drainage constraints across the site from a range of sources. The work is predominately a qualitative assessment of risk using readily available data at the time of producing the report and may therefore be subject to change in the future.
- 1.1.3 The report also outlines surface water drainage requirements for a proposed development to ensure the quantum of development can be delivered alongside a sustainable surface water drainage strategy that adheres to current policy and best practice at the time of production.
- 1.1.4 Given the early stage of the proposals, no consultation has yet been carried out with key stakeholders to confirm or agree any principles of the mitigation measures proposed, the advice contained within is based on prevailing national and local guidance and best practice at the time of production.

1.2 Site Context

- 1.2.1 The site is located to the north of Aylesham, and to the east of Adisham.
- 1.2.2 The site and it's surrounds are predominantly agricultural in nature. The B2046 (Adisham Road) runs along the eastern boundary of the site, with Adisham Train Station and Station Road to the northern boundary. Cooting Lane bisects the site and serves a number of existing properties adjacent to the site boundary. To the west of the development land sits the main habitable area of Adisham which is served by The Street.
- 1.2.3 In total, the site covers approximately 41ha, a site location plan is included for reference as **Figure 1.1**.

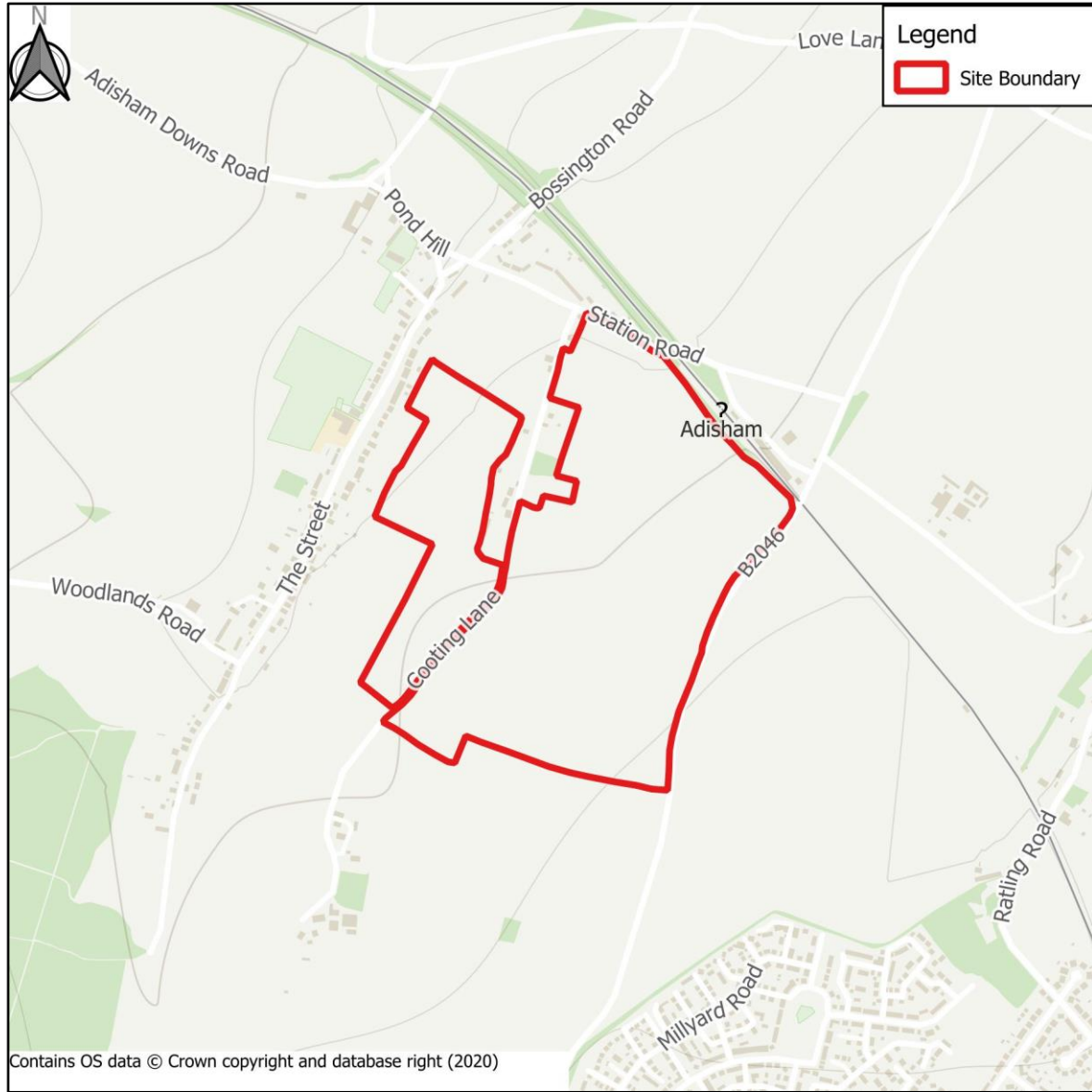


Figure 1.1 Site Location Plan

2 Flood Risk to the Site

2.1 Context

2.1.1 This section will review the freely available data and provide a brief overview of any flood risk issues identified that may impact the site. Where appropriate, any considerations for potential future development will be outlined, including potential mitigation measures.

2.2 Fluvial Flood Risk

2.2.1 The Environment Agency (EA) has produced a resource known as the Flood Map for Planning, which identifies areas at risk of flooding from Main Rivers and the sea. The proposed site is shown to be wholly within Flood Zone 1, which the National Planning Policy Framework (NPPF) defines as land assessed as having a less than 1 in 1,000 annual probability of flooding from rivers or the sea (<0.1%). The nearest extent of Flood Zones 2 & 3 are found approximately 3km to the north of the site boundary.

2.2.2 In accordance with the NPPF, land in Flood Zone 1 is considered sequentially preferable in terms of flooding risk, as all land use types are suitable within Flood Zone 1.

2.2.3 An extract of this mapping is included for reference as **Figure 2.1**.

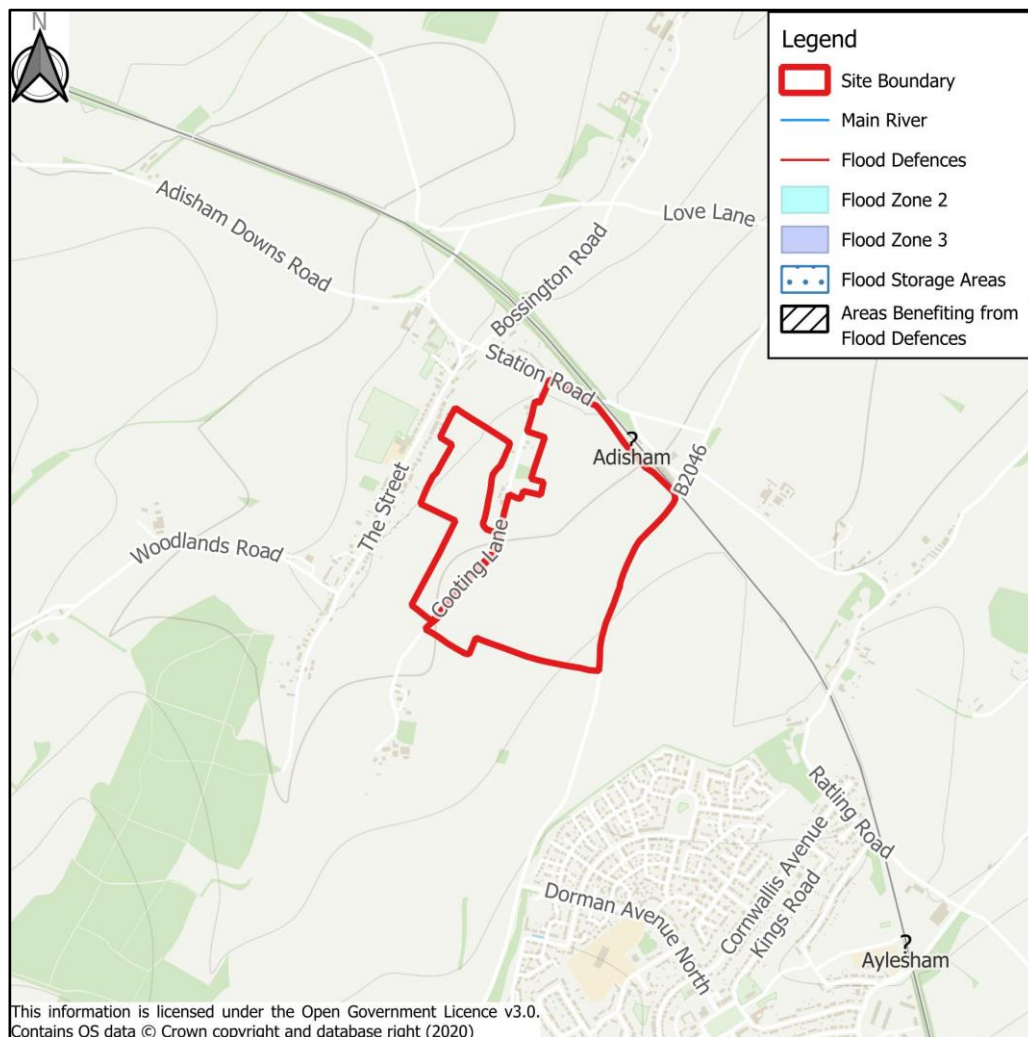


Figure 2.1 Flood Zones

2.2.4 Therefore, it is considered that the site is at low risk of flooding from fluvial sources.

2.3 Risk of Flooding from Surface Water

2.3.1 The risk of flooding from surface water has been mapped by the Environment Agency on a strategic scale to understand areas that may be susceptible to ponding and routing of surface water during periods of extreme rainfall. An extract of this mapping is included for reference as **Figure 2.2**.

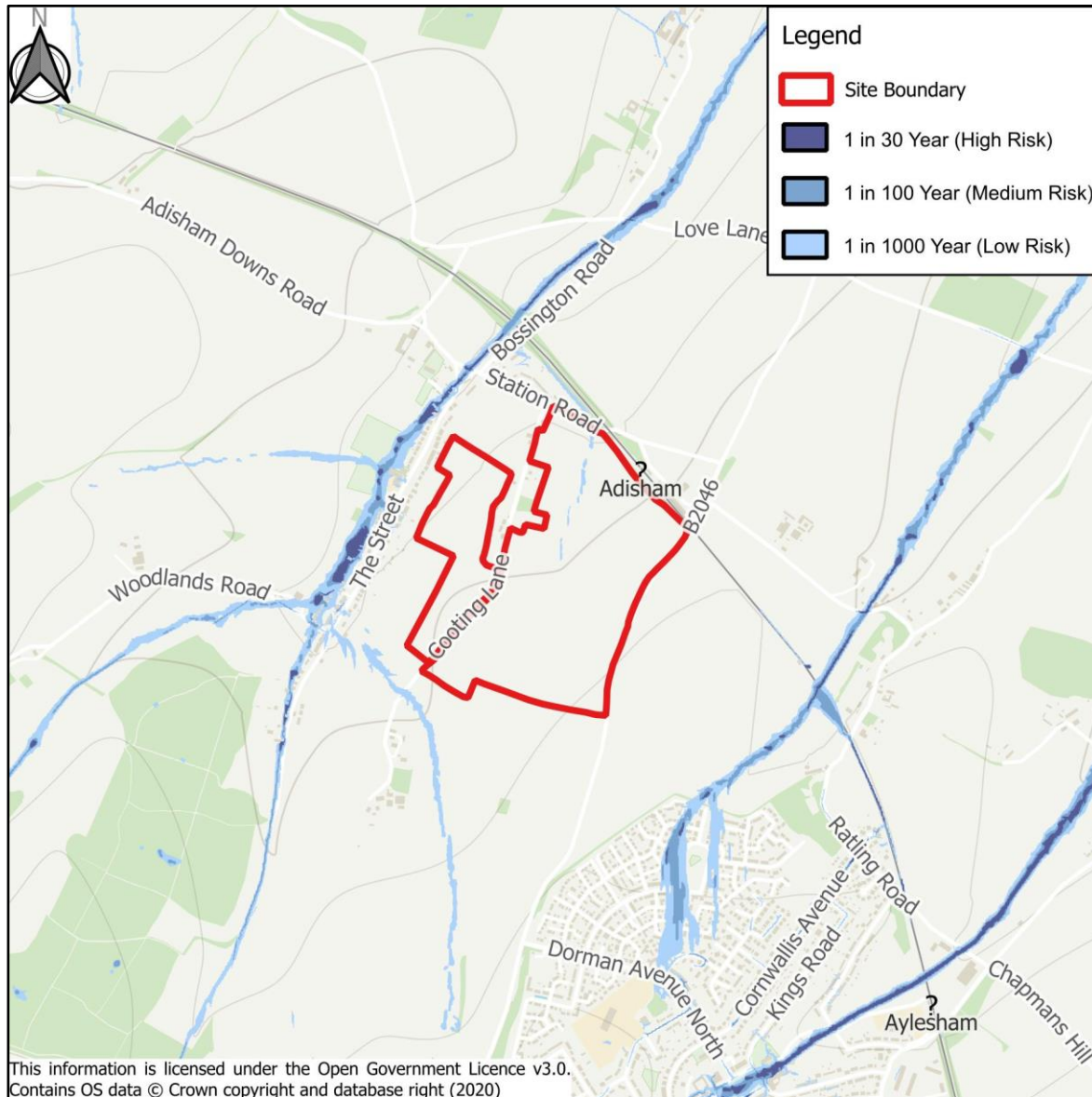


Figure 2.2 Extent of Surface Water Flooding

2.3.2 The mapping shows the site to be at low risk of flooding from surface water.

2.3.3 Beyond the site boundary to the west there are areas of low to high risk from surface water flooding located along The Street which runs through Adisham. This surface water flow path could be associated with a localised ditch or may in fact represent the natural topography of the land. The flow path can be seen to continue to the north in a similar fashion along Bossington Road. It is a similar scenario to the east where low to high risk of surface water flooding is found along both the B2046 (Adisham Road) and Ratling Road.

2.3.4 The EA data used to map surface water flood extents as shown in Figure 2.2, does not consider continual losses to the ground through infiltration (see below). Further investigation may be needed as part of a Flood Risk Assessment to support a planning application, although it is likely given the low risk posed that mitigation can be provided to manage any surface water flood risk.

2.4 Geology and Groundwater

- 2.4.1 British Geological Survey (BGS) mapping does not identify the superficial geology for the development site.
- 2.4.2 The BGS mapping shows the site to be underlain by a bedrock geology comprising Margate Chalk Member - Chalk. This type of bedrock indicates a high possibility for infiltration within the bedrock strata.
- 2.4.3 There are no boreholes recorded within the site boundary, with the nearest one located along Cooting Lane, with borehole reference TR25SW20. The borehole report does not contain much information, however, it does state the borehole was performed in January 1950 and a resting water level of 27m bgl was recorded.
- 2.4.4 However, another borehole TR25SW34 located to the south west of the site states that chalk strata can be found at a depth of around 300mm below the surface, with water struck at 62m bgl, and the resting water level noted as 62m as well.
- 2.4.5 The above suggests a low water level within the underlying strata and adds to the evidence that infiltration may be a possible method of dealing with surface water runoff. It may also be the case whilst noted as bedrock geology, the chalk member can be found close to the surface level.
- 2.4.6 It should be highlighted that there is no available information in relation to the condition of any chalk strata in the vicinity of the site, and targeted site investigation must be undertaken at detailed design stage to further inform any SuDS designs if relevant.
- 2.4.7 Aquifer designations by DEFRA show the site to be underlain by an Unproductive superficial drift classification, which is defined as areas comprised of rock that have negligible significance for water supply or baseflow to rivers, lakes, and wetlands.
- 2.4.8 The bedrock classification for the site is Principle, which is defined as strategically important rock units that have high permeability and water storage capacity. As infiltration is being proposed as the most possible outfall option for the site, further investigation and possibly a risk assessment may need to be produced in order to gain the approval from the Environmental Agency to infiltrate into the principal aquifer.
- 2.4.9 The Kent County Council Preliminary Flood Risk Assessment includes mapping which shows areas of the county which are more susceptible to flooding from groundwater. The site falls outside of any mapped flooding due to groundwater, with the closest extent of groundwater flooding located far to the west.
- 2.4.10 The Canterbury Strategic Flood Risk Assessment states that mapping produced by the British Geological Society shows the site to be in an area of low risk from flooding from groundwater.
- 2.4.11 Overall, the risk of flooding from groundwater sources is low, although further intrusive site investigation works should be carried out to determine localised geological conditions.

2.5 Artificial Sources

- 2.5.1 Mapping provided by Southern Water shows there are no public foul sewers/surface water sewers within the site boundary.
- 2.5.2 Sewers have the potential to surcharge either because of flows in excess of their capacity or through a blockage. In the unlikely event of blockages or exceedance of these systems, flows may accumulate on the surface via a number of manholes along the length of the sewer.
- 2.5.3 The nearest sewers are located along Cooting Lane, The Street, and Station Road. All the sewers within proximity to the site are foul sewers. Any flooding or surcharging of the sewers would most likely be contained within the highway extents, therefore, not flooding onto the site.

- 2.5.4 The risk of flooding from sewers is considered to be low, but further detailed investigation of existing drainage arrangements should be undertaken as part of any design development. This would include identification of any private drainage within the development boundary.
- 2.5.5 Sewer records from Southern Water have been included in **Appendix A**.
- 2.5.6 There are no canals within the proximity of site, therefore, the risk of flooding from canals is negligible.
- 2.5.7 The Environment Agency has produced a strategic-scale mapping showing the risk of flooding from failure of large waterbodies and reservoirs, if the relevant impounding structure were to fail. This mapping shows that the proposed site is far removed from any extents of flooding from this source, therefore, the risk of flooding from large waterbodies and reservoirs is negligible.

2.6 Strategic Documentation

- 2.6.1 The Canterbury City Council Strategic Flood Risk Assessment (SFRA) was published in July 2017. The SFRA was prepared to provide an appropriate evidence base for local policymaking, a summary of flood risk issues across the area. The SFRA also includes relevant background flooding data and a summary of flood risk within the district.
- 2.6.2 Surface water mapping included as part of the SFRA shows the site to be at low risk of flooding from surface water, however the risk of flooding from surface water mapping included as **Figure 2.2** therefore likely shows the most up to date assessment of flood risk from this source.
- 2.6.3 The Kent County Council Preliminary Flood Risk Assessment (PFRA) shows the susceptibility of Kent to flooding. This follows a similar methodology to the SFRA suggesting Kent County Council is generally at low risk of flooding from groundwater sources. The PFRA does not contain information suggesting the site has previously flooded, however this does not confirm that the site has not previously flooded.
- 2.6.4 The Kent County Council Local Flood Risk Management Strategy (LFRMS) outlines preferred strategies for managing surface water flooding and general flood risk posed to the county including consideration of other sources. The mapping included as part of this document shows the site is at low risk of flooding from surface water flooding.
- 2.6.5 The Canterbury District Local Plan continues to emphasise the importance of managing surface water within new developments due to the changes in elevation across the district. The Local Plan also showcases the understanding of localised and minimal threats posed by the various rivers and watercourses. However, the Local Plan does not designate the site specifically and therefore specific flood risk data is not provided.
- 2.6.6 Policies included within the Local Plan relevant to this FRDS include;
- Policy CC4 Flood Risk
 - Policy CC5 Flood Zones
 - Policy CC6 Minor Development and Development of Previously Developed Land Within Flood Zones
 - Policy CC11 Sustainable Drainage Systems

2.7 Proposed Development

- 2.7.1 The development proposal comprises a residential development of a minimum of 525 dwellings and approximately 5ha of woodland, along with associated road infrastructure, drainage, and SuDS features. An initial development plan can be seen in **Appendix B** for reference.

3 Potential Mitigation

3.1 Flood Risk Assessment

- 3.1.1 Overall, the desk-based assessment has identified a low risk of flooding to the site from watercourses, surface water runoff, groundwater, and artificial sources. However, to fully comply with local and national policy and to further understand the extents and bound for potential flooding, a Flood Risk Assessment (FRA) would be required at future planning application stage.
- 3.1.2 As the site is proposed to be developed, it will be necessary to introduce a suitable surface water drainage strategy to cater for the increase in surface water runoff generated by the increased impermeable area.

3.2 Surface Water Drainage Strategy

- 3.2.1 Kent County Council, in their role as Lead Local Flood Authority (LLFA), has published a Sustainable Drainage System (SuDS) guidance document related to the drainage of new developments. In particular, the guidance suggests that for both greenfield and brownfield sites, information will need to be provided on existing drainage arrangements, including the location, size, and ownership of the receiving system as a minimum.
- 3.2.2 When considering the development of a greenfield site, the guidance recommends that wherever possible the proposed drainage system should seek to mimic the existing natural drainage regime as much as reasonably practicable.
- 3.2.3 Therefore, to comply with Local Plan policies, national planning policies, and general best practice regarding sustainable drainage, a high-level surface water drainage strategy has been prepared as part of the master planning process. The blue-green infrastructure required as part of the development has been incorporated into the development framework to demonstrate how this can be managed as part of a development.
- 3.2.4 At this early stage, development of the surface water drainage strategy has been based on LiDAR survey data, which has been used to define current ground levels and catchments.
- 3.2.5 Any emerging masterplans should seek to identify suitable locations for above-ground SuDS to be incorporated into the layout where possible as means of managing the additional runoff in a sustainable way.
- 3.2.6 The drainage strategy should be designed in accordance with CIRIA SuDS Manual C753 and all relevant drainage clauses in the relevant Local Plan.

3.3 Site Runoff

- 3.3.1 In accordance with the guidance presented above, it is proposed to limit all surface water runoff generated by the site to the equivalent greenfield QBAR rate for all events up to the 1 in 100-year event with a 45% factor applied to account for the latest climate change allowances in line with the Kent County Council guidance.
- 3.3.2 An assessment of the equivalent greenfield surface water runoff rate for the proposed development has been undertaken using MicroDrainage. The pro-rated QBAR has been calculated at 17.9l/s/h, which equates to 733l/s for the total site area. However, as there are no mapped or known watercourse, within or surrounding the site, the calculated QBAR will not be required.
- 3.3.3 As the option to outfall via a watercourse does not appear possible, an assumed infiltration based approach has been assumed and an infiltration rate must be estimated until site specific infiltration testing has been completed. As no infiltration testing has been completed the infiltration rate will have to be assumed using sources online. CivilWeb Spreadsheets have published infiltration rates for a range of geologies, the lower band 10^{-5} m/s and the upper band of 10^{-3} m/s. Being conservative and assuming a value of 5×10^{-5} m/s, gives a value of 0.18m/hr.

3.4 Drainage Hierarchy

- 3.4.1 A preferential hierarchy for discharge of surface water exists, which states that surface water should be disposed of in the following order of preference;
- Water reuse, where a need is identified
 - Infiltration, where ground conditions permit
 - Watercourses
 - Surface water sewers
 - Combined water sewer
- 3.4.2 Opportunities for rainwater harvesting and reuse should be explored at the earliest opportunity. However, given the aspirations for the site to be promoted for residential, the scale and extent of such features might be limited. However, SuDS features such as water butts can be implemented, where any surface water runoff collected would be used for irrigation purposes only.
- 3.4.3 At this stage, it is safe to assume infiltration is possible with the existing ground conditions, but the rate at which it occurs needs to be determined. Therefore, full soakaway testing carried out to the BRE 365 Digest specification should be carried out to confirm the above.
- 3.4.4 A review of the OS OpenRivers dataset shows that there are no watercourses within or surrounding the site, therefore, a solution to discharge water of site is limited, but further investigation (e.g. site visit) needs to be undertaken to determine if there are any minor watercourses or ditches present in the vicinity.,
- 3.4.5 After a review of the sewer records provided by Southern Water, shows that the site is not connected to any surface water networks, and the only sewer network close to the proposed development is a foul network, ruling this option out for disposal.
- 3.4.6 Based on the underlying geology of the site, the lack of any notable watercourse or surface water sewer, it is assumed that infiltration is feasible and the strategy has been developed around an infiltration solution. However, as already stated, targeted site investigation must be undertaken to verify the infiltration rates on site, and also the condition of any chalk strata that may be present below the site.
- 3.4.7 Subject to the condition of the chalk, suitable offsets between building and infiltration features may vary between 5 and 20m. However, it could be possible that whilst infiltration is feasible, the chalk structure cannot accept surface water inflows as designed due to the high risk of the formation of dissolution features.
- 3.4.8 For more detail an indicative drainage strategy has been prepared and is included as **Appendix C**.

3.5 Attenuation Requirements

- 3.5.1 Based on initial development proposals, two distinct impermeable catchment areas have been identified, one to the north of the development parcels and one to the south. The northern parcel has a development density of 40-50 dwellings per hectare (dph) whereas the southern parcel has a density of 30-35dph.
- 3.5.2 The percentage impermeable area for each catchment has been estimated based on its development density. For the higher density northern plot it has been assumed that 80% of net developable area would be hard standing in the form of roofs roads and paths etc, whereas the lower density parcel to the south is assumed to be 65% of net developable area. Given the southern parcel has a lower density, and additional allowance of 10% has been included on this catchment to account for future urban creep. Therefore, this results in a net developable area of 7.34ha and impermeable area of 5.87ha for the northern parcel and net developable area of 7.9ha and impermeable area of 5.6ha for the southern parcel.

- 3.5.3 As noted above an assumed infiltration coefficient of 0.18m/hr has been assumed for use within drainage calculation. In accordance with the Ciria SuDS manual, a safety factor of 10 has also been applied to the infiltration rate to mitigate any future flood risk associated with poor performance of any infiltration feature.
- 3.5.4 Based on initial modelling using the above parameters approximately 11,700m³ of attenuation storage will be required on site, 6,000m³ of which is for the northern parcel and 5,700m³ is for the southern parcel. For the purposes of the master planning process it has been assumed that attenuation will be provided in large, centralised infiltration basins, however, it is likely that a plot led approach would look to provide individual soakaways on plot and within public open space reducing pressure on the masterplan.
- 3.5.5 In addition to attenuation features SuDS features will be required across the site to attenuate and control runoff across the site, reducing this storage requirements and improving water quality.
- 3.5.6 It should be noted that any surface water drainage design that is based on an infiltration solution will need to be supported by targeted site investigation to verify infiltration rates and

3.6 Sustainable Drainage Systems

- 3.6.1 In line with development proposals, infiltration basins, and swales would be suitable to manage the volume of water as well as providing water treatment benefits if adequate space is allowed within the design. An initial sketch, included as **Appendix C**, has been prepared to show locations suitable for attenuation basins, in line with current masterplan layouts.
- 3.6.2 Other blue/green infrastructure can be considered within the layout and emerging proposals. In line with the 4 pillars of good SuDS design, source control measures could be incorporated to capture and treat surface water runoff as close to its source as possible, reducing the rate of runoff while providing amenity and biodiversity benefits.
- 3.6.3 It is likely that swales could be used as part of the strategic drainage network to convey water around the site towards the terminal storage features. Other ancillary SuDS features could be incorporated into the design framework of the scheme including, but not limited to, permeable paving, rain garden and tree pits in parking areas or alongside highways and water butts affixed to downpipes.

3.7 Foul Drainage

- 3.7.1 At this stage, no consultation has been carried out with Southern Water as the incumbent sewerage undertaker to ascertain a suitable point of connection for foul flow, nor to determine whether capacity exists within the existing network to accept these flows.
- 3.7.2 It is understood that an onsite package treatment plant may be required on site to meet policy 'DS17 – Habitats of International Importance' of Canterbury City Councils Regulation 18 Local Plan.
- 3.7.3 The exact size and location of any foul treatment centre would be subject to further detailed design and discussions with the local sewage undertaker and local planning authority.
- 3.7.4 Subject to the final location of the onsite treatment plant or connection to the foul drainage network it is assumed that the onsite buried foul drainage network will operate under gravity and that no pumping is required.

4 Conclusions and Recommendations

- 4.1.1 Pell Frischmann has been appointed by The Church Commissioners for England to undertake an initial flood risk and drainage appraisal, in relations to proposals for the development of a site known as Land South of Adisham Station.
- 4.1.2 The purpose of this FRDS is to review freely available information and provide an overview of flood risk and drainage constraints across the site from a range of sources. The work is predominately a qualitative assessment of risk using readily accessible data at the time of producing this report and may therefore be subject to change in the future.
- 4.1.3 Given the early stage of the development, only consultation has been made with the EA and the LLFA, no additional consultation has been carried out with key stakeholders to confirm or agree any principles of the mitigation measure proposed; the advice contained within is based on prevailing guidance and best practice.
- 4.1.4 A review of desk-based information related to flood risk and drainage has been carried out to determine the suitability of the proposed site for development.
- 4.1.5 The site is located wholly within Flood Zone 1, with a risk of flooding from rivers and seas as low.
- 4.1.6 The risk of flooding from artificial sources has been determined to be low, as there are no sewers located within the site boundary and levels which fall away from the site, which would channel any surcharge away from the site boundary. There are also no large waterbodies or canals located near the site.
- 4.1.7 Furthermore, the proposed Surface Water Drainage Strategy will ensure that surface water runoff from the site will be managed in a sustainable way now and in the future. This has been based on infiltration runoff into the ground at a rate of 0.18m/hr, attenuation has been designed to store the runoff before infiltrating, the basins have been designed for events up to and include a 1 in 100 year 6 hour storm event, including 45% increasing in rainfall intensity to allow for climate change.
- 4.1.8 Future development of the site should ensure suitable management of surface water runoff through a surface water drainage strategy based on sustainable drainage principles. Indicative surface water drainage arrangements have been identified as part of this review and demonstrated how they could be incorporated within a development layout. The potential for infiltration as a means of discharge is feasible, however, on site testing must be undertaken to confirm.
- 4.1.9 In accordance with the requirements of the NPPF and associated PPG, this FRDS has demonstrated, with suitable mitigation, that the site could proceed without being subject to significant flood risk. Furthermore, the development will not increase flood risk to third parties if there is suitable management of surface water runoff.

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Report Ref.	109379-PEF-ZZ-XX-RP-CD-000010-S0-P01_FRDS
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File Path	
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Rev	Suit	Description	Date	Originator	Checker	Approver
S2	P01	Draft Issue	23/05/2024	S. Paoli	M. Fox	

Ref. reference. Rev revision. Suit suitability.

Appendix A Sewer Records



0m 100m 200m 300m

© Crown copyright and database right 2024 Ordnance Survey 100010723
Data updated: 12/04/24

Scale: 1:200
Map Centre: 52084.150741
OS Ref: 146087N.2
Printed by: dgipl

sturtidge@peilfischmann.com

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 © Crown copyright and database right 2024 Ordnance Survey 100010723. This map is to be used for the purposes of showing 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 Boronated Adhesive Cement.
WARNING: Unknown (UNK) materials may include Boronated Adhesive Cement.



Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
0101	F	41.47	39.65	
0102	F	37.63	35.97	
0103	F	38.57	37.36	
0104	F	38.54	36.44	
0201	F	39.69	38.03	
0202	F	35.02	34.32	
0203	F	35.80	35.18	
0204	F	36.07	34.82	
0205	F	36.55	35.57	
0206	F	37.41	36.51	
0207	F	36.62	35.86	
0208	F	38.19	37.49	
0209	F	38.26	37.56	
0301	F	35.83	34.07	
0302	F	27.57	25.96	
0303	F	31.62	30.89	
0303	F	31.62	31.03	
0801	F	44.55	43.06	
0901	F	42.51	40.69	
1101	F	38.97	38.83	
1102	F	38.83	38.59	
1103	F	38.60	37.16	
1104	F	38.19	0.00	
1105	F	38.24	37.49	
1106	F	38.42	37.75	
1107	F	38.76	38.65	
1201	F	38.29	37.59	
2001	F	39.63	37.79	
2002	F	39.37	37.59	
2101	F	39.03	37.24	
3001	F	48.16	46.94	
3002	F	42.21	40.83	
4901	F	50.23	48.87	
4902	F	49.37	48.02	
5001	F	55.03	53.55	
5301	F	45.38	43.76	
5606	F	38.52	36.79	
6001	F	53.95	52.24	
6101	F	52.92	51.23	
6201	F	51.23	49.56	
6202	F	50.41	49.01	
6203	F	48.99	47.28	
6301	F	46.44	46.02	
6301	F	47.30	45.57	
6302	F	44.64	42.81	
6303	F	42.82	40.64	
6701	F	37.90	36.22	
6702	F	35.53	33.20	
6801	F	33.69	32.50	
6802	F	33.70	32.62	
6803	F	33.71	33.17	
6804	F	33.95	33.49	
6805	F	33.97	33.62	
6807	F	34.78	32.71	
6808	F	34.12	32.17	
6901	F	33.17	31.52	
6902	F	32.99	0.00	
6903	F	33.47	32.16	
6904	F	33.54	32.83	
6905	F	32.36	31.37	
7001	F	31.59	30.07	
7002	F	34.05	33.25	
7003	F	31.08	29.65	
7004	F	31.19	30.32	
7006	F	30.74	29.20	
7007	F	0.00	0.00	
7008	F	0.00	0.00	
7010	F	30.87	29.30	
7011	F	31.34	30.49	
7012	F	0.00	0.00	
7013	F	0.00	0.00	
7101	F	31.52	30.02	
7104	F	31.44	29.97	
7105	F	31.11	29.78	
7106	F	31.11	29.91	
7107	F	30.88	29.45	
7108	F	31.08	30.01	
7109	F	0.00	0.00	
7201	F	31.38	29.58	
7301	F	39.46	37.76	
7302	F	37.35	35.71	
7303	F	35.37	32.82	
7401	F	40.82	39.02	
7901	F	34.85	33.70	
7902	F	34.35	33.71	
7903	F	34.54	0.00	
7904	F	34.75	34.74	
7905	F	34.69	34.00	
7906	F	34.77	34.14	
7907	F	35.07	34.51	
7908	F	35.02	34.49	
7909	F	35.19	34.72	
7910	F	32.43	30.88	
7911	F	35.06	34.45	
7912	F	34.11	33.54	
7914	F	35.97	34.04	
8001	F	35.22	32.51	
8002	F	35.58	31.95	
8101	F	29.77	28.29	
8102	F	30.19	28.49	
8104	F	0.00	0.00	
8201	F	29.59	28.30	
8203	F	29.54	28.28	
8208	F	0.00	0.00	
8209	F	0.00	0.00	
8210	F	0.00	0.00	
8211	F	0.00	0.00	
8301	F	33.69	29.52	
9202	F	32.01	31.32	
9203	F	33.01	31.82	
9204	F	34.53	33.50	
9205	F	29.83	27.23	
9206	F	33.96	32.23	
9301	F	28.39	26.74	
9302	F	30.55	28.71	
9303	F	30.59	29.50	
9304	F	31.36	30.43	
9701	F	47.59	45.90	
9801	F	45.93	44.52	

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
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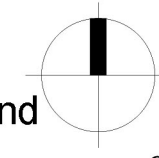
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Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
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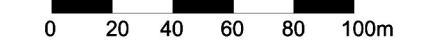
Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
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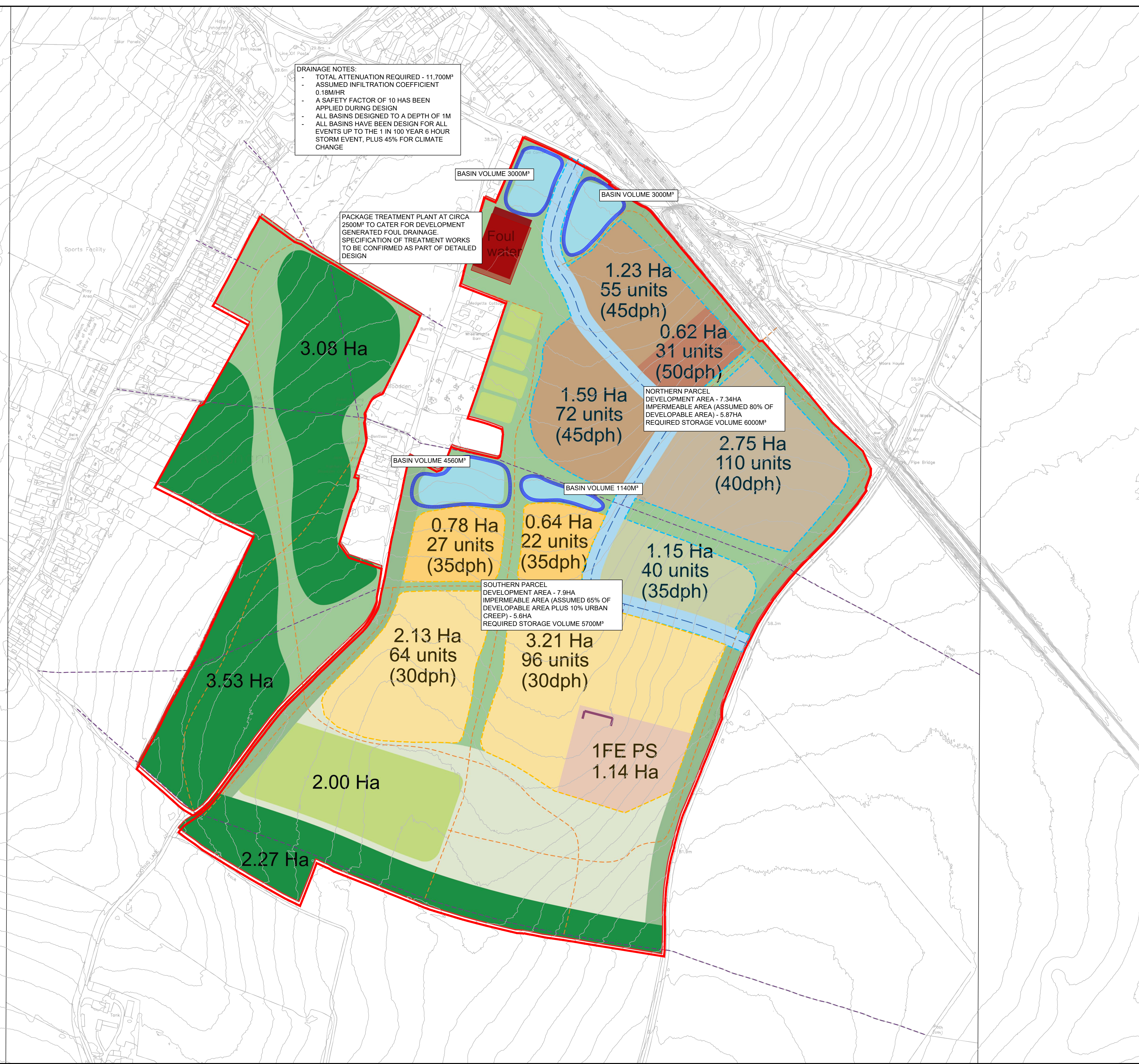
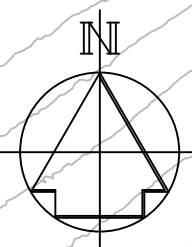
Land South of Adisham Station
 Concept Masterplan
 for Church Commissioners for England



Drawing No. 02315_SK_005
 Scale @ A1 1:2500 Rev -



Appendix C Indicative Drainage Strategy



DRAINAGE NOTES:

- TOTAL ATTENUATION REQUIRED - 11,700M³
- ASSUMED INFILTRATION COEFFICIENT 0.18M/HR
- A SAFETY FACTOR OF 10 HAS BEEN APPLIED DURING DESIGN
- ALL BASINS DESIGNED TO A DEPTH OF 1M
- ALL BASINS HAVE BEEN DESIGN FOR ALL EVENTS UP TO THE 1 IN 100 YEAR 6 HOUR STORM EVENT, PLUS 45% FOR CLIMATE CHANGE

PACKAGE TREATMENT PLANT AT CIRCA 2500M³ TO CATER FOR DEVELOPMENT GENERATED FOUL DRAINAGE. SPECIFICATION OF TREATMENT WORKS TO BE CONFIRMED AS PART OF DETAILED DESIGN

BASIN VOLUME 3000M³

BASIN VOLUME 3000M³

1.23 Ha
55 units
(45dph)

0.62 Ha
31 units
(50dph)

1.59 Ha
72 units
(45dph)

NORTHERN PARCEL
DEVELOPMENT AREA - 7.34HA
IMPERMEABLE AREA (ASSUMED 80% OF
DEVELOPABLE AREA) - 5.87HA
REQUIRED STORAGE VOLUME 6000M³

2.75 Ha
110 units
(40dph)

BASIN VOLUME 4560M³

BASIN VOLUME 1140M³

0.78 Ha
27 units
(35dph)

0.64 Ha
22 units
(35dph)

1.15 Ha
40 units
(35dph)

SOUTHERN PARCEL
DEVELOPMENT AREA - 7.9HA
IMPERMEABLE AREA (ASSUMED 65% OF
DEVELOPABLE AREA PLUS 10% URBAN
CREEP) - 5.6HA
REQUIRED STORAGE VOLUME 5700M³

2.13 Ha
64 units
(30dph)

3.21 Ha
96 units
(30dph)

1FE PS
1.14 Ha

2.00 Ha

2.27 Ha

3.08 Ha

3.53 Ha

- GENERAL NOTES**
- G1. DO NOT SCALE THIS DRAWING.
 - G2. ANY DIMENSIONAL DISCREPANCIES SHOULD BE NOTIFIED TO THE ENGINEER IMMEDIATELY.
 - G3. ALL DIMENSIONS ARE IN MILLIMETRES - (mm)
ALL LEVELS ARE IN METRES - (m) AND ARE ABOVE ORDNANCE DATUM AT NEWLYN, CORNWALL UNLESS NOTED OTHERWISE.
 - G4. NORTH SHOWN INDICATIVE ONLY
 - G5. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, DRAWINGS, DETAILS AND OTHER DESIGN INFORMATION.
 - G6. ALL DRAWINGS AND WRITTEN MATERIAL CONTAINED WITHIN, CONSTITUTE ORIGINAL AND UNPUBLISHED WORK OF THE ENGINEER AND MAY NOT BE DUPLICATED, USED, REPRODUCED OR DISCLOSED WITHOUT WRITTEN CONSENT OR EXPRESS PERMISSION FROM THE ENGINEER.
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- KEY:**
- SITE BOUNDARY
 - INFILTRATION BASIN
 - NORTHERN PARCEL
 - SOUTHERN PARCEL

P02	UPDATED IN-LINE WITH MASTERPLAN	SP	MF	MF	22.05.24
P01	FIRST ISSUE	SP	MF	MF	15.05.24
REV	DESCRIPTION	DRN	CHK	APP	DATE

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Architect/Client/Contractor
THE CHURCH COMMISSIONERS FOR ENGLAND

Project
ADISHAM

Drawing Title
INDICATIVE DRAINAGE STRATEGY

Drawing Status **PRELIMINARY**

Name	Date	Status Code
Drawn S.PAOLI	13.05.24	S2
Designed S.PAOLI	13.05.24	Scale 1:2000
Eng Chk M.FOX	13.05.24	Revision
Approved M.FOX	13.05.24	P02

Drawing No.
109379 - PEF - ZZ - XX - DR - CD - 0500