



Flood Risk Assessment & Drainage Strategy at

**Baileys Lane
Halewood
Liverpool
L26 0TY**

Client: Francis Barry FAS Developments Ltd

Reference: 34494-SUT-ZZ-00-RP-C-0001

Date: 10th June 2025

Liverpool Head Office
18-20 Harrington Street
Liverpool
L2 9QA

T: 0151 227 3155
E: enquiries@sutcliffe.co.uk
www.sutcliffe.co.uk

Manchester Office
T: 0161 817 5180

North Wales Office
T: 01978 664 071

London Office
T: 020 8016 4320



@Sutcliffe_1985



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Flood Risk Assessment & Drainage Strategy

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Prepared by:

Name:	Matt Bowden
Title:	Graduate Civil Engineer
Qualifications:	BEng (Hons)

Checked / Approved by:

Name:	Toby Crayden
Title:	Associate
Qualifications:	FIOD

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Flood Risk Assessment

1 Introduction

- 1.1 As part of the planning requirements for the development at Baileys Lane, Halewood a site-specific flood risk assessment has been prepared to ensure the flood risk is appropriately considered to protect people and the property from flooding.
- 1.2 The development boundary, Figure 1, is 0.30 hectares and situated within Flood Zone 1 as defined by the Environment Agency.
- 1.3 The National Planning Policy Framework (NPPF) Paragraph 170 seeks to promote development in areas at low risk of flooding and to reduce the flood risk resulting from development. This assessment will demonstrate that all sources of flooding have been considered, and that development of the site is appropriate.
- 1.4 The existing site was previously a farm with 3 existing buildings. The site also includes existing hard paved areas. The site is therefore considered a brownfield site.
- 1.5 The proposed site is to be developed with 2 of the existing buildings being renovated and extensions added and 1 is to be demolished and replaced. A new 2 story building is also proposed to be constructed. Associated residential parking and access road are also proposed. The proposed site plan is provided in Appendix A for reference.
- 1.6 The development site is located along Baileys Lane in Halewood. The location data for the site is:

Post Code:	L26 0TY		
Grid Reference:	SJ 45406 85388		
Coordinates:	X: 345406	Y: 385388	
Latitude:	53°21'45"N	Longitude:	002°49'19"W
What3Words:	gloves.songbird.maple		

Table 1 – Location details



Figure 1: Site Boundary

- 1.7 Flood risk information for planning has been obtained from the Environment Agency (EA) website and is provided in Appendix B. The EA data confirms the site falls within Flood Zone 1.

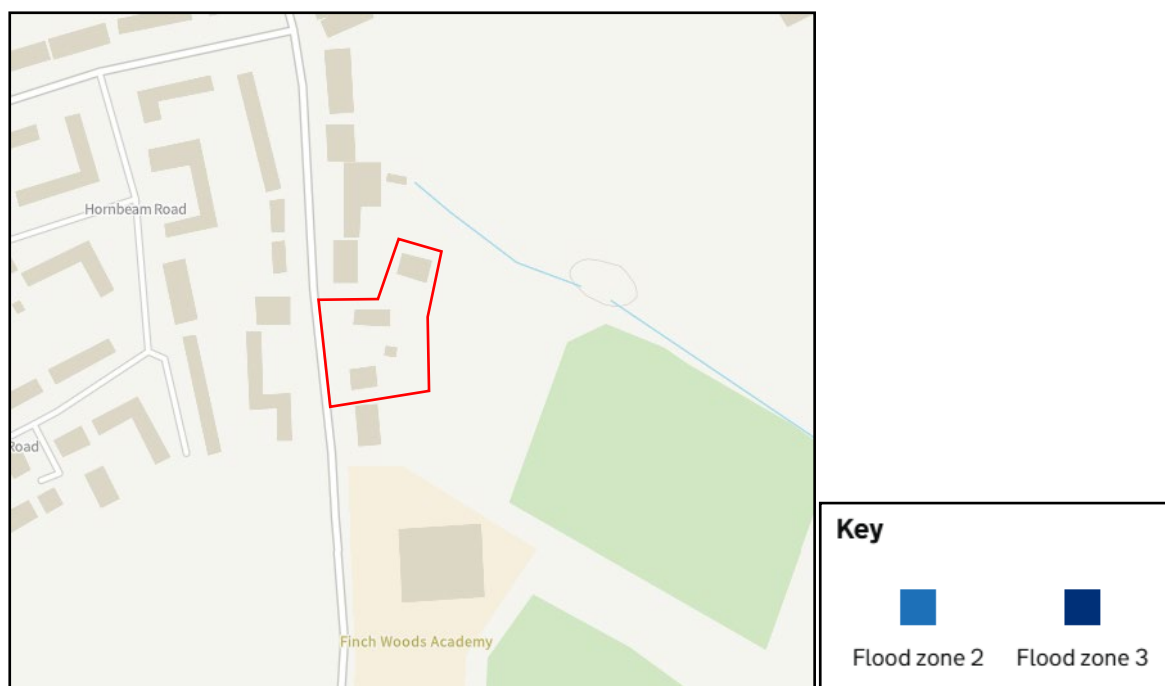


Figure 2: Environment Agency Flood Map for Planning

2 Planning Context

- 2.1. The National Planning Policy Framework expects local planning authorities to protect people and property from flooding. In fulfilling their duty local planning authorities are to ensure the following steps are assessed prior to granting planning permission:
- Assess flood risk
 - o The LPA must undertake a Strategic Flood Risk Assessment to inform the local plan and identify development sites that are in areas of low flood risk.
 - o Sites greater than 1 hectare or in areas of flood risk must have a Site-Specific Flood Risk Assessment prepared.
 - Avoid flood risk
 - o The LPA should apply the sequential test to, as far as practicable, locate development sites in area at the least risk of flooding, and if required carry out the exception test.
 - Manage and mitigate flood risk
 - o Where alternative sites are not available the LPA should ensure that development is flood resilient and resistant, safe for the users over the development's lifetime and will not increase overall flood risk.
 - o LPAs and developers should manage flood risk through the inclusion of sustainable drainage techniques.
- 2.2. There is no general statutory duty on the Government to protect land or property against flooding. However, the Government recognises the need for action to be taken to safeguard the wider social and economic wellbeing of the country.

- 2.3. Landowners have the primary responsibility for safeguarding their land and others property against natural hazards such as flooding. Individual property owners and users are also responsible for managing the drainage of their land in such a way as to prevent, as far as is reasonably practicable, adverse impacts on neighbouring land.
- 2.4. Those proposing development are responsible for:
- Demonstrating that it is consistent with the NPPF.
 - Providing an assessment of:
 - Whether any proposed development is likely to be affected by flooding from any source.
 - Whether it will increase flood risk elsewhere.
 - The measures to deal with these effects and risks.
 - Satisfying the local planning authority that any flood risk to the development or additional risk arising from the proposal will be successfully managed with the minimum environmental effect.
 - Designs which reduce flood risk to the development and elsewhere, by incorporating sustainable drainage systems and where necessary flood resilience measures.
 - Identifying opportunities to reduce flood risk, enhance biodiversity and amenity and seek collective solutions to managing flood risk.

3 Catchment/Site Description

- 3.1 The topography of the site generally slopes from south to north. The maximum elevation is 14.67mAOD, the minimum elevation is 12.86mAOD. The topographic survey is included within the appendix A for reference.
- 3.2 A review of grid reference finder confirms there is the Ditton Brook approximately 1.4km east from the development site, an extract of the Map is in Figure 3.

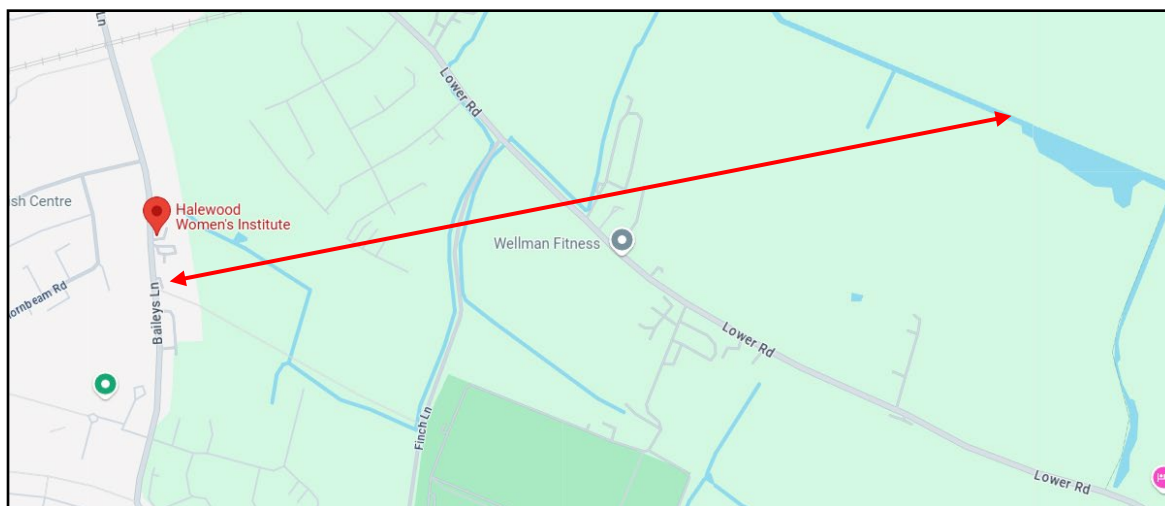


Figure 3: Existing Watercourse. (Source: Google Maps)

- 3.3 The British Geological Survey (BGS) Geology of Britain viewer defines the bedrock geology as Kinnerton Sandstone Formation - Sandstone. Superficial deposits are noted as Till, Devensian - Diamicton.
- 3.4 The National Soils Resources Institute, through the Soilsapes web viewer, identify the soil type as Soilscape 18, Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils.

3.5 Flood Risk Assessment

- 3.5.1 The National Planning Policy Framework (NPPF) seeks to promote development in areas at low risk of flooding and to reduce the flood risk resulting from development. The purpose of this site-specific flood risk assessment is to demonstrate that the site can be considered to fall within an area of low annual probability and assess the risk to the site from all sources of flooding.
- 3.5.2 The planning flood maps from the Environment Agency confirm that the site is in Flood Zone 1 due to the low risk posed by sea or river or surface water flooding.
- 3.5.3 According to the NPPF Annex 3 : Flood risk vulnerability classification building residential use is classed as 'more vulnerable'.
- 3.5.4 A review of Table 3 of the NPPF Technical guide indicates that an exception test is not required for areas classed as more vulnerable that fall within Flood Zone 1.

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	✗	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	✗	✗	✗
Key: ✓ Development is appropriate. ✗ Development should not be permitted.						

Figure 4: Table 3 from the NPPF Technical Guide illustrating site classification.

3.6 Sources of Flooding

- 3.6.1 Flooding is a natural hazard and can happen at any time in a wide variety of locations. There are several forms of flooding, which present a range of different risks. The speed of inundation and the duration of different forms of flooding vary greatly. With climate change, the frequency, patterns, and severity of flooding are forecast to change and become more damaging.
- 3.6.2 The limits of flood risk areas cannot be defined precisely because floods with similar probability can arise from different combinations of weather, sources, rainfall patterns, local topography, and patterns of development.
- 3.6.3 Every flood will have different consequences on people, property and the environment and depends on the land use.

3.7 Flooding from the River and the Sea

- 3.7.1 Flooding from rivers or the sea is classed as a very low/no risk for the development site as seen in Figure 5 as it is not situated near a sea or river.

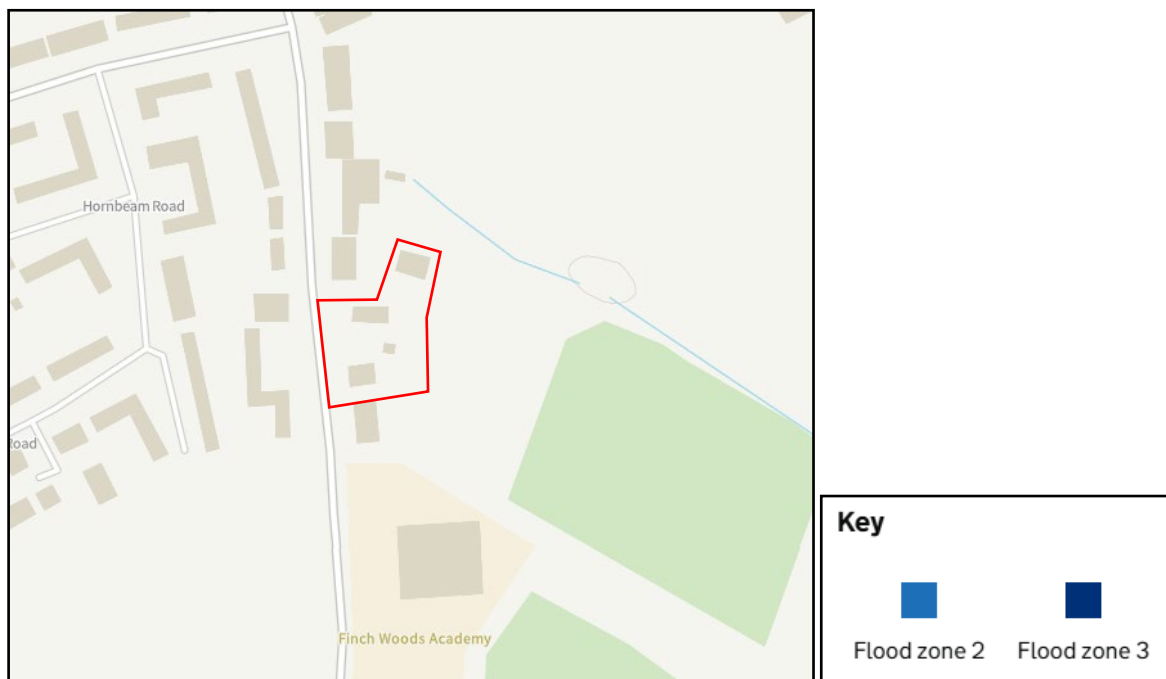


Figure 5: Environment Agency Flood Map - Extents of Flooding from Rivers or the Sea

3.8 Flooding from Surface Water

- 3.8.1 Flooding from surface water may occur in times of intense rainfall at a local site level as any drainage system may not be able to disperse the rainfall quickly enough. Surface flooding occurs when both the natural interception capacity of the ground is exceeded and the capacity of inlets to the drainage system are exceeded.
- 3.8.2 The Environment Agency provides surface water flood maps for the high (greater than 3.3% AEP), medium (1% AEP) and low (0.1% AEP) risk scenarios. All the surface water flood maps from the Environment Agency website are provided in Appendix B for reference, although the low-risk scenario is generally considered above the design return period.
- 3.8.3 The Environment Agency cautions that due to the limitations within the model (single drainage rate, national level modelling, LiDAR data etc.) the surface water flood maps do not provide a definitive risk of surface water flooding at the plot level. This assessment reflects the current scenario and provides an indication of the potential surface water flood risk in the absence of drainage network designed to facilitate the proposed development through the management of surface water.
- 3.8.4 The extent of surface water flooding, Figure 6, indicates that there is a very low risk of surface water flooding occurring within the site boundary. The surface water flood risk is shown occurring to the front of the site to the west. The flooding is constrained to around the existing building and only occurs for the 0.1% AEP event.
- 3.8.5 The surface water flooding for the 0.1% AEP event is noted being less than 300mm on the Environment Agency Low Risk Surface Water Flood Map, Appendix B.

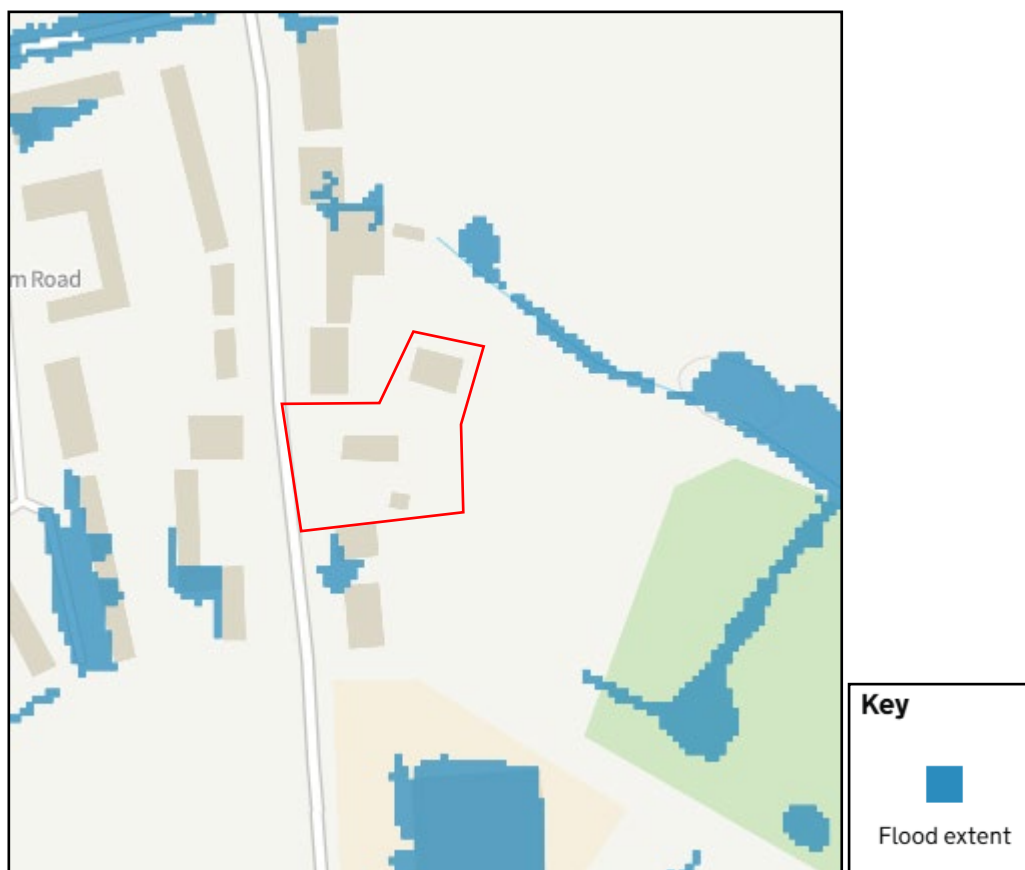


Figure 6: Environment Agency Extent of Surface Water Flooding Map

- 3.8.6 The risk of surface water flooding to the development can be mitigated by ensuring the surface water management network safely manages rainfall events to the required standard. Also, a careful consideration of finished floor levels for the new developments is made during the design of proposed site levels.
- 3.8.7 Following implementation of the mitigation measures the risk of surface water flooding to the site can be considered to be low.
- 3.9 Flooding from Sewers
- 3.9.1 Flooding from the sewers occurs when surcharging during periods of excess flow breaks ground, typically at manholes or road gullies. The proposed development is not likely to increase the risk posed by sewer flooding as the surface water runoff, a primary cause of sewer surcharging, from the site is to be managed in accordance with the requirements of the NPPF and LLFA.
- 3.9.2 The development area is proposed to connect into the culverted watercourse along Baileys Lane. A new connection is to be made. The foul drainage will connect into the combined public sewer along Baileys Lane. An extract from the public sewer record is shown in Figure 7.
- 3.9.3 Drainage for the proposed development will be designed to current best practice for the foul sewers using Approved Document H. Where new surface water drainage for the site is proposed it shall be designed to cater for the 100-year plus climate change event in accordance with current guidance and will incorporate long-term storage and SuDS as appropriate.
- 3.9.4 As the public sewers are operated and maintained by United Utilities and the proposed drainage within the site will be designed to the current requirements of the LLFA the site can be considered at low risk of sewer flooding.

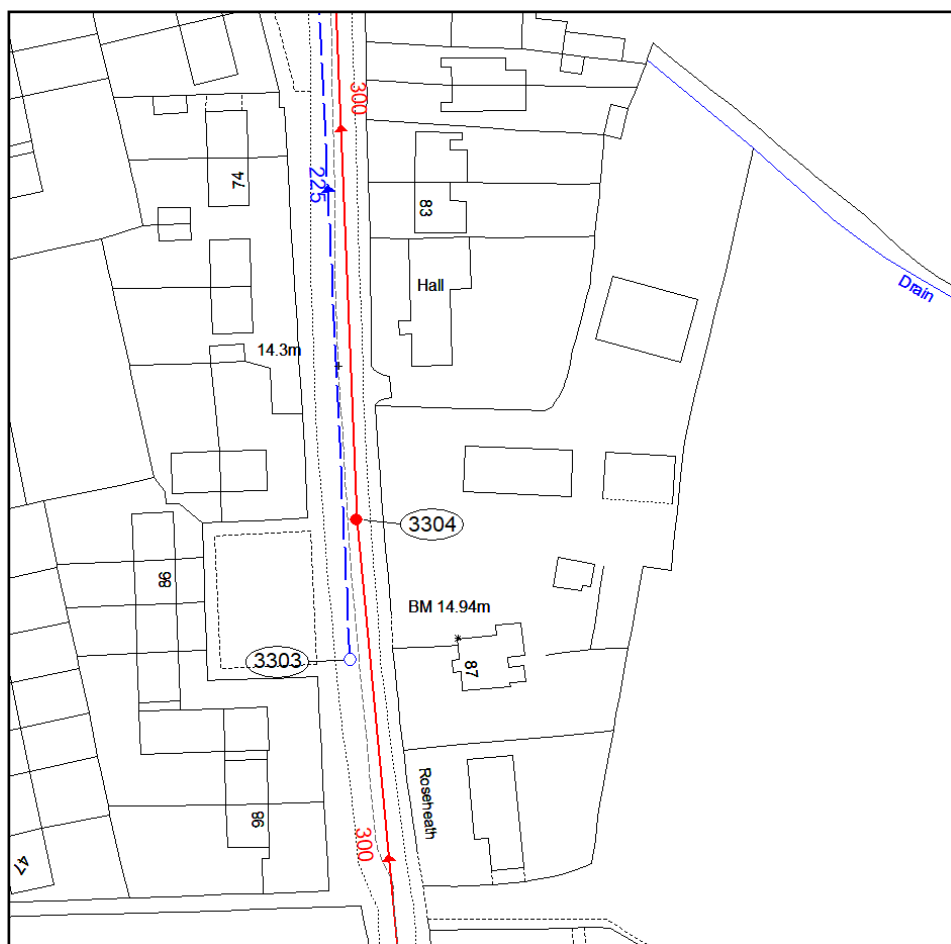


Figure 7: United Utilities Sewer Record Extract.

3.10 Flooding from Infrastructure

3.10.1 Flooding from infrastructure occurs when canals, dams or other manmade structures capacity is exceeded, or fail. The Environment Agency Flood Map for Planning confirms the site is not within a flood risk area for a reservoir and the site is not located near canals.

3.10.2 There is no risk of flooding associated with infrastructure failure.

3.11 Flooding from Groundwater

3.11.1 The Knowsley Council Flood risk management strategy document confirms, 'the computer models covering the Knowsley area only indicate minimal groundwater level rise over the next few years. For Merseyside Basin in general, groundwater levels are known to be rising due to a decline in water abstractions for industrial use. This is likely to increase future flood risk in the low-lying parts of these areas.'

3.11.2 The site has sufficient topographic relief for groundwater emergence not to cause a significant risk.

3.11.3 There are no other sources of flooding that affect the site. Overall flood risk to the proposed development can be considered low.

4 Climate Change

4.1 Paragraph 162 of the National Planning Policy Framework (NPPF) requires that plans should take a proactive approach to mitigating and adapting to climate change.

- 4.2 Paragraph 181 of the NPPF requires all plans to adopt a sequential risk-based approach taking into account all sources of flood risk and future impacts of climate change.
- 4.3 To appropriately mitigate the increased flood risk caused by climate change the Government has published guidance (<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>) related to the appropriate climate change allowances.

3.3% Annual Exceedance Rainfall Event		
Epoch	Central Allowance	Upper End Allowance
2050s	20%	35%
2070s	30%	40%
1% Annual Exceedance Rainfall Event		
Epoch	Central Allowance	Upper End Allowance
2050s	25%	40%
2070s	30%	45%

Table 1: Climate Change Allowances (Lower Mersey).

- 4.4 For development with a lifetime between 2061 and 2125 the 2070s epoch data should be used.
- 4.5 To mitigate the impact of climate change on the development the upper end allowances should be considered for both the 1% and 3.3% annual exceedance probability events and the development should be design for the 1% annual exceedance probability event so that there is:
- 4.5.1 No increased flooding elsewhere.
- 4.5.2 And the development is safe from surface water flooding.
- 4.6 Where new surface water drainage is proposed an allowance for climate change shall be included to mitigate the risk.

5 Emergency Access/Escape

- 5.1 With flood risk to the site considered low and the area being within a flood zone 1 for sea and rivers, there is no requirement for an emergency access or escape routes.

6 Flood Risk Summary and Conclusion

- 6.1 From the above assessment of flood risk, it has been established that the development site is entirely within Flood Zone 1 for river and sea flooding.
- 6.2 Surface water flood risk can be mitigated through careful consideration of finished floor levels and implementation of a SuDS drainage scheme that helps to manage runoff from the development.
- 6.3 Proposed surface water and foul water drainage will connect into an existing culvert and an existing combined sewer along Baileys Lane to the west of the site.
- 6.4 The surface water drainage network will be designed taking climate change into consideration and to help ensure the development is safe for its lifetime.
- 6.5 The development currently discharges surface water off site unrestricted, this will changed to reduce peak flows to greenfield run off rates therefore reducing flood risk to this development, and reducing the risk of flooding off site.

Surface Water Drainage Strategy

7 Policy Context

- 7.1 The LLFA expect the surface water management strategy to comply with:
- 7.2 Paragraph 80 of the Planning Practice Guidance (PPG);
- 7.3 Paragraph 175 of the National Planning Policy Framework; and
- 7.4 Standards 2, 3, 4, 5, 6, 7, 8 and 9 of the Non-Statutory Technical Standards for Sustainable Drainage (March 2015).
- 7.5 Paragraph 56 of the Planning Practice Guide requires that surface water from development be discharged in line discharge hierarchy:
 - 7.5.1 Infiltrate into the ground close to source.
 - 7.5.2 Discharge runoff to a surface water body.
 - 7.5.3 Discharge runoff to a surface water sewer, highway drain or other surface water drainage system.
 - 7.5.4 Discharge to a combined sewer.
- 7.6 The implementation of the hierarchy will be discussed in greater detail in Section 11.
- 7.7 Paragraph 175 of the National Planning Policy requires major developments to incorporate sustainable drainage systems unless there is clear evidence that their inclusion would be inappropriate. Sustainable drainage systems should:
 - 7.7.1 Take account of advice from the LLFA.
 - 7.7.2 Have appropriate proposed minimum operational standards.
 - 7.7.3 Have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and
 - 7.7.4 Where possible, provide multifunctional benefits.
- 7.8 Standards 2, 3, 4, 5, 6, 7, 8 and 9 of the Non-Statutory Technical Standards for Sustainable Drainage System (2015) are:
 - 7.8.1 S2 requires, for greenfield developments, the peak runoff rate from the development to any highway drain, sewer, or surface water body for the 1 in 1-year rainfall event and the 1 in 100-year rainfall event should never exceed the peak greenfield runoff rate for the same event.
 - 7.8.2 S3 requires for sites that were previously developed the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event must be as close as reasonably practicable to the greenfield runoff rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.

- 7.8.3 S4 requires, where reasonably practicable, for greenfield development, the runoff volume from the development to any highway drain, sewer, or surface water body in the 1 in 100-year, 6-hour rainfall event should never exceed the greenfield runoff volume for the same event.
- 7.8.4 S5 where reasonably practicable, for developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event, but should never exceed the runoff volume from the development site prior to redevelopment for that event.
- 7.8.5 S6 where it is not reasonably practicable to constrain the volume of runoff to any drain, sewer or surface water body in accordance with S4 or S5 above, the runoff volume must be discharged at a rate that does not adversely affect flood risk.
- 7.8.6 S7 requires the drainage system be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the site for a 1 in 30-year rainfall event.
- 7.8.7 S8 requires the drainage system to be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur during a 1 in 100-year rainfall event in any part of: a building (including a basement); or in any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development.
- 7.8.8 S9 requires the design of the site must ensure that, so far as is reasonably practicable, flows resulting from rainfall exceeding a 1 in 100-year rainfall event are managed in exceedance routes that minimise the risks to people and property.
- 7.9 The requirements of the local and national policy will be addressed by the proposed site layout and proposed drainage system, discussed in detail in Sections 9 and 11.

8 Existing Drainage

- 8.1 Compliance with policy begins with a review of the existing site and its drainage characteristics.
- 8.2 As discussed within the flood risk assessment, the development site is considered to have a brownfield land classification as it falls within an area with existing hardstanding area and buildings which will be renovated as part of the development, these are assumed to have existing drainage networks serving them however a drainage survey has not been completed to this date.
- 8.3 The nearest watercourse to the development is the Ditton Brook approximately 1.4km east of the development site.
- 8.4 The site topography directs runoff to the north.
- 8.5 The standard S3 of the Non-Statutory Technical Standards for Sustainable Drainage requires that surface water runoff from development sites be as close as reasonably practicable to brownfield rates but should never exceed the previously developed rates.

9 Proposed Site Layout

- 9.1 The proposed site layout is influenced by retained infrastructure and residential accommodation surrounding the development site.
- 9.2 Proposed site levels reflect the existing topography with the site falling gently towards the north.
- 9.3 The proposed FFL for the new buildings are 150mm above proposed ground levels.

10 Urban Creep

- 10.1 Urban creep is not applied to this type of development.

11 Proposed Surface Water Drainage

- 11.1 Planning policy requires that the proposed network manage surface water runoff in line with the discharge hierarchy noted in Section 7.
- 11.2 The first level of the hierarchy requires that infiltration solutions be considered for the management of surface water runoff.
- 11.2.1 Infiltration systems can take the form of soakaways, detention ponds, permeable pavements, bio-retention areas etc.
- 11.2.2 The Soilscales viewer identified the general area as Soilscale 18, Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils.
- 11.2.3 Infiltration testing has not been carried out on the proposed development site but the soilscale classification confirms that the use of soakaways is not likely a viable solution for the management of surface water from the development. Infiltration testing to BRE365 shall be carried out to confirm viability.
- 11.3 The second tier of the hierarchy requires surface water to be discharged to a surface water body.
- 11.3.1 A review of the area surrounding the site and correspondence with United Utilities have confirmed that there is a culverted watercourse along Bailey's Lane which they have requested for us to explore a connection too.
- 11.3.2 As it is a watercourse, we have contacted the LLFA but are yet to receive a response regarding a connection or an acceptable discharge rate. The site is to be drainage in accordance with the LLFA requirements when received.
- 11.4 The third tier of the hierarchy requires surface water to runoff to a surface water sewer; highway drain or other surface water drainage system.
- 11.5 The fourth tier requires surface water to be discharged to a combined sewer.
- 11.5.1 With the surface water sewer discharging to the culverted watercourse, it is considered that the surface water is managed at level two of the discharge hierarchy.
- 11.6 Details of the proposed drainage strategy are presented on the proposed drainage plans in Appendix A.
- 11.7 The proposed drainage networks will require flow controls and attenuation, to achieve the required discharge rate and manage surface water to mitigate the flood risk stemming from the development, prior to discharging to the culverted watercourse from the proposed surface water sewer within the site.
- 11.8 Attenuation is provided in the form of a cellular tank and permeable paving prior to controlling discharge to the existing culverted watercourse via a vortex control.
- 11.9 The proposed surface water network will satisfy the required design standards for all events up to and including the 100 year plus 45% climate change event.

- 11.10 The proposed surface water drainage network can be considered to fulfil the policy requirements as far as practicable.

12 Water Quality

- 12.1 Water quality guidance is set out in Chapter 26 of the SuDS Manual (CIRIA C753). For the anticipated hazards the simple index approach is suitable.
- 12.2 Pollution hazard indices for the simple index approach are provided in Table 26.2 of the SuDS Manual. The development site primarily consists of roofs and residential parking areas. The pollution hazard from these land use classifications can be considered very low.
- 12.3 Suspended solids from the surface runoff will be managed through the use of trapped gullies and a sump, prior to the outfall, which will allow suspended solids to settle out. Permeable paving is to be used as a method to improve water quality. Permeable paving helps to remove hydrocarbons and solids to improve the overall water quality during its storage time within the paving.
- 12.4 Swales are also to be used to further remove solids and sediments and slow the flow within the drainage system.

13 Proposed Foul Water Network

- 13.1 The proposed foul water network will be designed in accordance with the requirement of Approved Document H.
- 13.2 The anticipated connection point is to the west of the site into the 300mm combined sewer within Baileys Lane at an unrestricted rate as advised by United Utilities.

14 Maintenance and Management

- 14.1 The proposed private drainage network will be managed by the building management company.
- The piped network, attenuation and flow control will be maintained in accordance with the building management company processes.

15 Surface Water Management summary and Conclusion

- 15.1 The proposed drainage network manages surface water runoff up to the 100-year plus 45% climate event.
- 15.2 Long-term storage is provided within permeable paving and cellular storage systems, and the runoff rates are controlled to comply with standards S3 and S5 of the Non-Statutory Technical Standards for Sustainable Drainage Systems, as far as practicable, through the inclusion of flow controls in accordance with CIRIA C753.
- 15.3 The surface water discharge rate is controlled in line with the requirements of the Statutory Undertaker and the LLFA.
- 15.4 The proposed drainage network includes SuDS as far as practicable given the layout of the site and constraints set by the existing infrastructure.

-
- 15.5 Through the implementation of the proposed drainage strategy the site will not increase flooding within or downstream of the catchment including an allowance for climate change.
- 15.6 The proposed drainage network is considered to satisfy the requirement of local and national planning policy.

16 Appendix A – Proposed Drawings/Topographic Survey



Drawing Title: Proposed Site Plan
Date: 20.03.2025
Drawing no: 1354 - 010
Scale: 1:1000 @ A3
Drawn: KJ

revision: A
revision notes: A 15/04/2025 Updated to align with building survey information

0m 10m 20m 50m 100m



DK-Architects

26 Old Haymarket
Liverpool
L1 6ER
0151 231 1209 T
mail@dk-architects.com E
www.dk-architects.com W

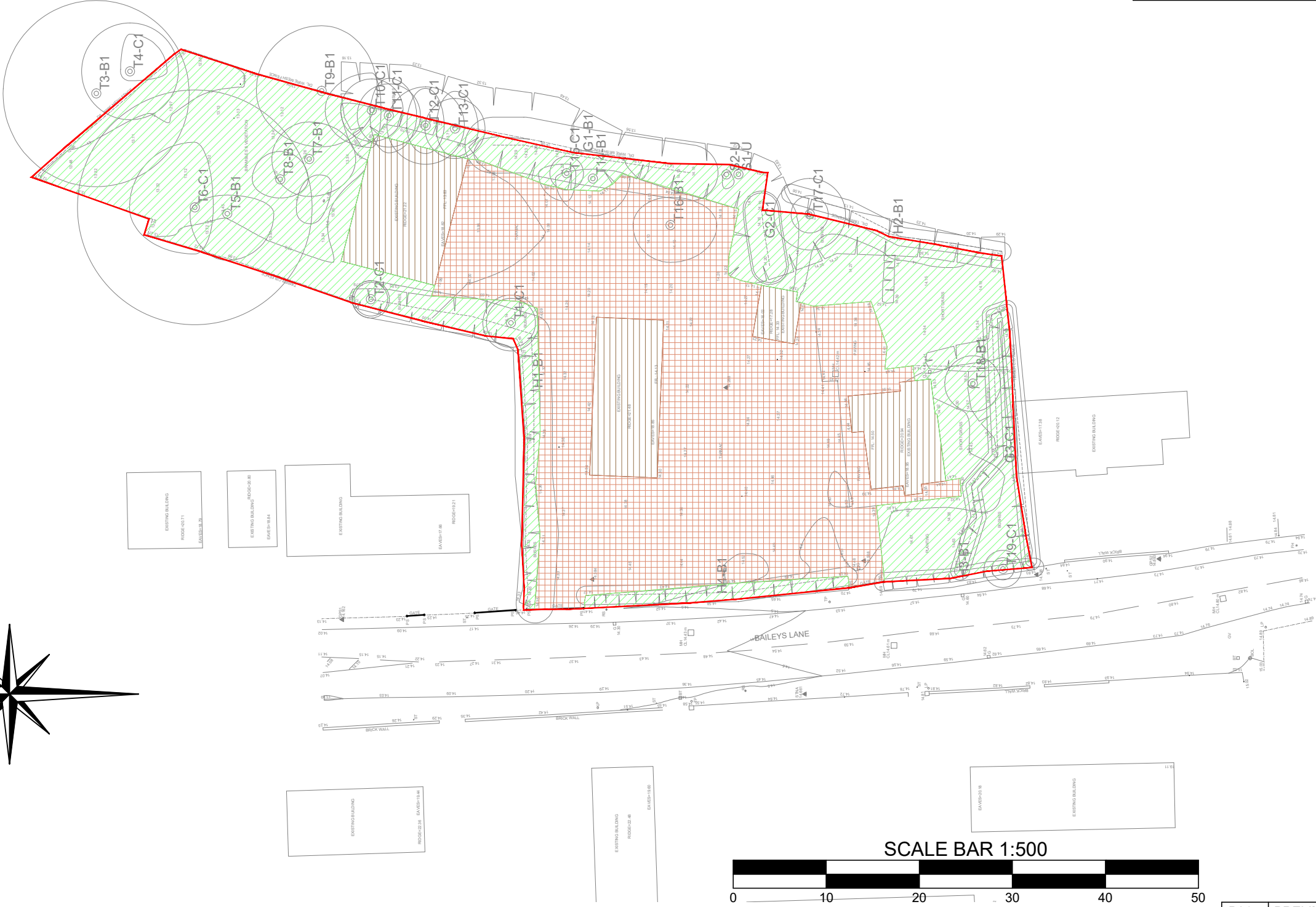
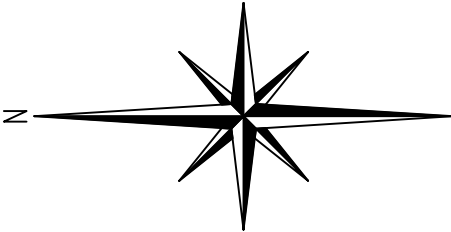
DESIGN CONTINGENCY

FOR COST PURPOSES THE CONTRACTOR IS TO INCLUDE THE FOLLOWING CONTINGENCY (% OF PRIMARY CIVILS DESIGN COST) AT THE RELEVANT PROJECT STATUS INDICATED ON THE DRAWING.

- RIBA STAGE 2 - CONCEPT DESIGN - 25%
- RIBA STAGE 3 - SPATIAL COORDINATION - 15%
- RIBA STAGE 4 - TECHNICAL DESIGN - 10%
- RIBA STAGE 5 - PRODUCTION INFORMATION - 5%

EXISTING AREAS :

	PERVIOUS:	
	LANDSCAPING	1438m ²
	IMPERVIOUS :	
	TARMAC/PAVING:	1385m ²
	ROOF:	385m ²
TOTAL SITE AREA:		3208m ²





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Drawing Status
S2 - CONCEPT DESIGN

Client
FRANCIS BARRY FAS DEVELOPMENTS LTD

Project
BAILEYS LANE
HALEWOOD

Drawing Title
EXISTING IMPERMEABLE AREAS

P01	PRELIMINARY DRAWING		28.04.25	AJB	TC
Rev	Description		Date	By	Chkd
Date APRIL 2025		Drawn By AJB		Checked By TC	
Scale at A3 1:500		Project Number 34494	Status S2	Revision P01	
Sheet Number 34494-SUT-ZZ-XX-DR-C-6001					

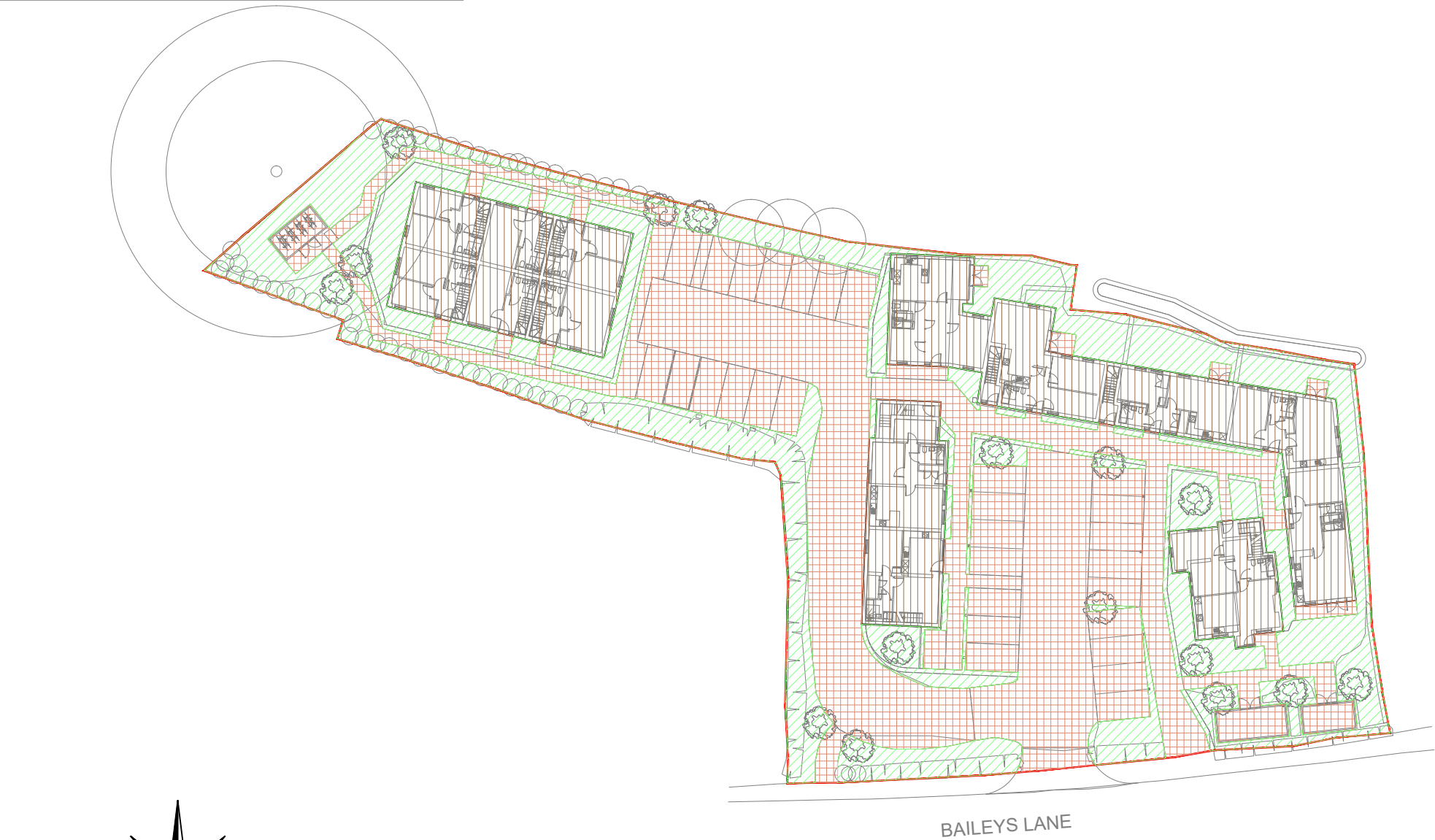
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- RIBA STAGE 4 - TECHNICAL DESIGN - 10%
- RIBA STAGE 5 - PRODUCTION INFORMATION - 5%

EXISTING AREAS :

	<u>PERVIOUS:</u> LANDSCAPING	1029m ²
	<u>IMPERVIOUS :</u> TARMAC/PAVING:	1351m ²
		ROOF: 828m ²
TOTAL SITE AREA:		3208m ²



SCALE BAR 1:500





Structural & Civil Engineering
Geotechnical & Environmental Investigations
Building Surveying
Pre Planning Services

Liverpool Head Office: 0151 227 3155
Manchester Office: 0161 817 5180
North Wales Office: 01978 664 071
London Office: 020 8016 4320

www.sutcliffe.co.uk



Drawing Status
S2 - CONCEPT DESIGN

Client
FRANCIS BARRY FAS DEVELOPMENTS LTD

Project
BAILEYS LANE
HALEWOOD

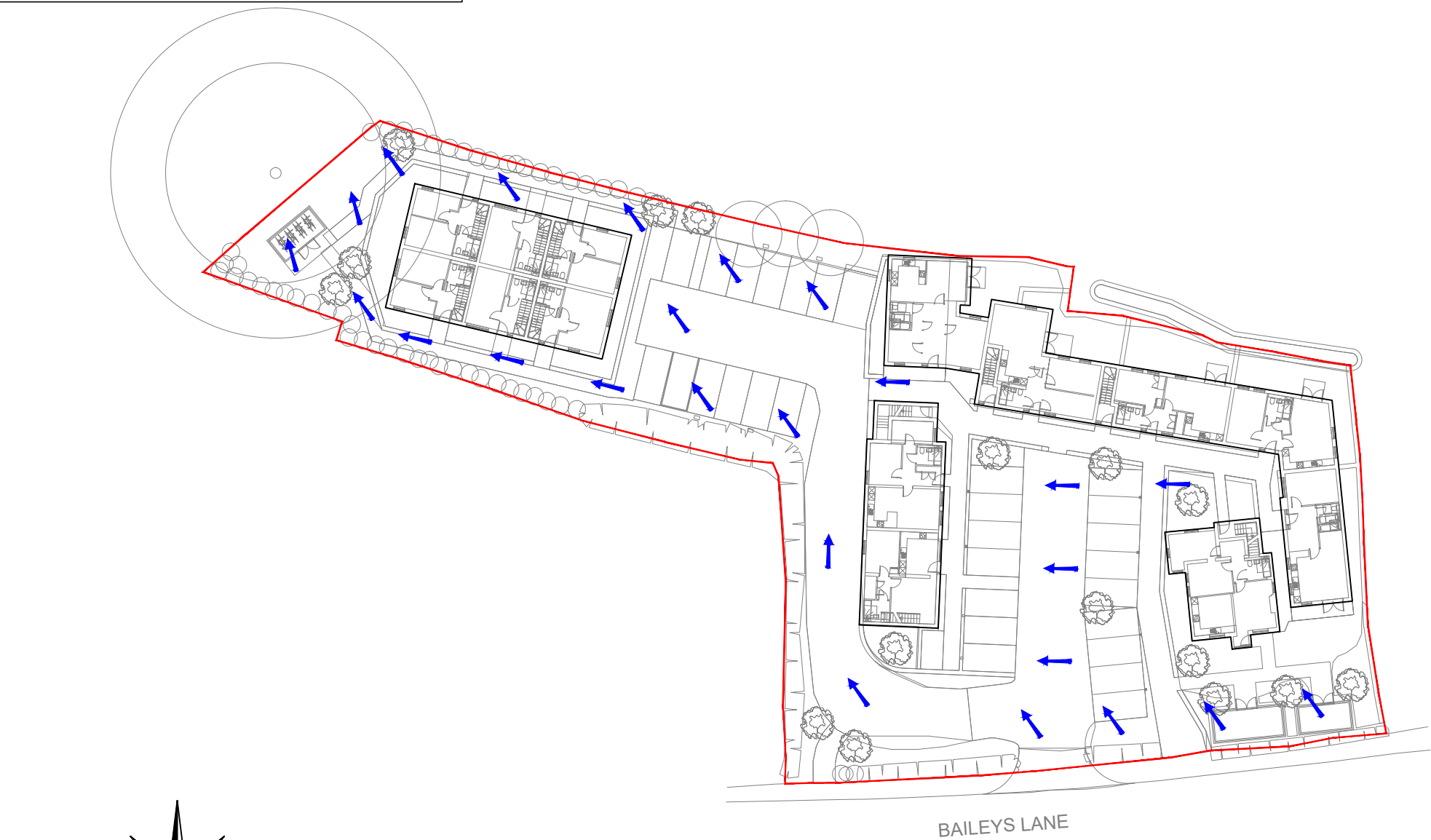
Drawing Title
PROPOSED IMPERMEABLE AREAS

P01	PRELIMINARY DRAWING		28.04.25	AJB	TC
Rev	Description		Date	By	Chkd
Date APRIL 2025		Drawn By AJB		Checked By TC	
Scale at A3 1:500		Project Number 34494	Status S2	Revision P01	
Sheet Number 34494-SUT-ZZ-XX-DR-C-6002					

DESIGN CONTINGENCY

FOR COST PURPOSES THE CONTRACTOR IS TO INCLUDE THE FOLLOWING CONTINGENCY (% OF PRIMARY CIVILS DESIGN COST) AT THE RELEVANT PROJECT STATUS INDICATED ON THE DRAWING.

RIBA STAGE 2 - CONCEPT DESIGN - 25%
RIBA STAGE 3 - SPATIAL COORDINATION - 15%
RIBA STAGE 4 - TECHNICAL DESIGN - 10%
RIBA STAGE 5 - PRODUCTION INFORMATION - 5%



SCALE BAR 1:500





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Drawing Status

S2 - CONCEPT DESIGN

Client

FRANCIS BARRY FAS DEVELOPMENTS LTD

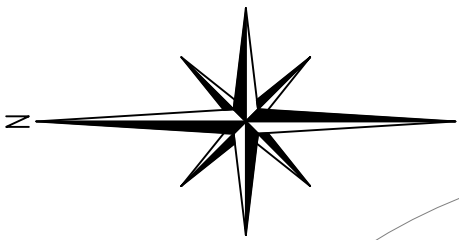
Project

BAILEYS LANE
HALEWOOD

Drawing Title

PROPOSED IMPERMEABLE AREAS

P01	PRELIMINARY DRAWING		28.04.25	AJB	TC
Rev	Description		Date	By	Chkd
Date APRIL 2025		Drawn By AJB	Checked By TC		
Scale at A3 1:500		Project Number 34494	Status S2	Revision P01	
Sheet Number 34494-SUT-ZZ-XX-DR-C-6002					



CELLULAR ATTENUATION NOTE

ATTENUATION TANKS SHALL BE DESIGNED SPECIFICALLY FOR ITS PURPOSE AND LOCATION.

ATTENUATION DESIGN AND DRAWINGS SHALL BE PROVIDED TO THE ENGINEER FOR COMMENT.

ATTENUATION TANKS SHALL NOT BE ORDERED OR INSTALLED PRIOR TO THE ENGINEER REVIEWING / COMMENTING ON THE DESIGN AND DRAWINGS.

THE CONTRACTOR SHALL ALLOW ADEQUATE TIME WITHIN THEIR PROGRAMME FOR ANY APPROVALS OF ATTENUATION TANKS WHERE THEY ARE LOCATED WITHIN THE INFLUENCE ZONE OF AN ADOPTED HIGHWAY.

HAPAS APPROVED (HIGHWAY AUTHORITY PRODUCT APPROVAL SCHEME) TANKS MAY BE REQUIRED WHERE ATTENUATION TANKS ARE WITHIN THE INFLUENCE ZONE OF AN ADOPTED HIGHWAY.

THE CONTRACTOR SHALL ALLOW FOR LOCALISED DEEPENING OF ALL FOUNDATIONS TO STRUCTURES WITHIN THE INFLUENCE ZONE OF ATTENUATION TANKS.

DRAINAGE KEY

- NEW SURFACE WATER DRAIN
- NEW FOUL WATER DRAIN
- EXISTING COMBINED SEWER
- EXISTING SURFACE WATER SEWER
- EXTG DRAINAGE TO BE ABANDONED TO U.U. / L.A. APPROVAL
- NEW MANHOLE - REFER TO PLAN FOR SIZE
- NEW POLYPROPYLENE INSPECTION CHAMBER (PPIC)
- NEW MINI ACCESS CHAMBER
- EXTG MH
- CL: XXX
- IL: XXX
- RWP
- SP
- BIG
- EX RG
- RG
- DG
- G
- SITE BOUNDARY
- SURFACE WATER ATTENUATION
- PERMEABLE CONSTRUCTION WITH DIFFUSER BOX OUTLET

GENERAL NOTES

DO NOT SCALE OFF THIS DRAWING

THIS DRAWING TO READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR / FABRICATOR PRIOR TO COMMENCEMENT OF WORKS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.

ALL WORKS TO BE CARRIED OUT IN STRICT ACCORDANCE WITH THE ENGINEER'S SPECIFICATIONS, RELEVANT BRITISH STANDARDS, STATUTORY HEALTH AND SAFETY/C.D.M. REGULATIONS, RELEVANT CODES OF PRACTICE AND THE CURRENT EDITION OF THE BUILDING REGULATIONS.

FOR FINAL SETTING OUT INFORMATION RELATING TO GRID LINES AND WALL POSITIONS REFER TO THE ARCHITECT'S DRAWINGS.

ALL FLOOR LEVELS TO BE CONFIRMED BY ARCHITECT PRIOR TO CONSTRUCTION

ALL COVER LEVELS TO BE CONFIRMED BY ARCHITECT PRIOR TO CONSTRUCTION

ALL DRAINAGE PENETRATING THROUGH FLOOR SLABS AND RAINWATER PIPE LOCATIONS TAKEN FROM ARCHITECTS DRAWINGS. ARCHITECT TO CONFIRM LOCATIONS PRIOR TO CONSTRUCTION.

EXISTING SERVICES

ROAD SIGNS AND LAMP COLUMNS ON THE SITE PERIPHERY TO BE RE-SITED IF REQUIRED BY, AND TO THE APPROVAL OF, THE LOCAL AUTHORITY.

CONTRACTOR TO SATISFY THEMSELVES THAT EXISTING AND PROPOSED SERVICES DO NOT CLASH WITH PROPOSED DRAINAGE

KNOWN EXISTING SERVICES ARE INDICATED ON THE PLAN WHERE THEY CROSS THE PROPOSED DRAINAGE. THE EXACT TYPE AND LOCATION SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO START OF WORKS TO ENSURE THAT PROPOSED DRAINAGE LEVELS DO NOT INTERFERE WITH SERVICES. ALL DISCREPANCIES SHALL BE REPORTED TO ENGINEER IMMEDIATELY.

THE CONTRACTOR SHALL CHECK ALL EXISTING COVER / INVERT LEVELS AND PIPE / SEWER SIZES ON SITE PRIOR TO START OF WORKS TO ENSURE PROPOSED DRAINAGE CAN BE CONSTRUCTED AS INDICATED ON THE DRAWING. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

PROPOSED DRAINAGE

OUTSIDE EDGE OF ADOPTED SEWER SHALL NOT ENCR OACH WITHIN 1M OF KERB FACE.

OUTSIDE EDGE OF ADOPTED MANHOLES SHALL NOT ENCR OACH WITHIN 0.5M OF KERB FACE.

ALL DRAINAGE IN HIGHWAYS/CAR PARKING AREAS/DRIVEWAYS LESS THAN 1.2M DEEP TO BE CONCRETE ENCASED.

ALL PPIC'S GREATER THAN 1.2M DEEP TO HAVE REDUCED ACCESS COVERS TO PREVENT MAN ENTRY.

SURFACE WATER DRAINAGE:

ALL PRIVATE SURFACE WATER DRAINAGE TO BE 100MM Ø AT 1:80 GRADIENT UNLESS NOTED OTHERWISE.

ALLOWANCE TO BE MADE FOR DRIVEWAY GULLIES AND ASSOCIATED DRAIN RUNS WHERE APPLICABLE

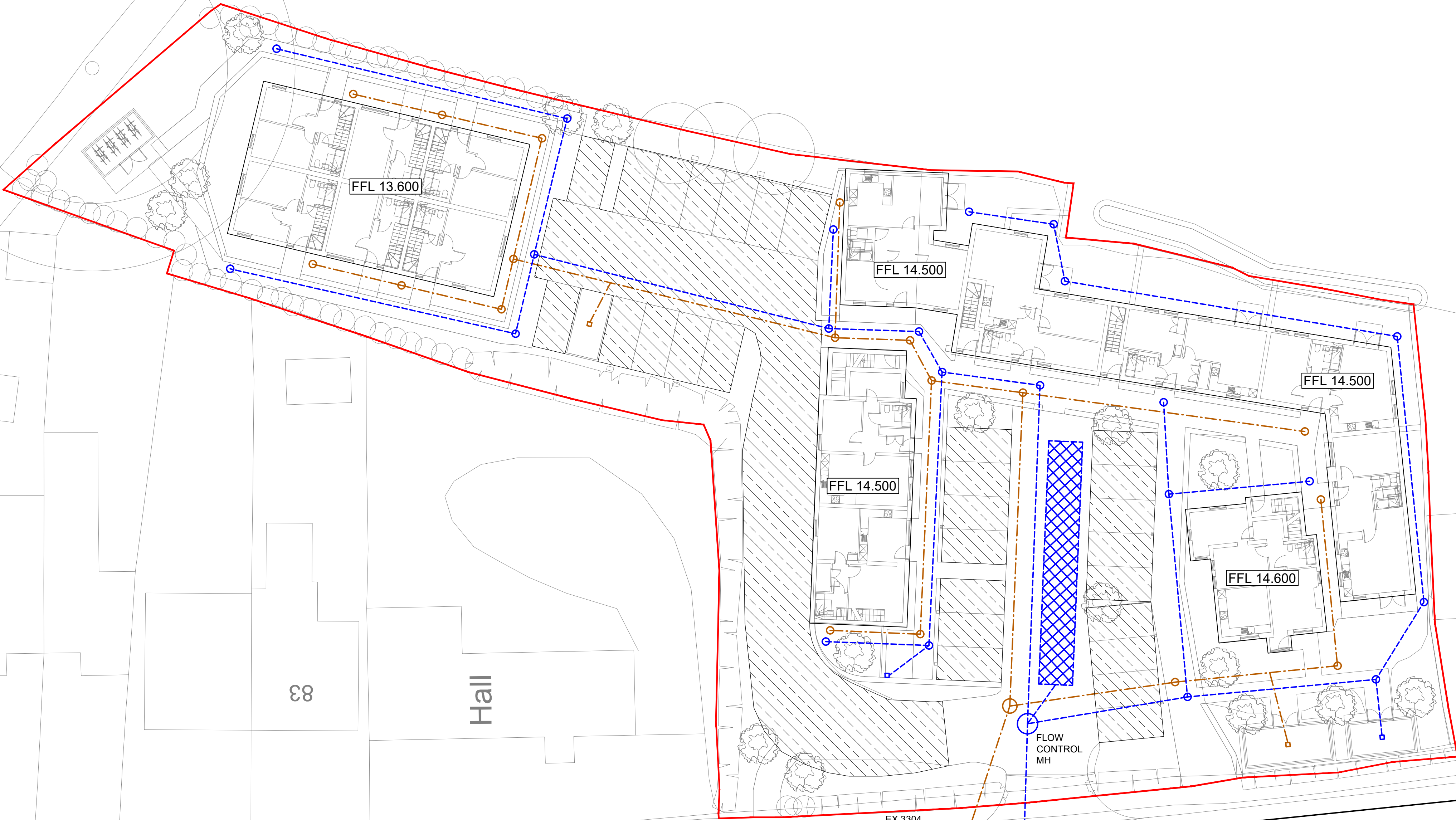
FOUL WATER / COMBINED DRAINAGE:

ALL UNDERSLAB FOUL WATER DRAINAGE TO BE 100MM Ø AT 1:40 GRADIENT UNLESS NOTED OTHERWISE

ALL OTHER PRIVATE FOUL WATER DRAINAGE TO BE 100MM Ø AT 1:80 GRADIENT UNLESS NOTED OTHERWISE

INTERNAL VENTING OF DRAINAGE SYSTEM BY OTHERS.

ALL INTERNAL SP/SVP POSITIONS TO BE CONFIRMED BY ARCHITECT PRIOR TO CONSTRUCTION OF GROUND FLOOR SLAB



EX 3304
CL: 14.43
IL: 11.68 (3000)

EX 3303
CL: 14.61
IL: 12.89

NEW CONNECTION TO
EXISTING COMBINED MH

NEW MH TO EXISTING
SURFACE WATER
SEWER
IL: 12.75 (2250) TBC

DESIGN CONTINGENCY

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RIBA STAGE 4 - TECHNICAL DESIGN - 10%

RIBA STAGE 5 - PRODUCTION INFORMATION - 5%

SCALE BAR 1:200

0 1 2 3 4 5 10 15 20

P01	ISSUED FOR COMMENT	28.04.25	AJB	TC
Rev	Description	Date	By	Chkd
Drawing Status				
S2 - CONCEPT DESIGN				
				
Client FRANCIS BARRY FAS DEVELOPMENTS LTD				
Project BAILEYS LANE HALEWOOD				
Drawing Title DRAINAGE STRATEGY				
Date APRIL 2025	Drawn By AJB	Checked By TC		
Scale at A1 1:200	Project Number 34494	Status S2	Revision P01	
Sheet Number 34494-SUT-ZZ-XX-DR-C-6020				

17 **Appendix B – Environmental Agency Data**

EA Flood Maps

