

FLOOD RISK ASSESSMENT

**25 FIR TREE WAY,
HASSOCKS**



PREPARED BY: **KRISTOFER J CULLUM-FERNANDEZ**, BA (HONS), MLA.

CREATED: 3RD SEPTEMBER 2025

PLANNING REF: DM/25/1655

REF: KJ0015-FRA-01

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01. DEVELOPMENT DETAILS

Flood Risk Assessment (Proportionate)

25 Fir Tree Way, Hassocks, BN6 8BU

Planning Ref: DM/25/1655

Prepared by: KJCF Landscape (Kristofer J Cullum-Fernandez, MLA)

Date: 3rd September 2025

02. EXECUTIVE SUMMARY

02.0.1. This Flood Risk Assessment (FRA) supports the planning application for a domestic extension at 25 Fir Tree Way, Hassocks.

- » The site lies within Flood Zone 2 (medium probability of fluvial flooding) and is identified as at High risk of surface water flooding by the Environment Agency's Long-Term Flood Risk mapping.
- » Existing roof drainage is understood to connect informally to a shared pipe discharging into a weir at the rear of the property.
- » The proposed extension increases roof area, but mitigation is provided through a new rear-garden soakaway sized to attenuate runoff from 63.4 m² of roof area, in line with Building Regulations Part H and BRE365 guidance.
- » The soakaway will be located ≥5 m from the dwelling and ≥2.5 m from boundaries. Garage roof drainage (46.5 m²) will remain on the existing system.
- » Finished floor levels will match the existing dwelling, which sits at least 1.0 m higher than the rear garden level, providing resilience against shallow floodwaters.

02.0.2. Conclusion: With the proposed mitigation, the development does not increase flood risk on or off site and provides betterment compared with the current informal discharge.

03. INTRODUCTION

03.0.1. This FRA has been prepared to support a householder planning application for a domestic extension at 25 Fir Tree Way, Hassocks. The assessment follows Environment Agency (EA) Standing Advice and Mid Sussex District Council (MSDC) guidance for proportionate flood risk evidence.

04. SITE & PROPOSAL

- » Address: 25 Fir Tree Way, Hassocks, BN6 8BU
- » Proposal: Rear extension including hipped and flat roof elements.
- » Context: Existing dwelling with rear garden falling northwards to a weir/ watercourse.

04.0.1. Contributing roof areas:

- » Existing roof diverted = 63.4 m²
- » New hipped + flat roofs = included in diverted area
- » Retained on existing system = 46.5 m²

05. POLICY & GUIDANCE

05.0.1. This FRA has been prepared in accordance with:

- » National Planning Policy Framework (NPPF)
- » Planning Practice Guidance (Flood Risk and Coastal Change)

- » EA Standing Advice for minor extensions
- » MSDC Flood Risk & Drainage Checklist
- » BRE 365 soakaway design guidance

06. FLOOD RISK CONTEXT

- » EA Flood Map for Planning: Site lies within Flood Zone 2, medium probability of fluvial flooding (annual probability between 1 in 100 and 1 in 1000).
- » Surface water: EA Long-Term Flood Risk map identifies the site as High risk of surface water flooding.
- » Topography: Rear garden falls north by ~5 m relative to house platform, discharging towards the weir.
- » Historic flooding: None recorded, but risk acknowledged.
- » Climate change: Not modelled in detail; addressed via mitigation and on-site attenuation.

07. EXISTING DRAINAGE

- » Current roof drainage appears to connect informally with the neighbour's system, discharging into the rear weir.
- » Garage roof remains on this existing system.
- » No survey of wider garden hardstanding has been carried out; for this FRA, it is assumed the garden remains unchanged.

08. PROPOSED SURFACE WATER STRATEGY

08.0.1. Surface water from the **new and diverted roof areas (63.4 m²)** will be intercepted via two new rear RWPs and conveyed in 110 mm uPVC pipework to a modular soakaway located in the rear garden. The garage roof (46.5 m²) remains on the existing drainage system.

- » **Sizing approach:** For domestic, householder-scale development a proportionate method is applied (1.0 m³ storage per 50 m² of contributing roof), with crate void ratio allowance; see Section C. Calculations.
- » **Location:** Soakaway positioned ≥ 5 m from the dwelling and ≥ 2.5 m from plot boundaries (Part H / BRE365).
- » **Construction:** Modular crates wrapped in geotextile to prevent silt ingress with pea shingle surround; minimum 300 mm cover.
- » **Exceedance routing:** Any overflow routes across the rear lawn (northbound) away from the dwelling/highway.
- » **Finished Floor Levels:** Extension FFL to match the existing dwelling, which sits ≈ +1.0 m above the rear garden level.

08.0.2. Cross-references:

- » Pipe runs, RWPs and soakaway position → **Drawing A01 (1:100 Drainage Strategy Plan)**.
- » Garden context and exceedance direction → **Drawing A02 (1:200 Site Context Plan)**.
- » Flood zone setting → **Drawing A03 (1:500 Flood Zone Context Plan)**.
- » Roof catchment split (diverted vs retained) → **Figure C1 in Appendix C**.

08.0.3. The design therefore provides betterment compared with the existing informal drainage connection.

08.0.4. Sizing calculations are provided in Appendix C.

08.0.5. Refer also to Drawing A05 (Landscape Environment Map) showing local environmental context.

09. FOUL DRAINAGE

- » Foul water remains on existing mains system.
- » Additional load negligible; no impact on capacity.

10. ACCESS, EGRESS & RESILIENCE

- » Extension finished floor level matches existing house, set ~1.0 m above rear garden level.
- » Linear drains provided at thresholds where required.
- » Materials and detailing can incorporate water-resilient finishes if advised by MSDC.

11. CONSTRUCTION PHASE CONSIDERATIONS

- » Protect existing drains and avoid silt discharge into watercourse.
- » Store materials clear of exceedance routes.
- » Prevent compaction of garden soils around soakaway location.

12. OPERATION & MAINTENANCE

- » Homeowner to maintain gutters, RWPs, and soakaway inlets.
- » Inspect soakaway annually; jet clean inlets if required.
- » Maintain permeable surfaces and threshold drains to prevent clogging.

13. NOTE ON EXTREME EVENTS

- 13.0.1. This FRA has proportionately assessed flood risk for a domestic extension, using the accepted rule-of-thumb soakaway sizing method (1 m³ per 50 m² roof area). Larger storm events and climate change allowances are acknowledged but not modelled at this stage given the scale of works. Should MSDC or the LLFA require confirmation under design storm conditions, the soakaway can be refined through BRE365 infiltration testing and detailed calculation.
- 13.0.2. See Appendix C for soakaway sizing method and assumptions.

14. CONCLUSION

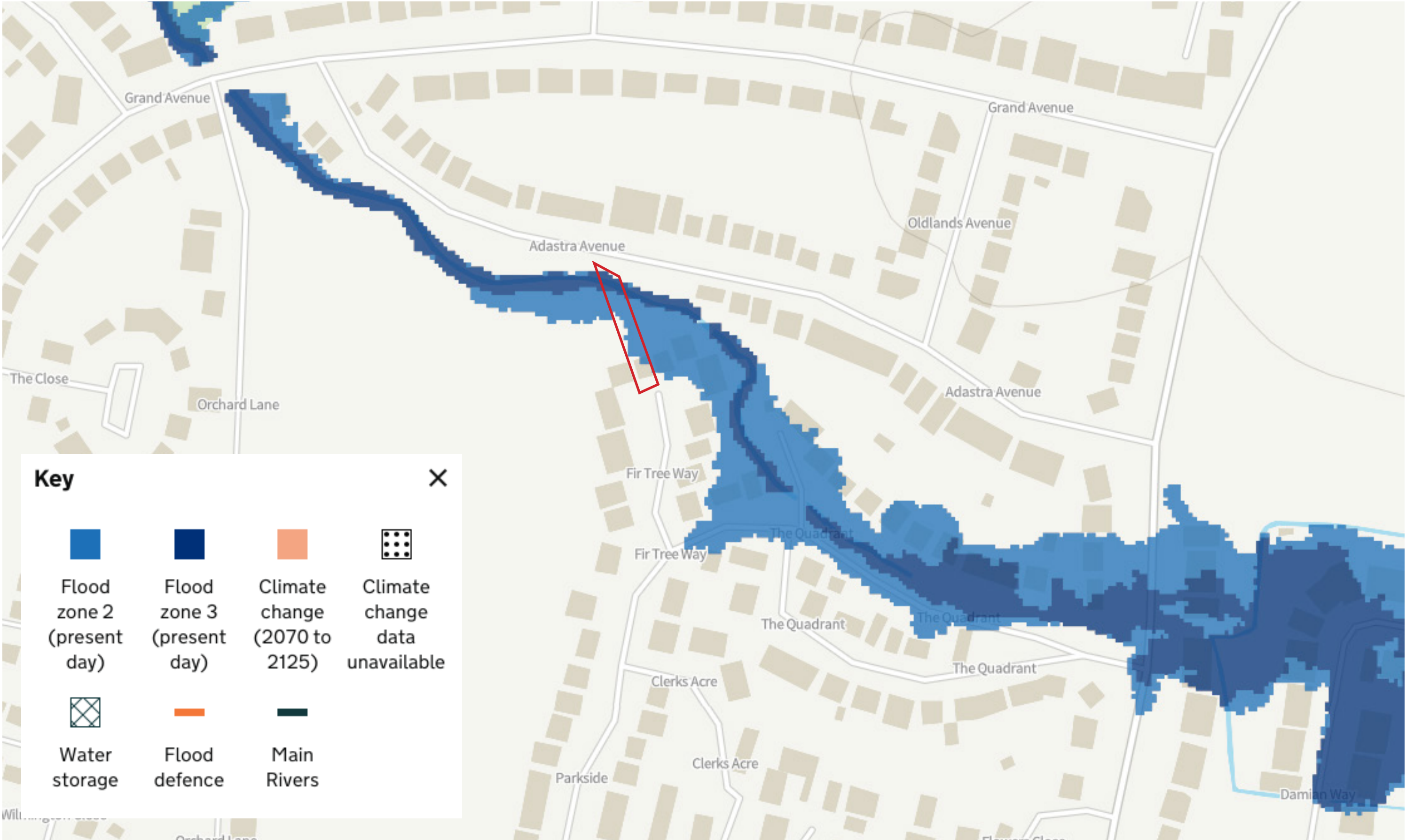
- 14.0.1. The proposed extension at 25 Fir Tree Way incorporates a new soakaway drainage system sized to accommodate runoff from 63.4 m² of roof area. The soakaway is positioned to BRE365 and Building Regulations requirements, with exceedance flows routed to the rear garden. Finished floor levels provide resilience, and foul water remains on the existing system.
- 14.0.2. The strategy reduces reliance on the current informal neighbour connection and therefore represents betterment compared with the existing arrangement. The proposal does not increase flood risk on or off site and should be supported on flood risk grounds.

15. REFERENCES

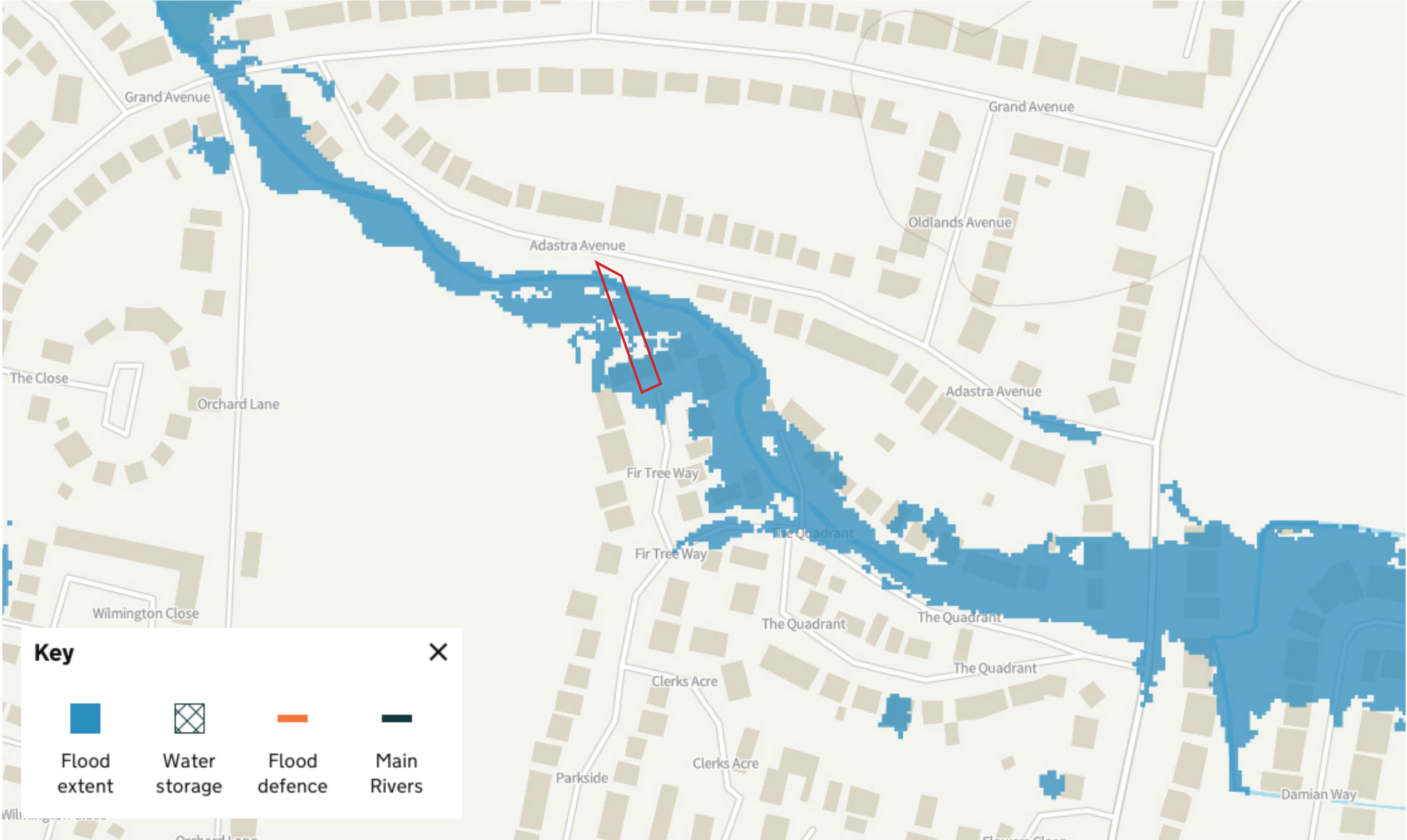
- » Environment Agency (2025). Flood Map for Planning and Long-Term Flood Risk Mapping. Accessed September 2025.
- » Mid Sussex District Council (2025). Flood Risk and Drainage Guidance for Planning.
- » BRE (2016). Soakaway Design – Digest 365.
- » British Standards Institution (2017). BS EN 752: Drain and Sewer Systems Outside Buildings.
- » UK Soil Observatory (UKSO, 2025). Soilscape Dataset.
- » Digimap (2025). Geology and Topography Data.

APPENDIX A:
EA FLOOD ZONE &
SURFACE WATER MAPS

A1 - EA FLOOD ZONE



A2 - SURFACE WATER MAP

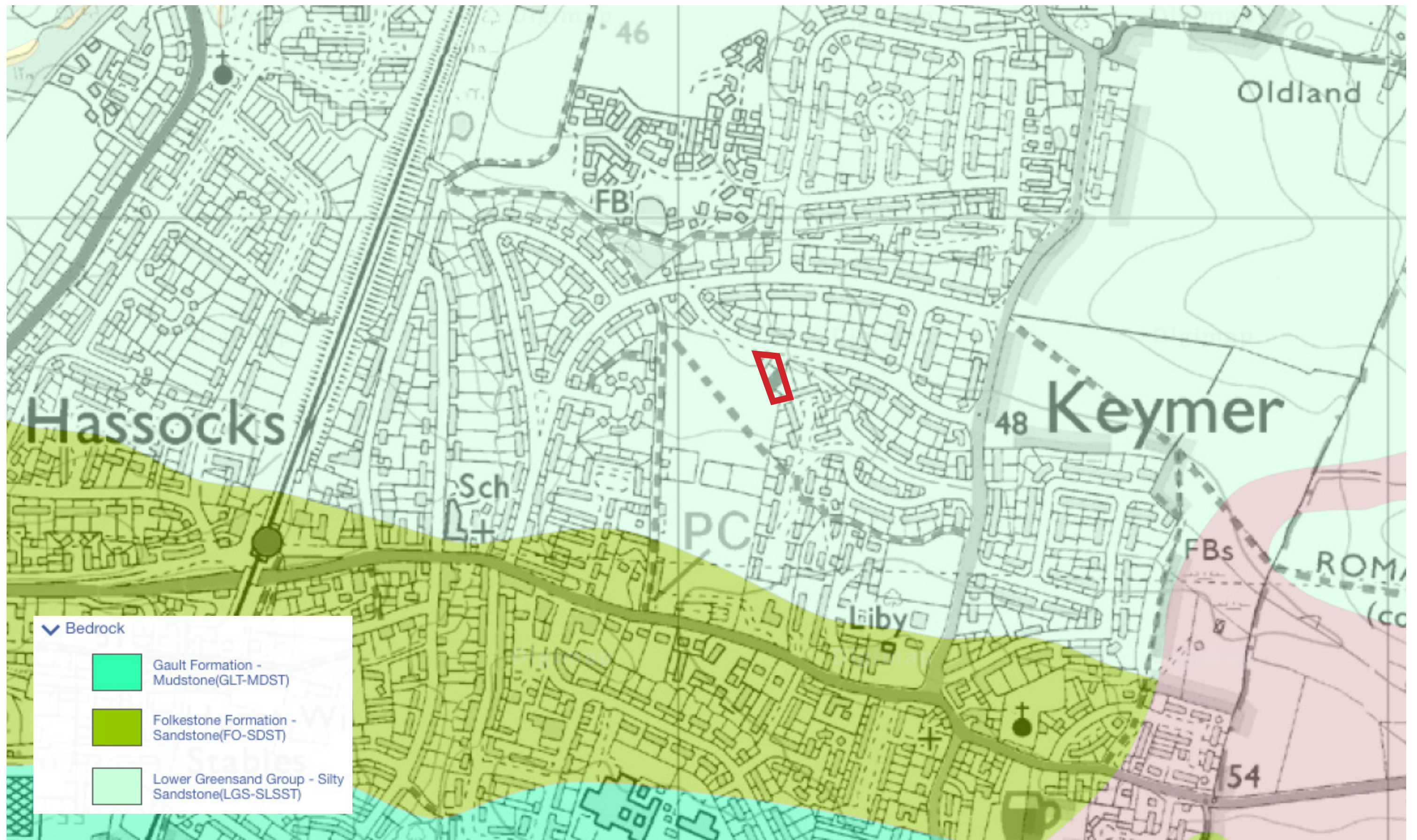


APPENDIX B: GEOLOGY & SOIL MAPS

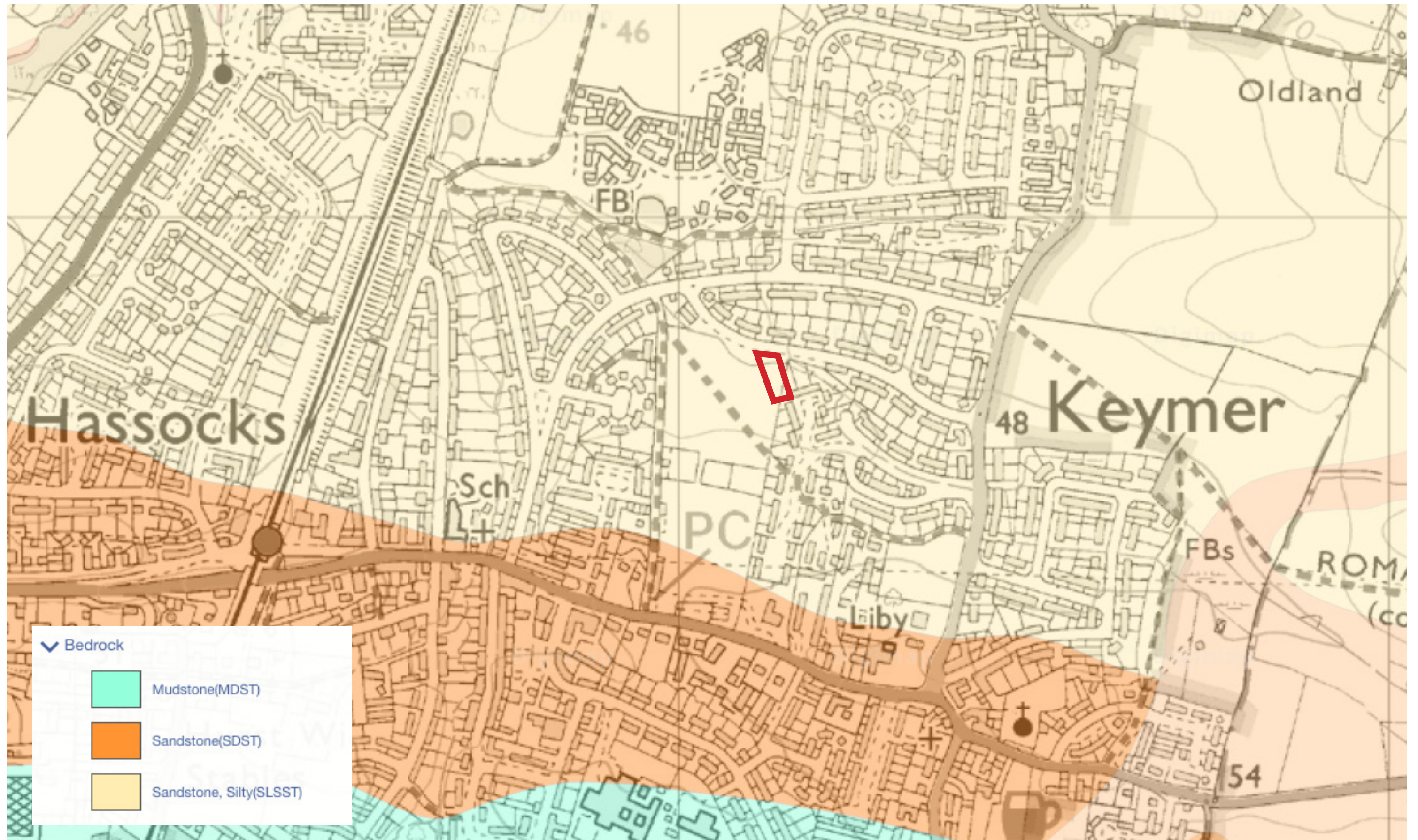
Desk-based mapping identifies underlying geology as 'Lower Green Sand Group' with superficial deposits of Sandstone, Silty [SLSST]'. Soil texture data (UKSO, 1:50k) indicates light to medium sandy soils, which are generally favourable for infiltration.

However, the Soilscales dataset flags the site as 'unclassified,' which may reflect historic disturbance or made ground associated with development in the area. On this basis, infiltration is considered feasible in principle but may be locally variable. The proposed soakaway has therefore been sized using standard planning assumptions, with final performance to be verified through BRE365 infiltration testing if required by the LPA or Building Control.

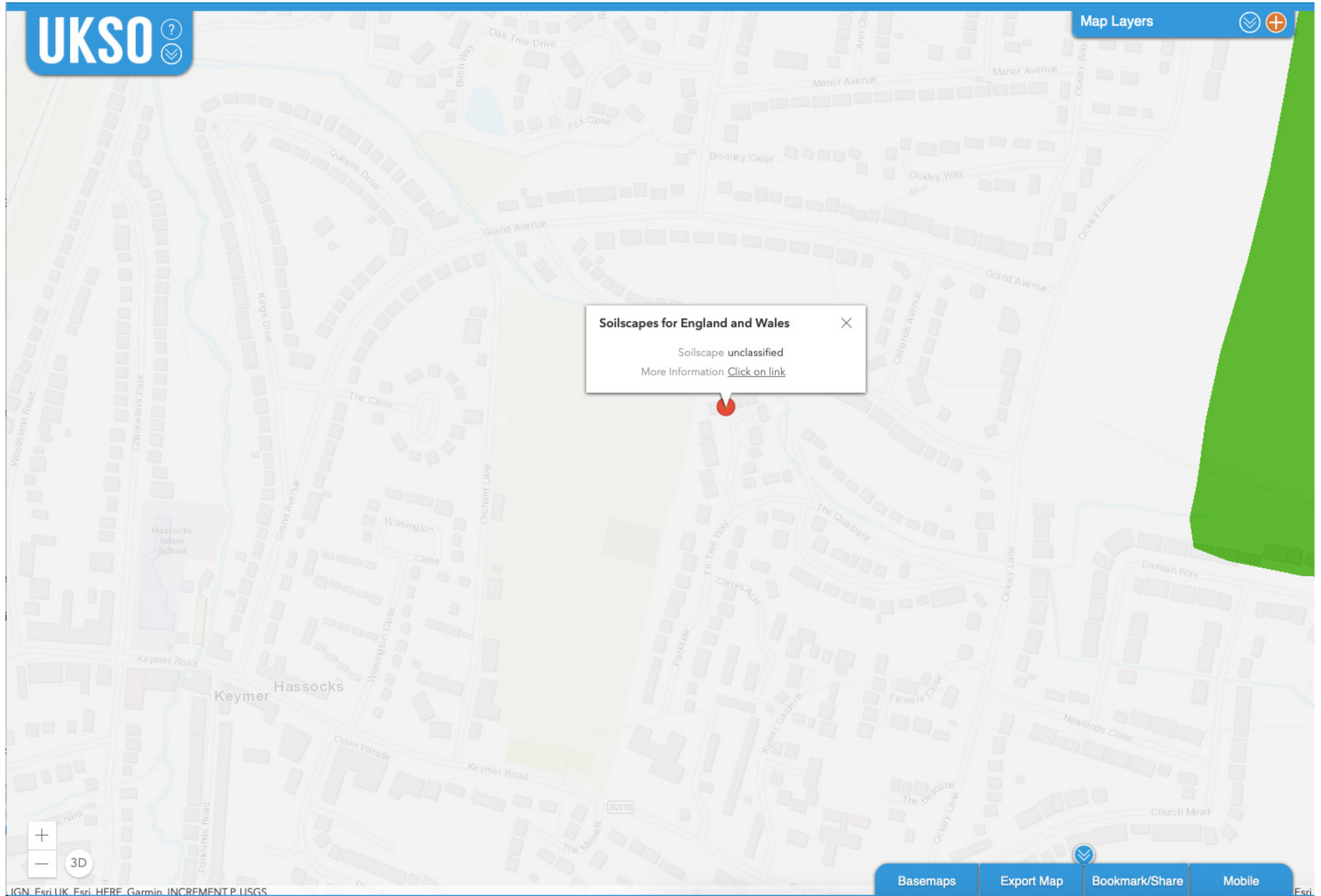
B1 - GEOLOGY ROCK UNIT MAP



B1 - GEOLOGY ROCK TYPE MAP



B1 - SOIL TYPE MAP



B1 - SOIL TEXTURE MAP

UKSO

1. Choose where you would like to investigate by navigating the map, or searching for a location below
2. Use the map layers tool to learn more about the different soil properties in the United Kingdom

?

⬆

Map Layers

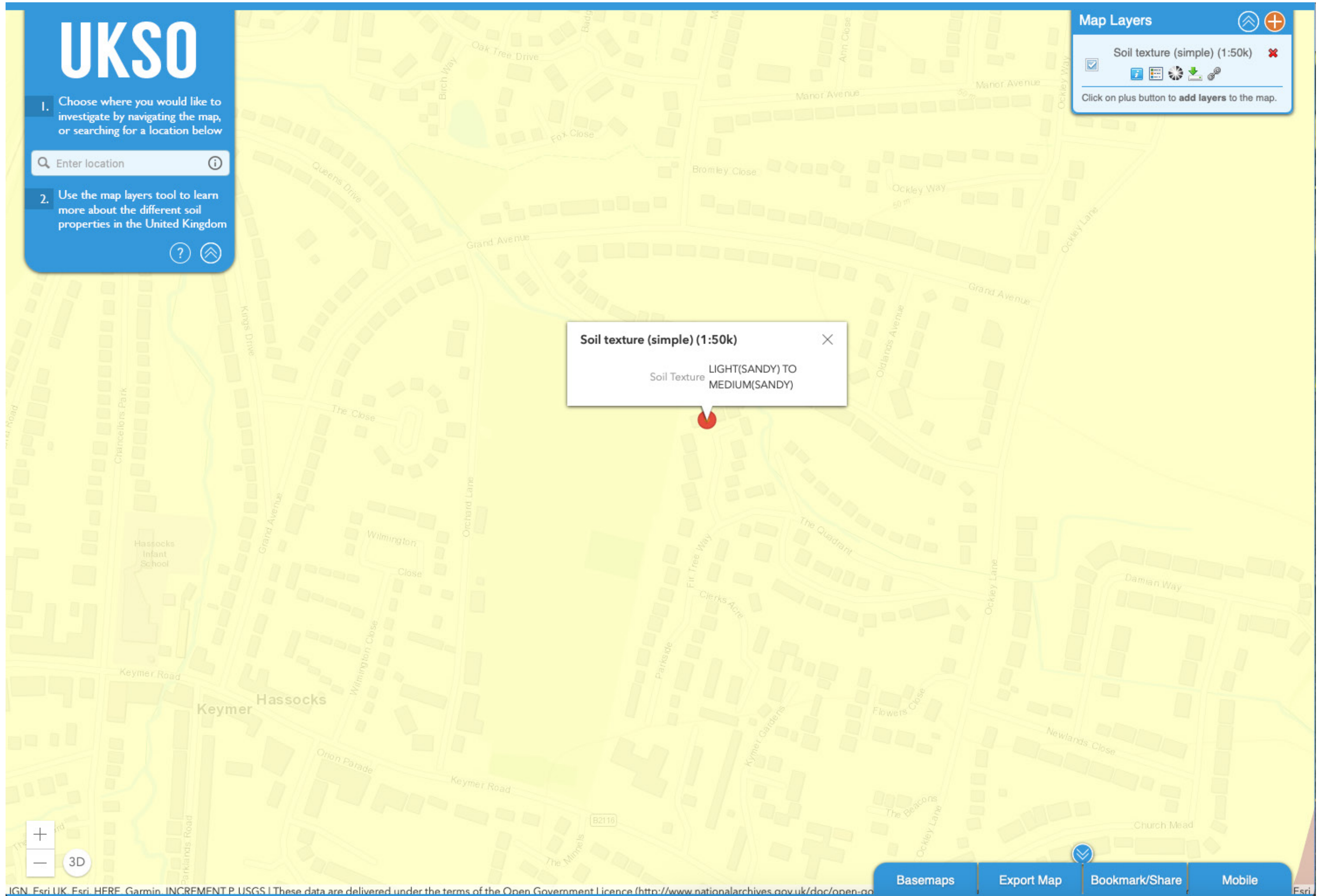
☒ Soil texture (simple) (1:50k) ✕



Click on plus button to add layers to the map.

Soil texture (simple) (1:50k) ✕

Soil Texture LIGHT(SANDY) TO MEDIUM(SANDY)



+

-

3D

Basemaps

Export Map

Bookmark/Share

Mobile

IGN, Esri, UK, Esri, HERE, Garmin, INCREMENT P, USGS | These data are delivered under the terms of the Open Government Licence (<http://www.nationalarchives.gov.uk/doc/open-gov-licence/>)

APPENDIX C:
SOAKAWAY SIZING TABLE &
CALCULATIONS
(WITH ROOF CATCHMENT PLAN)

C. CALCULATIONS (SOAKAWAY SIZING)

OBJECTIVE: Size a modular soakaway to attenuate runoff from diverted roof areas using a proportionate domestic method, suitable for planning. Final sizing can be refined via BRE365 percolation testing if required by the LPA.

C1. INPUTS & ASSUMPTIONS

- Diverted roof catchment (A): 63.4 m² (*main + new extension roofs*).
- Retained on existing system: 46.5 m² (*garage + front roof as shown on Figure C1*).
- Method: Rule-of-thumb storage of 1.0 m³ per 50 m² roof area (*domestic planning scale*).
- Runoff coefficient: 1.0 (*impermeable roof*).
- Crate void ratio (η): 0.95 (*typical modular crate system*).
- Siting clearances: ≥ 5 m from buildings; ≥ 2.5 m from boundaries.
- Infiltration feasibility:
 - » Desk-based geology (Digimap) identifies Lower Greensand Group with superficial deposits of sandstone/siltstone.
 - » Soil texture mapping (UKSO, 1:50k) suggests light to medium sandy soils, favourable for infiltration.
 - » Soils dataset returns site as unclassified, which may reflect local made ground from historic development.
 - » Infiltration is therefore considered feasible in principle, but final soakaway performance to be confirmed through BRE365 percolation testing if required by MSDC or Building Control.

C2. STORAGE REQUIREMENT

$$V_s = A / 50 = 63.4 / 50 = 1.268 \text{ m}^3$$

C3. GROSS CRATE VOLUME (ALLOWING FOR VOIDS)

$$V_{\text{gross}} = V_s / 0.95 = 1.268 / 0.95 = 1.335 \text{ m}^3$$

C4. PROPOSED SOAKAWAY PROVISION (WITH MARGIN)

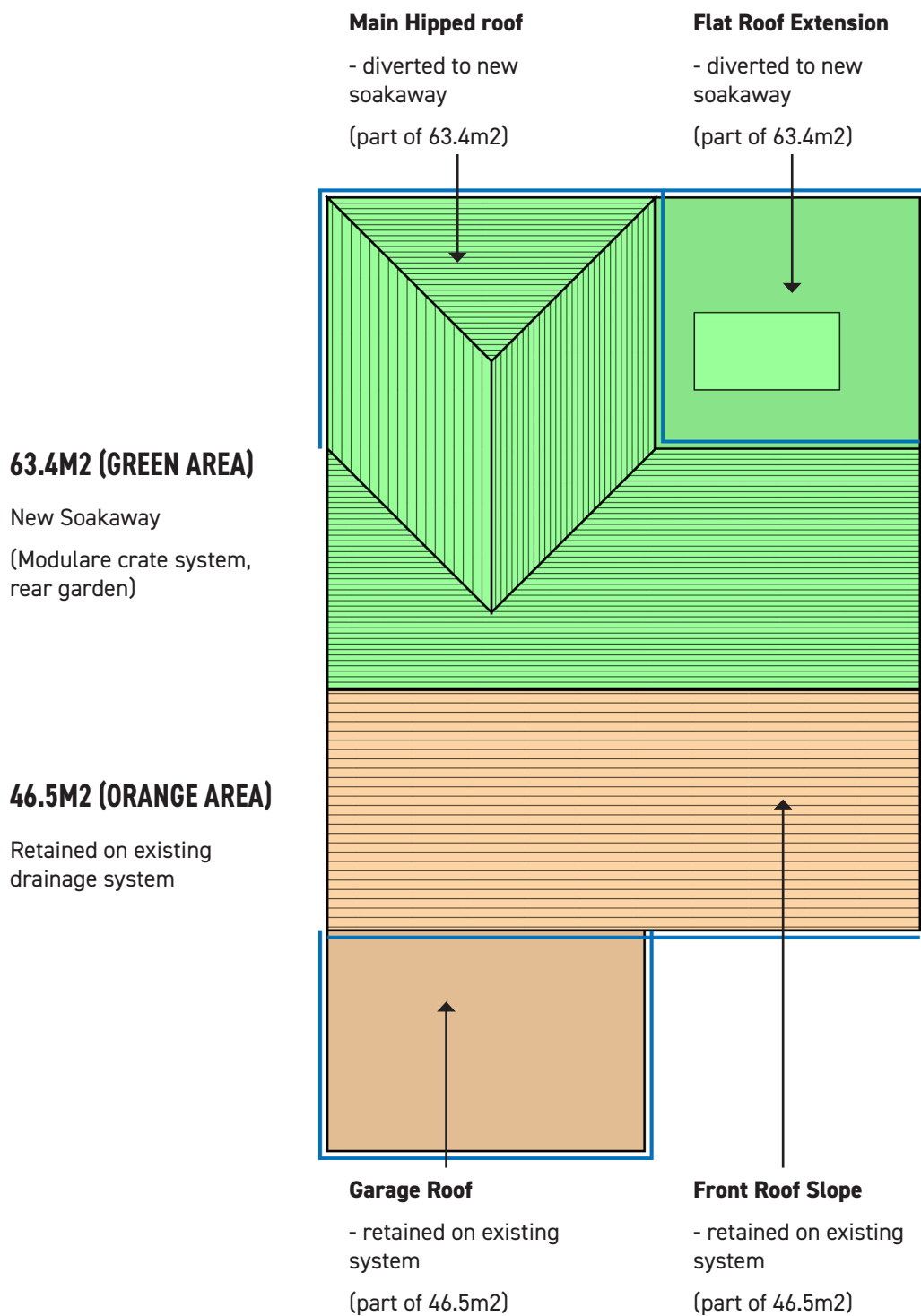
Provide $\approx 1.5 \text{ m}^3$ modular crate volume (e.g. $1.5 \text{ m} \times 1.0 \text{ m} \times 1.0 \text{ m} = 1.5 \text{ m}^3$), exceeding the 1.335 m^3 minimum to allow a practical safety margin.

Item	Value
Contributing roof area to soakaway (A)	63.4 m²
Storage (rule-of-thumb) V_s	1.268 m³
Void ratio (η)	0.95
Gross volume required V_{gross}	1.335 m³
Proposed soakaway volume	$\sim 1.5 \text{ m}^3$ (e.g. $1.5 \text{ m} \times 1.0 \text{ m} \times 1.0 \text{ m}$)
Siting	≥ 5 m from dwelling; ≥ 2.5 m from boundaries
Construction	Crates wrapped in geotextile; pea shingle surround; ≥ 300 mm cover
Inlets	110 mm uPVC below-ground, twin RWP's via junction
Exceedance	Northbound across rear lawn to weir (away from dwelling/highway)

C5. NOTE ON EXTREME EVENTS & REFINEMENT

This planning-scale design adopts the recognised domestic method. Larger design storms and climate change allowances are acknowledged but not modelled given the limited scope; should MSDC/LLFA request further assurance, sizing can be refined via BRE365 infiltration tests and detailed calcs at post-approval stage.

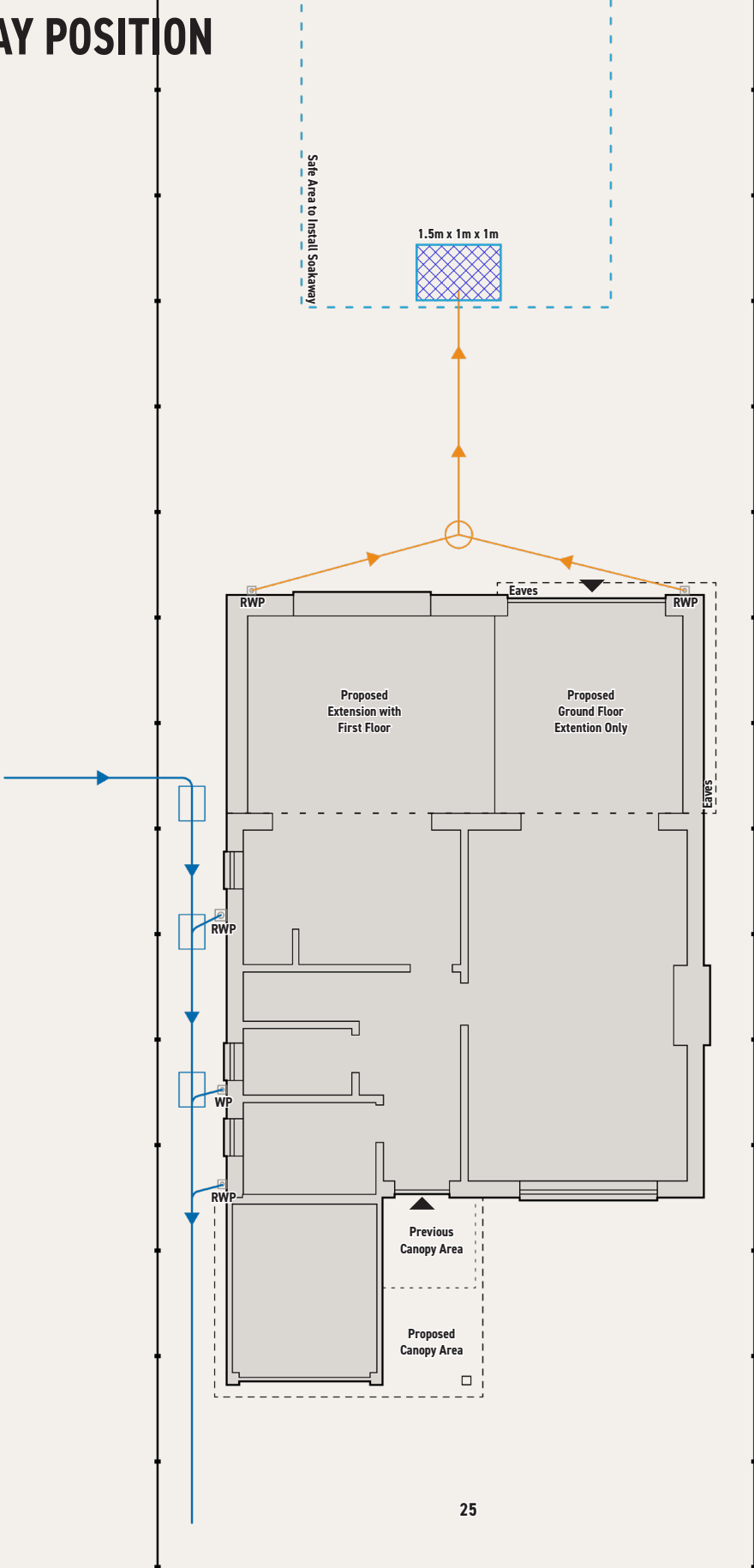
FIGURE C1: ROOF CATCHMENT PLAN
(SHOWING PROPOSED DRAINAGE ALLOCATION)



APPENDIX D: DRAWING REGISTER

- » Drawing A01 – Drainage Strategy Plan (1:100 @ A3)
- » Drawing A02 – Site Context Plan (1:200 @ A3)
- » Drawing A03 – Flood Zone Context Plan (1:500 @ A3)
- » Drawing A04 – Indicative Soakaway Detail (Not to Scale, A3)
- » Drawing A05 – Landscape Environment Map

DRAWING A01 -PIPE RUNS, RWP AND SOAKAWAY POSITION



LEGEND

- EXISTING BUILDING FOOTPRINT**
Thick Black line with grey background
- FENCE BOUNDARY**
Thick Black Line, with black rectangle markers representing posts
- EXISTING DRAINAGE**
Blue line with directional arrow of flow
- EXISTING SERVICE COVER**
Blue Rectangle
- PROPOSED DRAINAGE**
Orange line with directional arrow of flow
- PROPOSED JUNCTION**
Orange lines connecting into an orange circle
- PROPOSED SOAK AWAY**
Blue Hatched Area

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1:100 @ A3

25 FIR TREE WAY
HAS SOCKS
PROPOSED DRAINAGE STRATEGY PLAN
CLIENT : ANDY DEAVILLE
DWG NO : KJ0015-FM-01

DRAWING NOTES:
(i) Drawing-Specific:
This drawing should not be scaled. Dimensions and details must be verified on-site.

Refer to Darren Moore Architectural Services Ltd drawing '25 Fir Tree Way Hassocks - Drawing No 4' for further details

DRAWING A02 - GARDEN CONTEXT AND EXCEEDANCE DIRECTION



LEGEND

- BUILDING FOOTPRINT**
Thick Black line frame
- WATER BODY**
- SITE BOUNDARY**
Thick red circular boundary line
- EXISTING DRAINAGE**
Light Blue Lines
- PROPOSED DRAINAGE**
Orange Lines
- PROPOSED SOAK AWAY AREA**
Blue Hatch

1:200 @ A3

25 FIR TREE WAY
HASSOCKS

PROPOSED SITE CONTEXT PLAN
CLIENT : ANDY DEAVILLE
DWG NO : KJ0015-FM-02

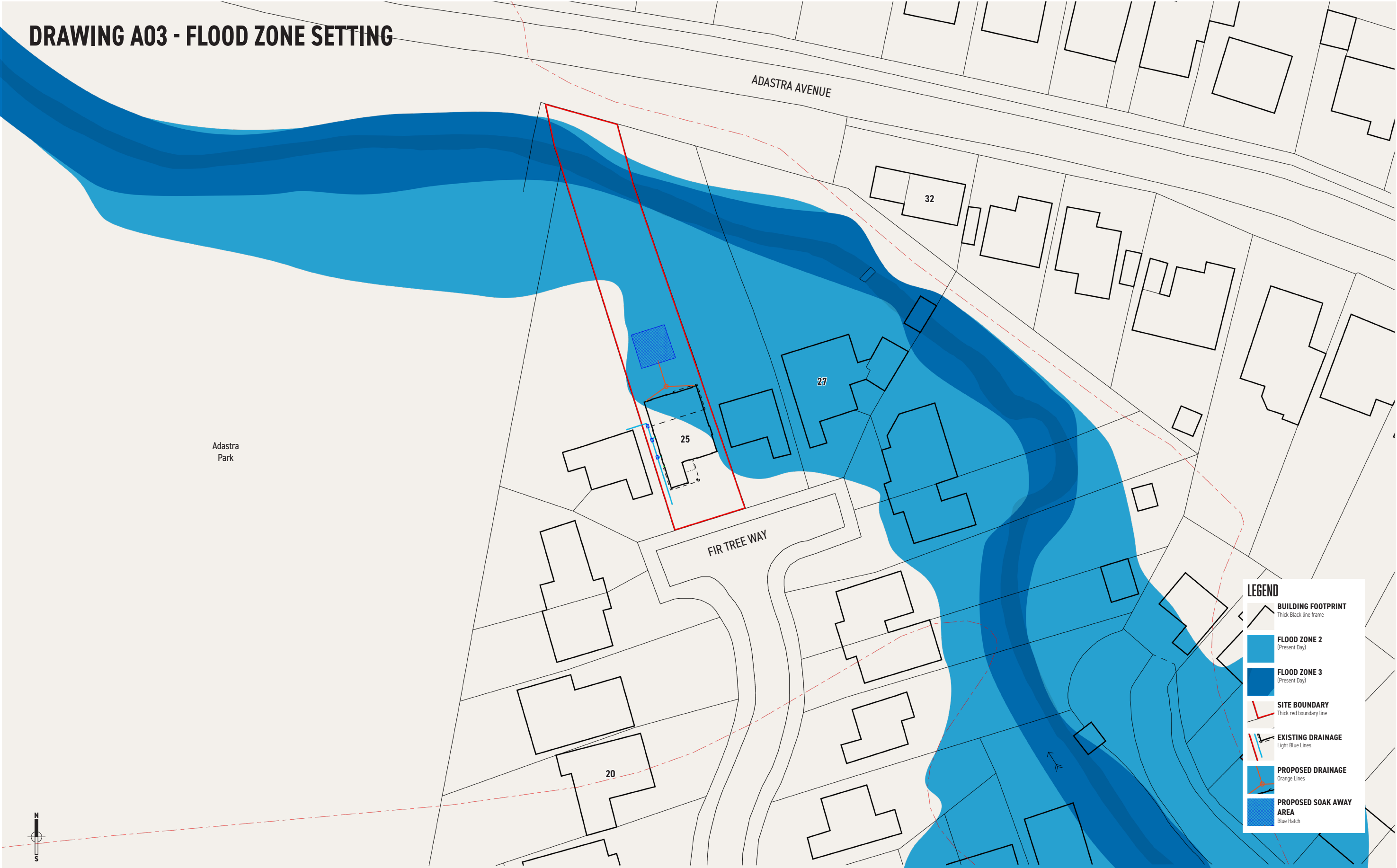
DRAWING NOTES:
[1] Drawing-Specific:
This drawing should not be scaled. Dimensions
and details must be verified on-site.

2nd September 2025 by KCF



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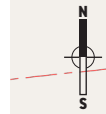
DRAWING A03 - FLOOD ZONE SETTING



LEGEND

- BUILDING FOOTPRINT**
Thick black line frame
- FLOOD ZONE 2**
(Present Day)
- FLOOD ZONE 3**
(Present Day)
- SITE BOUNDARY**
Thick red boundary line
- EXISTING DRAINAGE**
Light Blue Lines
- PROPOSED DRAINAGE**
Orange Lines
- PROPOSED SOAK AWAY AREA**
Blue Hatch

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1:500 @ A3

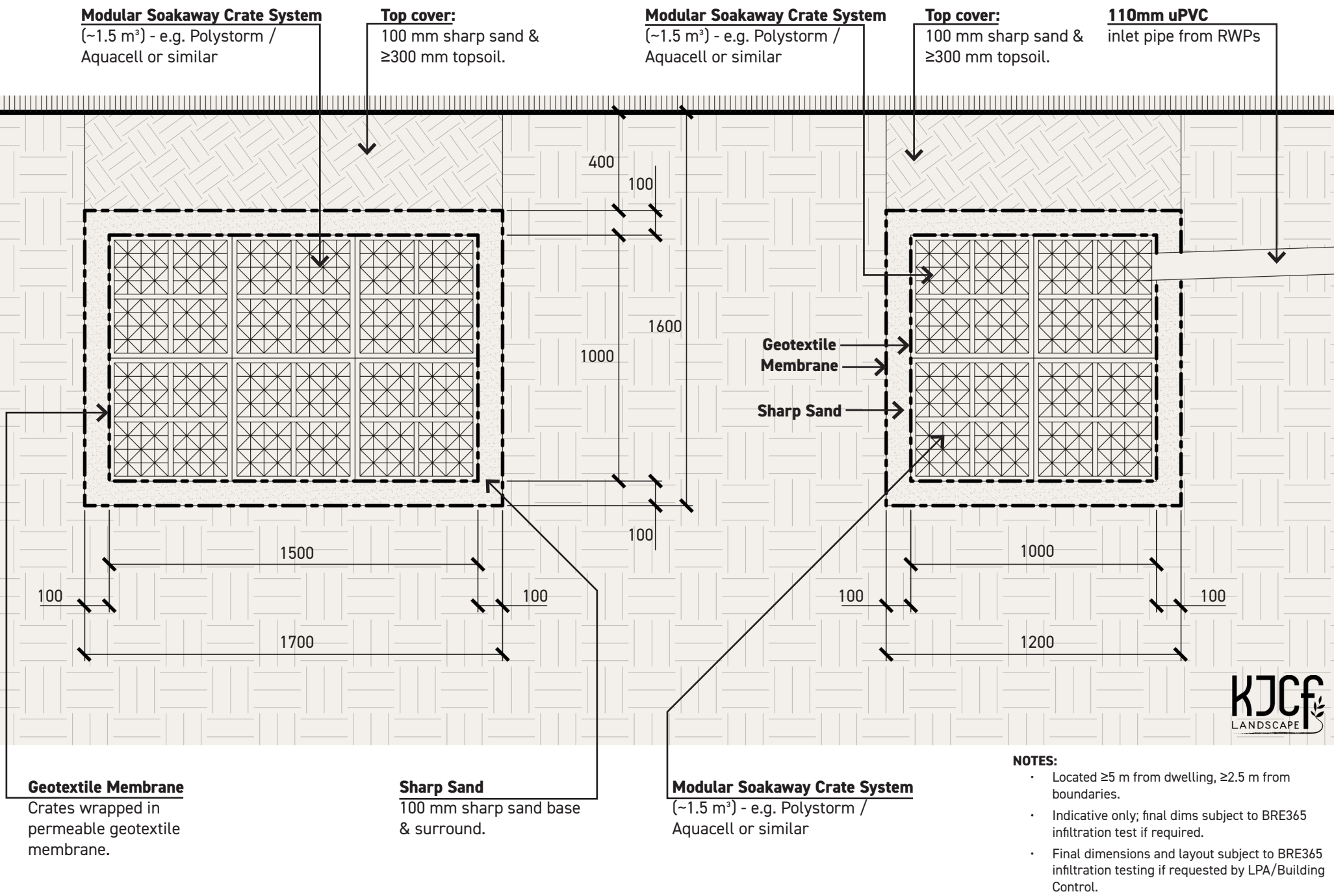
25 FIR TREE WAY
HASSOCKS

PROPOSED
CLIENT : ANDY DEAVILLE
DWG NO : KJ0015-FM-03

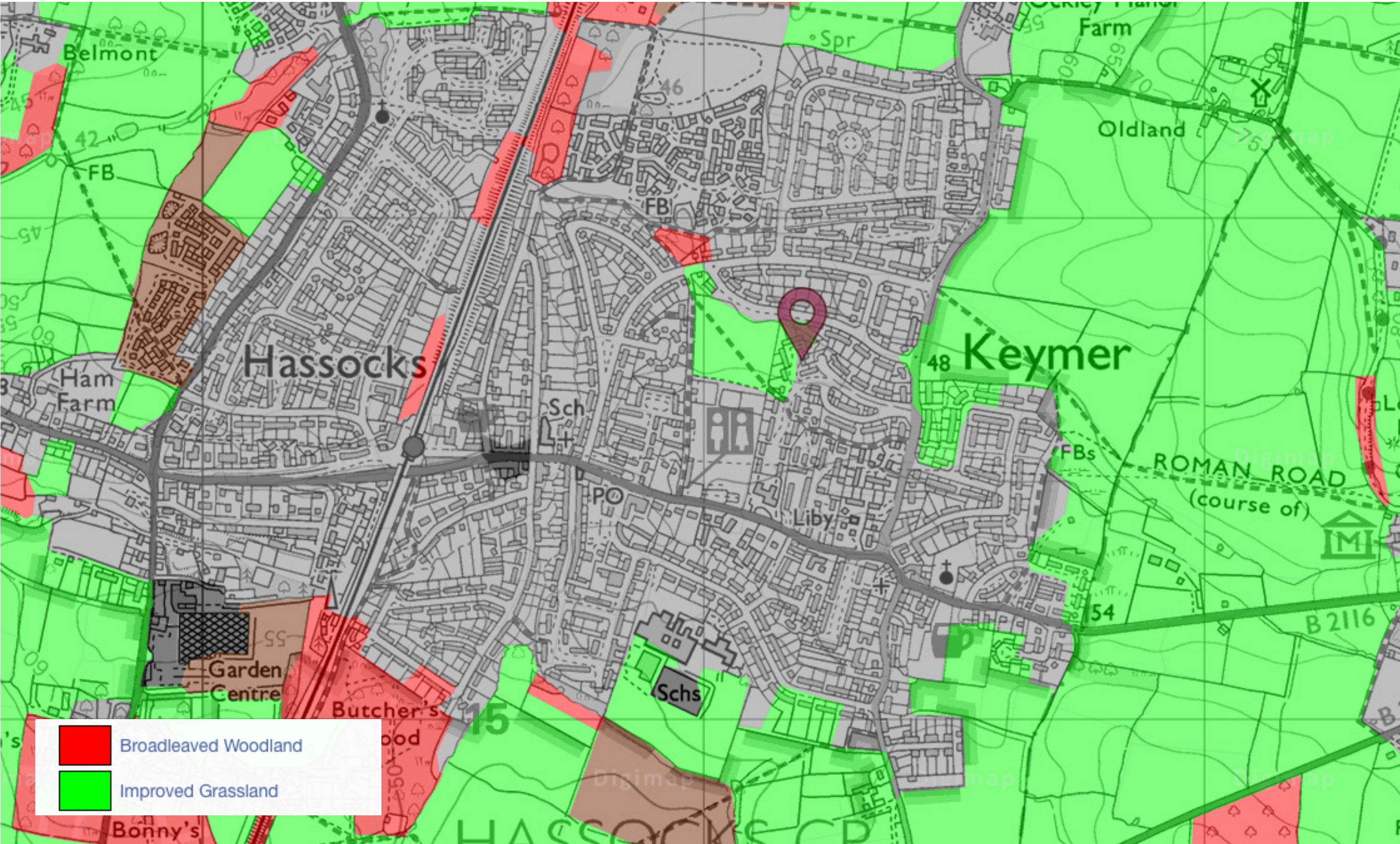
FLOOD ZONE CONTEXT PLAN

DRAWING NOTES:
[i] Drawing-Specific:
This drawing should not be scaled. Dimensions
and details must be verified on-site.

DRAWING A04 - SOAKAWAY DETAIL



DRAWING A05 - LANDSCAPE ENVIRONMENT MAP



APPENDIX E: MAINTENANCE SCHEDULE

E1 - OPERATIONS AND MAINTENANCE

SOAKAWAY SYSTEM (REAR GARDEN MODULAR CRATE, ~1.5 M³)

- » Inspect soakaway inspection chamber or inlet annually (before winter).
- » Remove any debris, silt, or blockages from pipe inlets.
- » Jet-wash pipework if standing water persists after rainfall.
- » Ensure soakaway cover remains free of heavy loads, compaction, or permanent structures.

RAINWATER PIPES (RWPS)

- » Clear gutters and downpipes at least twice per year (spring and autumn).
- » Fit/maintain leaf guards to reduce debris entering the system.
- » Check connections for leaks or displacement after storms.

THRESHOLD/LINEAR DRAINS (IF INSTALLED)

- » Lift gratings annually and remove silt or debris.
- » Flush with water to confirm free flow to soakaway.

PERMEABLE SURFACES (IF APPLICABLE)

- » Brush clear of moss, silt, or vegetation growth annually.
- » Avoid sealing or resurfacing with impermeable finishes.

GENERAL

- » Inspect during/after heavy rainfall to confirm water is flowing as intended.
- » If flooding or ponding occurs, consult a drainage specialist to confirm soakaway function.
- » Keep records of inspections and any maintenance undertaken.