

LISS FOREST NURSERY, GREATHAM, LISS, HAMPSHIRE
FILE NOTE DEALING WITH LLFA COMMENTS DATED 19 OCTOBER 2021

1. The topographical survey included in Appendix 3 in the FRA shows a number of drainage features, but does not provide full details for the drainage systems serving the existing development on the site. A site investigation by PFA consulting on 30 July 2018 showed that the existing drainage systems on the site connect to the head of an outfall pipe at the north-east corner of the site, within the site boundary; the outfall to the Ordinary Watercourse at the downstream end of the outfall pipe was also identified.

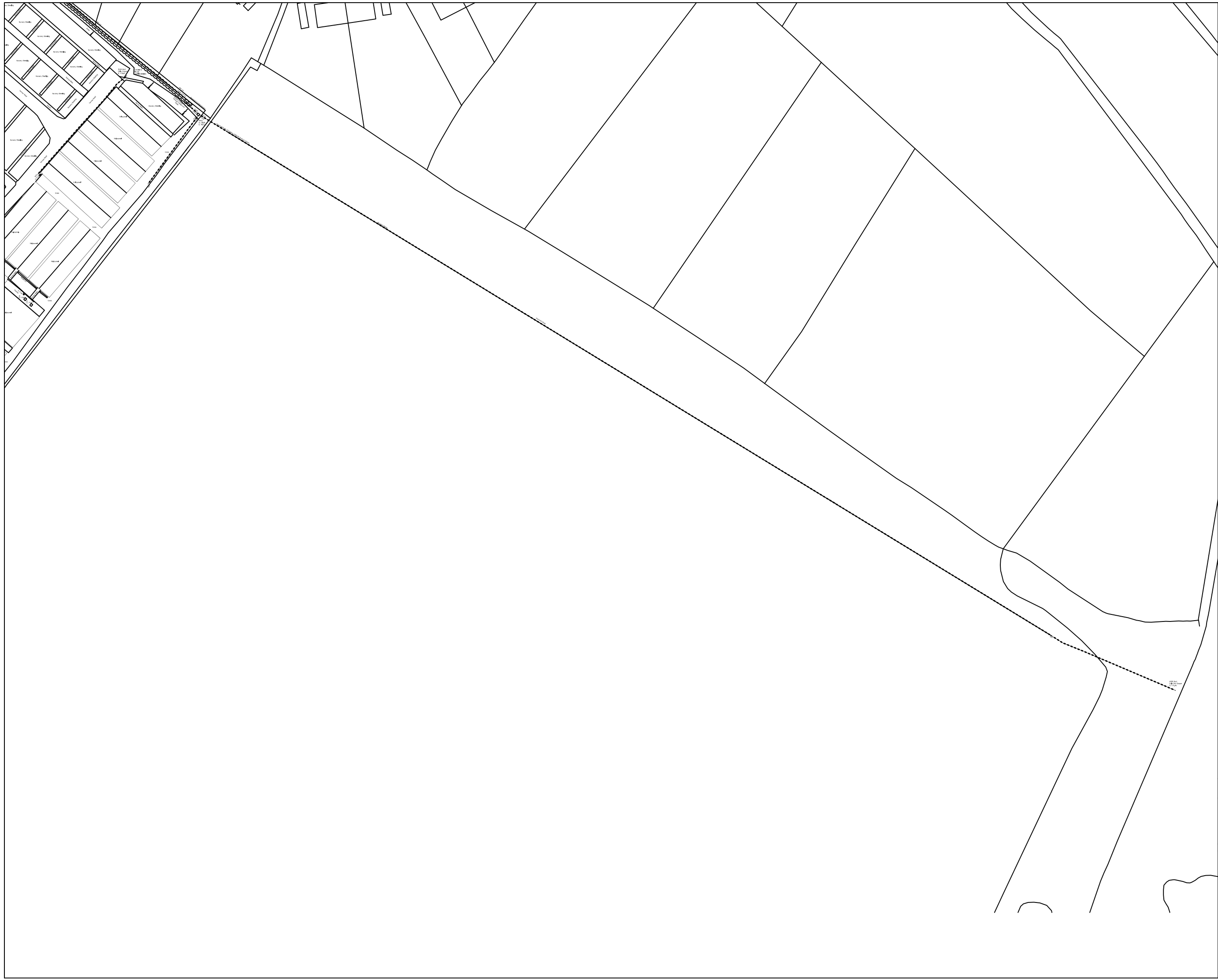
The upstream and downstream ends of the outfall pipe were subsequently surveyed by Encompass Surveys in October 2018; a copy of the Encompass survey drawing reference ENC-240918-U5A9 is reproduced in **Appendix 1**. Based on the surveyed levels at the upstream and downstream ends of the outfall pipe, the average gradient would be 1 in 76; the corresponding pipe-full chart capacity would be 20.6 l/s. The peak discharge rate from the proposed development would be limited to a maximum of the greenfield runoff rate QBAR, equivalent to 11.4/s. The existing outfall pipe would therefore have sufficient capacity to convey the peak discharge rate from the proposed development however the proposed sewer design is lower than the upstream end of the existing outfall pipe so a proportion of the existing pipe will need to be relayed at a gradient of 1 in 150, giving a capacity of 14.5l/s, connecting into the existing pipe with an inspection chamber where the inverts of the proposed and existing pipes coincide.

Notwithstanding the above, the Developer has secured a legal easement that establishes rights in perpetuity to utilise, survey and repair/ replace the outfall pipe. A condition survey and any necessary remedial works could therefore be covered by a suitably worded planning condition.

2. See 1 above.
3. Drawing number C795/09 Contained in **Appendix 2** shows the existing overland flow paths.
4. Lined permeable pavements would be connected to the domestic surface water drainage network serving the development via Garastor flow control units and connection pipes. A Permavoid diffuser unit, or similar approved system, would be installed within the permeable paving at the upstream end of each connection pipe. Full details would be submitted for Building Regulations approval at the detailed design stage.
5. Rain gardens are proposed in lieu of gullies in the identified locations to collect surface water runoff and contribute to the improvement of water quality. The rain gardens would be connected to the surface water drainage network serving the development via connection pipes. Carriageway falls would direct surface water runoff towards the rain gardens, Runoff would enter the rain garden via a dropped kerb or gully grating. Full details will be prepared at the detailed design stage in consultation with the project Landscape Architect. The rain gardens do not incorporate flow control devices or provide attenuation storage and are therefore not represented in the hydraulic calculations
6. Table 4.3 of the Suds Manual advises to utilise the Simple Index Approach described in Section 26.7.1 to assess the measures required to treat the surface water runoff from residential roofs, individual property driveways and low traffic roads. Water Quality is assessed in paragraphs 4.61 – 4.67 in the FRA. The mitigation indices are greater than or equal to the hazard indices. It is therefore considered that the provision of pervious paving, rain gardens and deep trapped gullies within the development would appropriately manage the quality of runoff discharging from the site.

7. Pipe run references, invert levels, and cover levels have been added to Drawing number C795/02 Revision M contained in **Appendix 3**.
8. The new surface and foul water drainage systems would be designed in accordance with the Design and Construction Guidance for foul and surface water sewers offered for adoption under the Code for adoption agreements for water and sewerage companies operating wholly or mainly in England ("the Code") and would be suitable for adoption by Southern Water. The new drainage systems would be the subject of an Agreement under section 104 of the Water Industry Act 1991 to secure their future adoption as public sewers. Detailed design information for Technical Approval by Southern Water pursuant to the Section 104 Agreement would be prepared at the detailed design stage. An Indicative Section 104 Adoption Plan, Drawing number C795/10, is contained in **Appendix 4**; the extent of the sewer networks covered by the Agreement would be subject to agreement with Southern Water at the detailed design stage.

Appendix 1

[illegible]

LINE-TYPE KEY

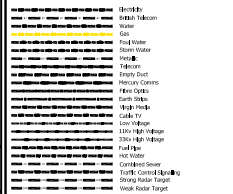


Figure 1: Diagram illustrating the scanning process. The diagram shows a cross-section of a wall with three horizontal layers. The top layer is labeled "GPR Detected Anomaly". The middle layer is labeled "GPR Detected Reinforcing". The bottom layer is labeled "Extent of Chamber". Below the wall, a horizontal line represents the "Scan Area", and a dashed line below it represents the "Unable to Scan Area".

ABBREVIAT

[illegible]

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Level Datum:
Levels are related to OSGB15 derived from the GPS Network

Grid: Grid 1 is related to OSGB15 derived from the GPS Network

Northpoint:



Encompass Surveys Ltd
Unit 20A
Deer Park Farm Industrial Estate
Knowle Lane
Folke Oak, Eastleigh
Hampshire SO50 7PZ

Tel: 023 80692002 Email: Info@encompass-surveys.co.uk

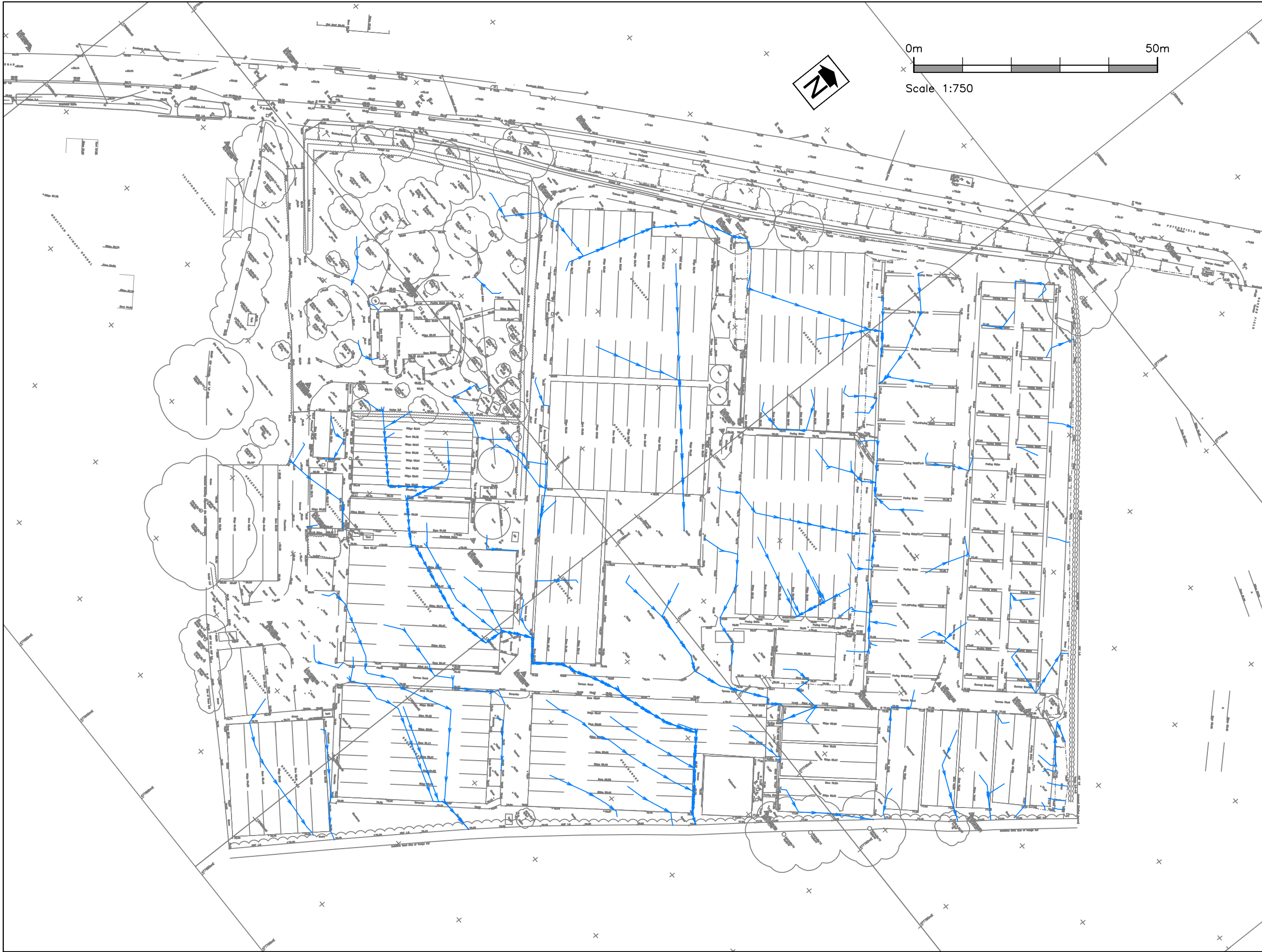
Client: Cove Homes

Survey Location: Liss Forest Nursery
Petersfield Road

Survey type: Utility	Scale: 1:300@A0
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Drawing ref: ENC-240918-USA9	Date: Oct 2018
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Drawn/By: DS	Date: 1 of 1
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Stratton Park House, Wanborough Road
Swindon, SN3 4HG
Telephone
01793 828000
Website
www.pfaplc.com

NOTES

1. This drawing is based on the topographical survey of Liss Forest Nursery, Petersfield Road, Greatham GU336HA carried out by Encompass Surveys Ltd in August 2017.

Key
Flowpaths

#	05/11/21	First Issue	MRD	SAM
Rev	Date	Description	Drawn	Check

Status
FOR INFORMATION

Client
Cove Construction, Peter Catt, Vincent Catt and Neill Catt

Project
Liss Forest Nursery, Greatham, Liss, Hampshire

Drawing Title
Existing Overland Flowpaths

Drawing No. C795/09

Date: November 2021 Scale: 1:750 @ A3
E-Mail: mrossiter@pfaplc.com

KEY



Indicative Detention Basin



Indicative Surface Water Sewer



Indicative Foul Water Sewer



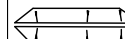
Indicative Foul Water Rising Main



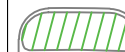
Pervious Paving private drive storing water restrained by private Garastor control.



Pervious Paving lay-by used to drain highway. No control to restrict flow



Indicative Swale



Rain Garden used to drain highway. no control to resist flow

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NOTES

1. This drawing is produced for the purposes of supporting a planning application. It is based on the topographical survey undertaken by Encompass Surveys Ltd, Drawing ref. ENC/070817/523-1, dated August 2017.

2. Planning layout is based on Carlton design Partnership, Drawing No. 150715/SL40/01 REV Y dated September 2020.

3. Greenfield Runoff Rates:
 Q_r : 8.9 l/s
 Q_{avr} : 10.5 l/s
(the mean annual peak rate of runoff)

4. Drainage subject to detailed design.

5. Outfall arrangements, levels and location are based on additional survey undertaken by Encompass Surveys Ltd, Drawing ref. ENC-240918-USA9, dated October 2018.

B	23/08/18	Changed the online underground storage to offline.	PS	MWS
C	29/08/18	Retracted to initial detention basin design and removed underground storage.	PS	MWS
D	31/10/18	Changed detention basin design and adjusted to layout REV G.	PS	MWS
E	12/11/18	Adjusted to new Layout	PS	MWS
F	20/11/18	Adjusted to comments	PS	MWS
G	18/01/18	Added Permeable Paving to private parking area for treatment	PS	BF
H	18/12/19	Changed Drainage design to Site Layout (40Units) Revision J	PS	MWS
I	19/12/19	Changed Drainage design to Site Layout (40Units) Revision K	PS	MWS
J	19/03/20	Low flow channel added to pond.	MRD	SAM
K	22/10/20	Updated Site Layout (37 Units) to Revision Y, drainage & permeable paving amended.	UK	SAM
L	29/06/21	Layout revised. Storm drainage re-designed to utilise Suds elements in the layout.	MRD	SAM
M	05/11/21	Pipe run references, invert levels and cover levels added.	MRD	SAM
Rev	Date	Description	Drawn	Check

FOR PLANNING

Client

Cove Construction, Peter
Catt, Vincent Catt and Neill
Catt

Project

Liss Forest Nursery,
Greatham, Liss, Hampshire

Drawing Title

Indicative Surface Water
Drainage Strategy

Drawing No.

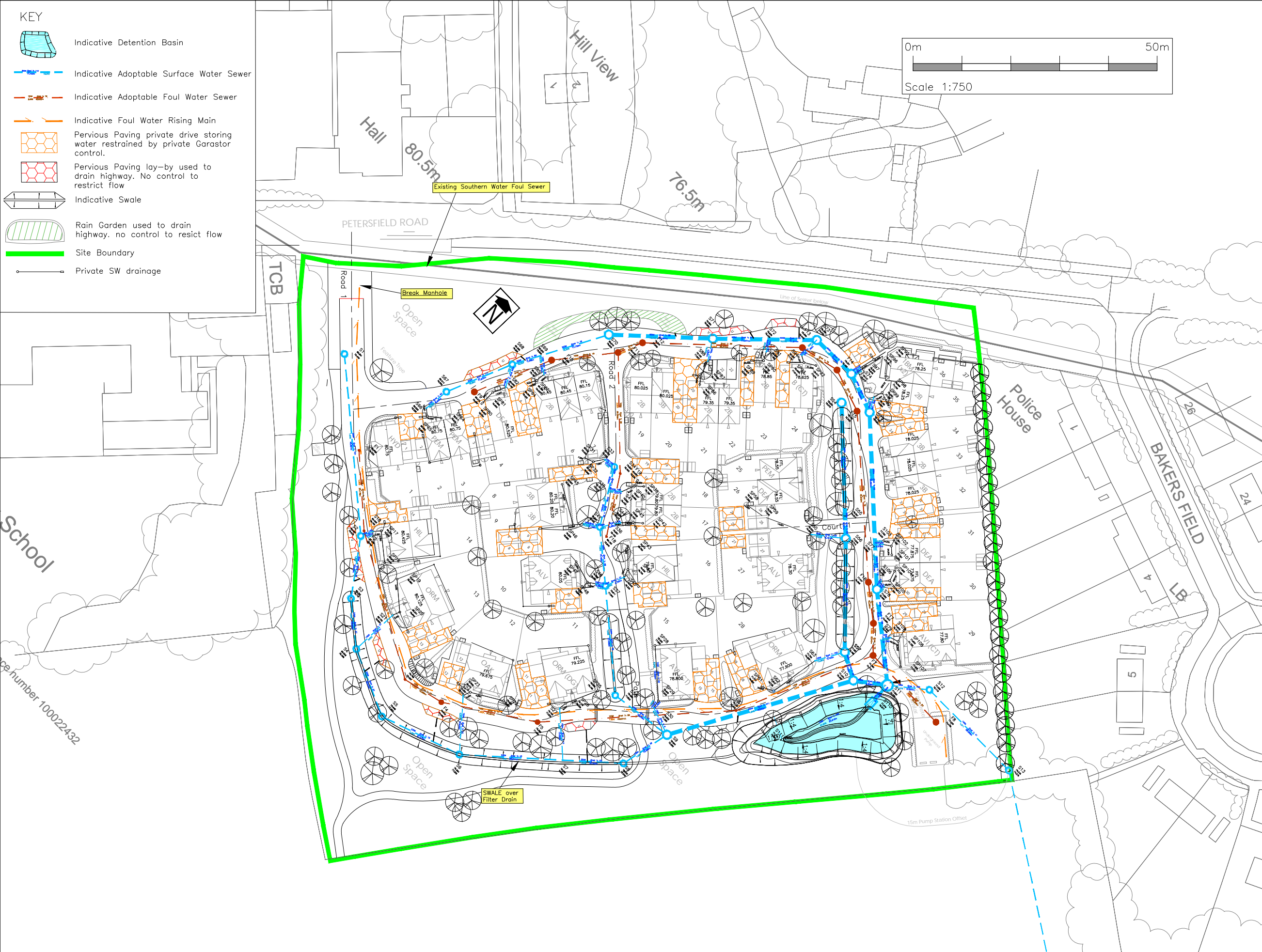
C795/02

Rev. M

Date: August 2018

Scale: 1:750 @ A3

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NOTES

1. This drawing is produced for the purposes of supporting a planning application based on the topographical survey for tendering by Encompass Surveys Ltd. Drawing ref. ENC/070817/523-1, dated August 2017.

2. Planning layout is based on Carlton design Partnership, Drawing No. 150715/SL40/01 REV Y dated September 2020.

3. Greenfield Runoff Rates:
Q₁: 8.9 l/s
Q₁₀: 10.5 l/s
(the mean annual peak rate of runoff)

4. Drainage subject to detailed design.

5. Outfall arrangements, levels and location are based on additional survey undertaken by Encompass Surveys LTD, Drawing ref. ENC-240918-US49, dated October 2018 .

#	05/11/21	First Issue	MRD	SAM
Rev	Date	Description	Drawn	Check

FOR PLANNING

Client

Cove Construction, Peter Catt, Vincent Catt and Neill Catt

Project

Liss Forest Nursery, Greatham, Liss, Hampshire

Drawing Title

Indicative Section 104 Adoption Plan

Drawing No. C795/10

Rev. #

Date: August 2018

Scale: 1:750 @ A3

E-Mail: mrossiter@pfapl.com