



**52-55 FRIAR STREET AND
12 GREYFRIARS ROAD
READING
RG1 1DX**



**PROPOSED FOUL AND SURFACE WATER DRAINAGE
AND SUDS REVIEW
ON BEHALF OF CIP PROPERTY (AIPT) LIMITED**

PLANNING STAGE

Report Ref
8939_FS_GB
8939_FS_GB
8939_FS_GB

Revision
2.0
1.1
1.0

Notes
Issued for Planning
Issued with Thames Water updated acceptance
Issued for Draft Comments

Issued by
GB
GB
GB

Date
27th October 2016
10th August 2016
24th June 2016

3 Dufferin Avenue,
Barbican, London, EC1Y 8PQ

T: 020 7253 2626
F: 020 7253 2767

E: tws@tws.uk.com
W: www.tws.uk.com

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1.0 INTRODUCTION

- 1.1 This drainage and SUDS's Report has been prepared by Taylor Whalley Spyra on behalf of CIP Property (AIPT) Limited to accompany the planning application for the proposed development at Friar Street, Reading.
- 1.2 The objective of this report is to consider the effect of the proposed development on foul water, surface water and Sustainable Urban Drainage (SUDS) on site. The report provides an overview of SW, FW and SUDs and the requirement to reduce surface water runoff from sites to the public sewer system.
- 1.3 The existing site is occupied by Sainsbury's supermarket consisting of commercial, offices and a bakery with a site area of 2,468m² and a total floor space of 3,988m² over five floors. The site layout is 'L' shaped and is located near the corner with the main frontage on Friar Street and goods access on Greyfriars Road (refer to Appendix A).
- 1.4 Taylor Whalley Spyra has undertaken discussions with Thames Water, Environment Agency and Reading Borough Lead Local Water Authority. The purpose of these discussions is to outline the required strategy of the design of the new site foul water and surface water drainage and requirements for inclusion of Sustainable Urban Drainage (SUDS) on site.

2.0 EXISTING SITE FOUL AND SURFACE DRAINAGE REVIEW

- 2.1 The existing site consists of buildings and concrete access yard and is fully paved with no landscaped areas. All surface water discharges directly from site to the public sewer surface water systems (refer to Appendix B).
- 2.2 The surface water and foul water discharge to the public sewer at two locations in Friar Street and Greyfriars Road, with the site existing peak foul water discharge rate of 3.7 l/s and the existing peak surface water discharge rate of 76 l/s for a 1:30 year event (refer to Appendix C).

3.0 PROPOSED SITE FOUL WATER DRAINAGE METHODOLOGY

- 3.1 Application to Thames Water for a pre-development enquiry has been undertaken to ascertain the capacity of the existing foul water drainage system in the surrounding area (refer to Appendix D).
- 3.2 Thames Water have confirmed the existing public foul water sewer has the additional capacity for the proposed site and no upgrading of existing system will be required (refer to Appendix D).
- 3.3 Thames Water are in the process of reviewing and upgrading the local network as part of the wider area noted in Reading Borough Council's local plan.
- 3.4 Thames water have confirmed that the existing foul and surface water drainage system in the surrounding area is not subject to flooding or surcharging (refer to Appendix E).

4.0 PROPOSED SITE SURFACE WATER DRAINAGE METHODOLOGY

- 4.1 The surface water design is divided into two catchment areas each servicing one of the two discharge points in Friar Street Zone One and Greyfriars Road Zone Two (refer to Appendix F).
- 4.2 The existing surface water runoff from site for various design criterial events has been reviewed against the proposed and the new site drainage discharge will be designed in accordance with National Planning Policy Framework and Planning Practical Guidance
- 4.3 The new surface water drainage is to be designed to a 1:100 year event with climate change allowance of 25% with a building design life of 100 years.
- 4.4 The surface water discharge from site will require on-site storage with restricted outflows via hydrobrake manholes (refer to Appendix F).
- 4.5 The Environment Agency have confirmed that they would expect Reading as Lead Local Water Authority to confirm final design criteria, but they would expect a reduction in surface water runoff from site (refer to Appendix G).
- 4.6 Reading Lead Local Water Authority has confirmed that the design criteria recommended by Taylor Whalley Spyra for surface water is reasonable, with further detailed design being undertaken in accordance with Sustainable Drainage System – Non Technical Standard and in line with National Planning Policy Framework and Planning Practical Guidance (refer to Appendix H).

5.0 PROPOSED SUDS SITE REVIEW

- 5.1 The SUDS options for the urbanised site are restrictive and a review of all options is tabled below:

TABLE 1.1

Living Roofs	Green roofs are to be provided in the form of 65% of the site area and will provide natural evaporation
Basins and Ponds	Site area is restrictive for available space, as a residential area ponds are an inherent danger
Filter Strips	Site area is restrictive for available space and non-permeable and underlining strata not suitable
Infiltration Devices	Site area is restrictive for available space and non-permeable and underlining strata not suitable
Permeable Surfaces	Site is non-permeable and underlining strata not suitable. The courtyard are will act as green roof
Tanked Systems	Attenuation can be provided below the lower ground floor with access within car parking area

- 5.2 The table outlines the available SUDS options for the site being the use of green roofs, grey water harvesting and on site storage with restricted discharge rates from site to the public sewer. For the

purposes of the surface water design the SUDs green roof areas will not be taken into account for storage volumes (refer to Appendix I).

6.0 DESIGN GUIDANCE LEGISLATION AND PLANNING POLICY

- National Planning Policy Framework March 2012
- The National Planning Practice Guidance 2014
- Sustainable Drainage Systems Non-Statutory Technical Standards for Sustainable Drainage Systems - March 2015
- Reading Borough Local Development Framework Adopted Core Strategy, 2008 (updated 2015)
- Station Hill South Planning and Urban Design Brief 2007

7.0 CONCLUSIONS

- 7.1 The use of certain forms of SUDs on the site such as green roofs and grey water harvesting will reduce the surface water runoff from site and the use of mains portable water. The addition of surface water storage tanks will provide initial storage during storm events reducing peak flows to the main Thames Water sewers.
- 7.2 The foul water flow rates from site will increase and Thames Water have confirmed there is additional capacity within their network. The local area will require upgrading as part of the Reading Borough Local Plan for the redevelopment of the surrounding area.

For and on behalf of
TAYLOR WHALLEY SPYRA



GRAHAM BOSTON

For and on behalf of
TAYLOR WHALLEY SPYRA

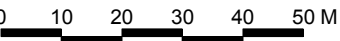
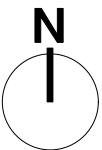


SIMON LANE
BSc(Eng), CEng, FICE, FIStructE

APPENDIX A

Site Location Plan

LDA Architects Ltd Typical Floor Plans Accommodation Schedule Drawings 1509_SK105



KEY

- APPLICATION BOUNDARY
AREA 0.25ha
- OTHER LAND IN APPLICANT'S CONTROL

PRELIMINARY
PLANNING

REV.	DATE	DESCRIPTION
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PROJECT
**52-55 FRIAR STREET
& 12 GREYFRIARS ROAD
READING**

DRAWING
SITE LOCATION PLAN

CLIENT
CIP PROPERTY (AIP) LTD

SCALE 1:1250 @ A2	DRAWN FM
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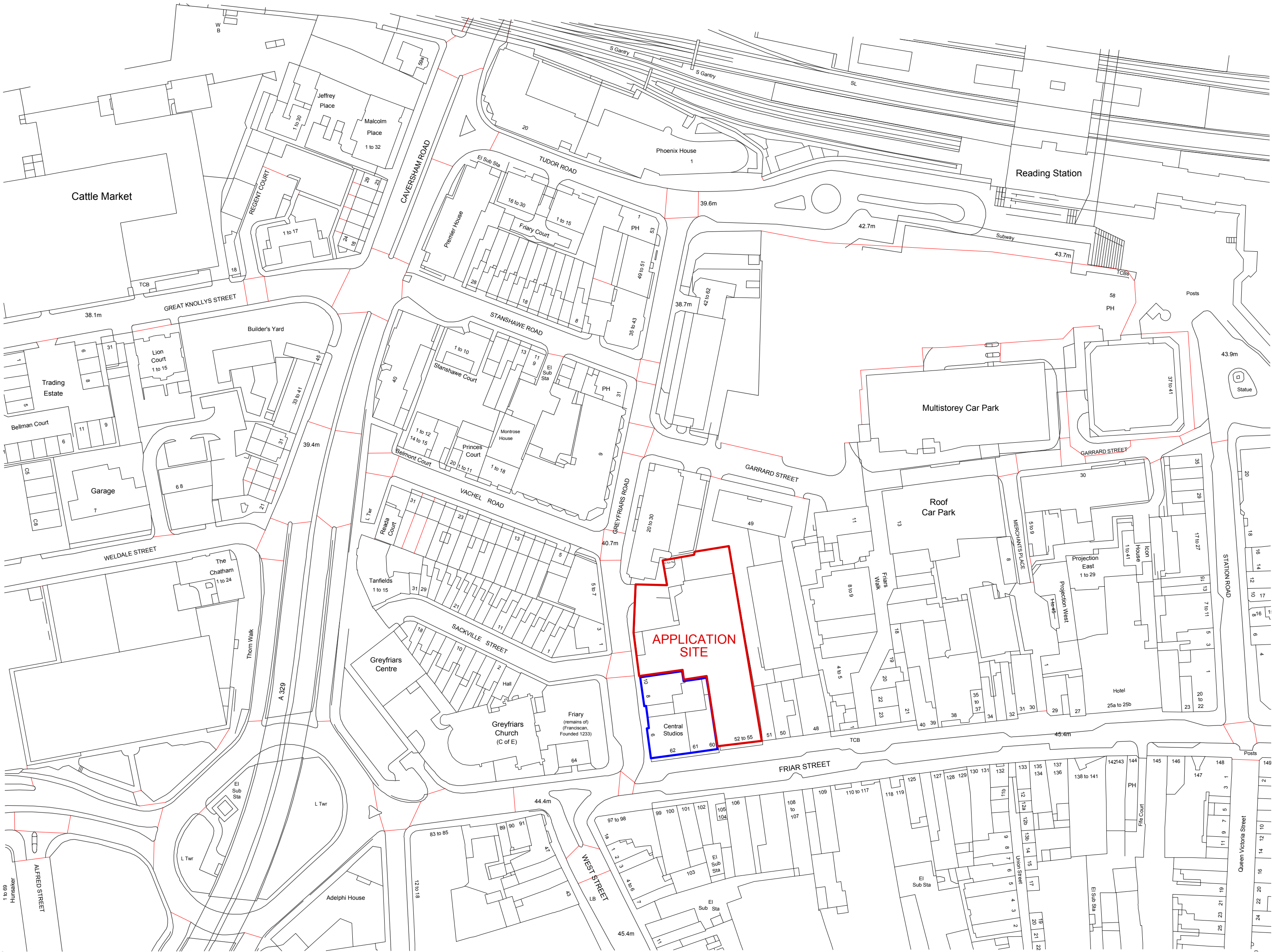
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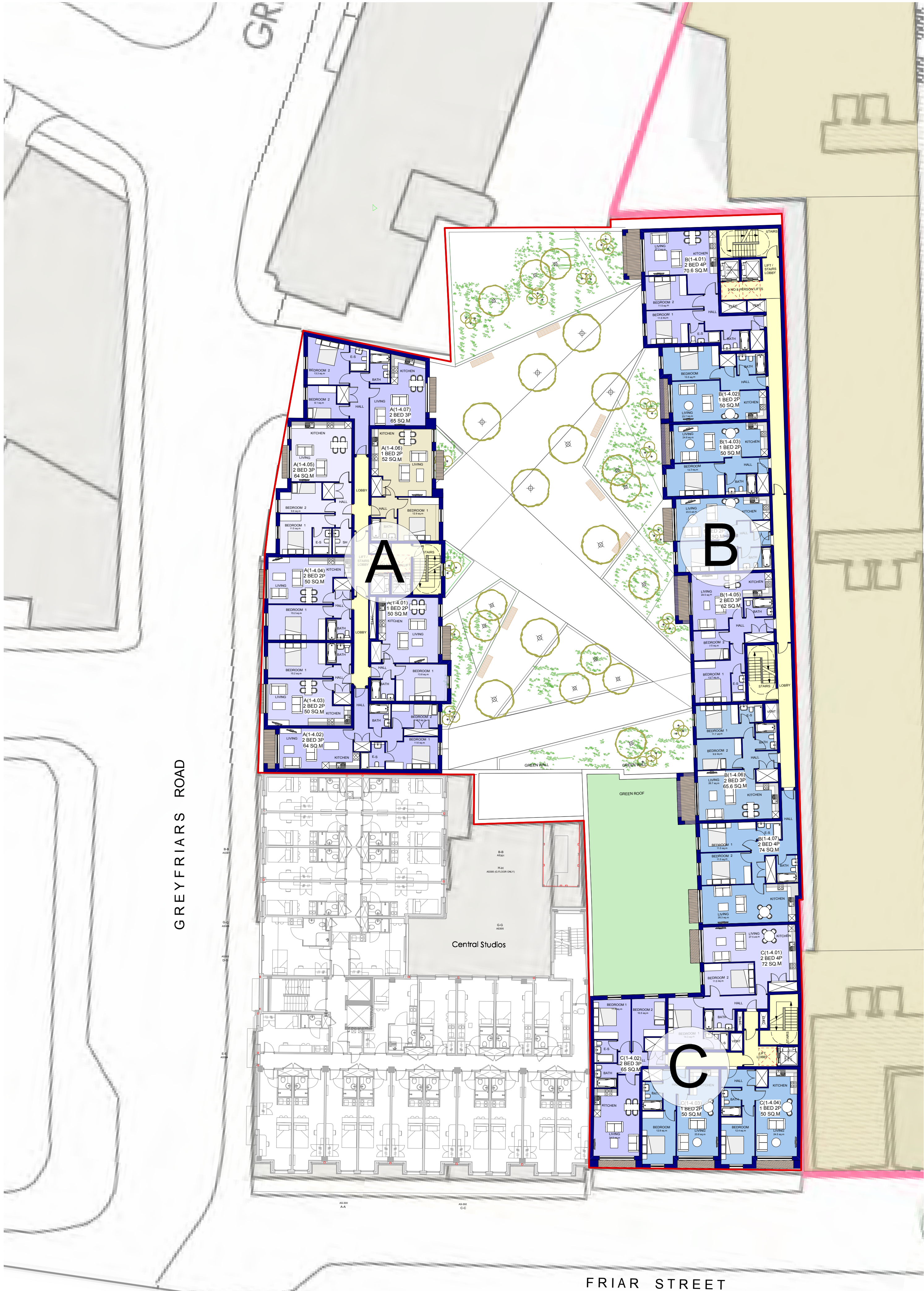
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LDA
Chartered Architects

LDA (Architects) Limited
Lion House
147 Oriental Road
Woking Surrey, GU22 8AP
T. 01932 828933
E. lda@ldaarchitects.co.uk





TYPICAL FLOOR PLAN LAYOUT

ACCOMMODATION SCHEDULE

Basement

Car parking, cycle store, servicing, plant, refuse & recycling	gross external	
	sq.m	sq.ft
TOTAL	1,828	19,676

Building A

	COMMERCIAL	STUDIO	1 BED	2 BED	3 BED	TOTAL	HABITABLE ROOMS	gross external	
								sq.m	sq.ft
Ground	120 sq.m		1			1	2	240	2,583
Level 1			4	3		7	18	511	5,500
Level 2			4	3		7	18	511	5,500
Level 3			4	3		7	18	511	5,500
Level 4			4	3		7	18	511	5,500
Level 5			3	3		6	15	444	4,779
Level 6			3	3		6	15	444	4,779
Level 7					3	3	12	341	3,670
TOTAL	120 sq.m		23	18	3	44	116	3,513	37,811

Building B

	COMMERCIAL	STUDIO	1 BED	2 BED	3 BED	TOTAL	HABITABLE ROOMS	gross external	
								sq.m	sq.ft
Ground		1	5			6	11	596	6,415
Mezzanine			4	2		6	14	596	6,415
Level 1			3	4		7	18	596	6,415
Level 2			3	4		7	18	596	6,415
Level 3			3	4		7	18	596	6,415
Level 4			3	4		7	18	596	6,415
Level 5			3	4		7	18	596	6,415
Level 6			3	4		7	18	596	6,415
Level 7			3	4		7	18	596	6,415
Level 8			3	3		6	15	514	5,533
Level 9			2	5		7	19	510	5,490
Level 10				1		4	3	253	2,723
TOTAL		1	35	39		75	188	6,641	71,481

Building C

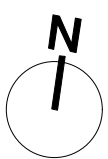
	COMMERCIAL	STUDIO	1 BED	2 BED	3 BED	TOTAL	HABITABLE ROOMS	gross external	
								sq.m	sq.ft
Ground	492 sq.m							652	7,018
Level 1			2	2		4	10	315	3,391
Level 2			2	2		4	10	315	3,391
Level 3			2	2		4	10	315	3,391
Level 4			2	2		4	10	315	3,391
Level 5				3		3	9	315	3,391
Level 6				1		1	3	95	1,023
TOTAL	492 sq.m		8	12		20	52	2,322	24,996

OVERALL TOTAL

	COMMERCIAL	STUDIO	1 BED	2 BED	3 BED	TOTAL	HABITABLE ROOMS	gross external	
								sq.m	sq.ft
TOTAL	612 sq.m	1	66	69	3	139	356	14,304	153,964

(0.7%) (47.5%) (49.6%) (2.2%)

THIS DRAWING IS BASED UPON:
- PROMAP - ORDNANCE SURVEY (C) CROWN
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NUMBER 100022432



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PRELIMINARY PLANNING

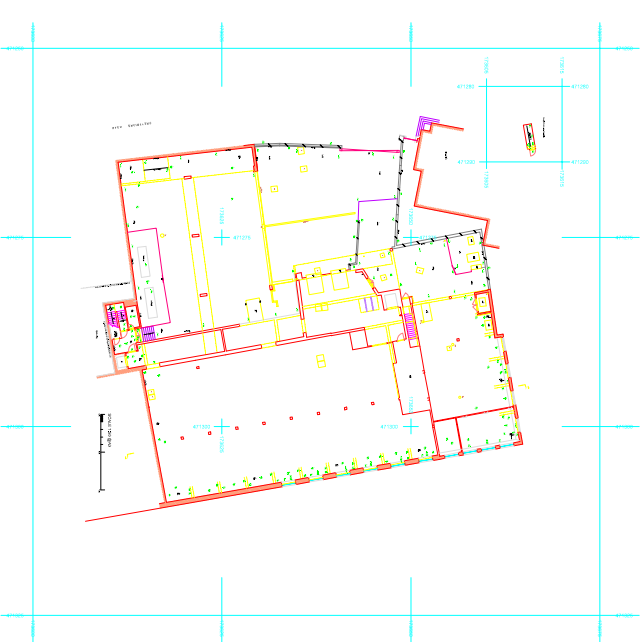
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CLIENT CIP PROPERTY (AIP) LTD		
SCALE 1:200 @ A1		DRAWN -
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1509-SK105		C
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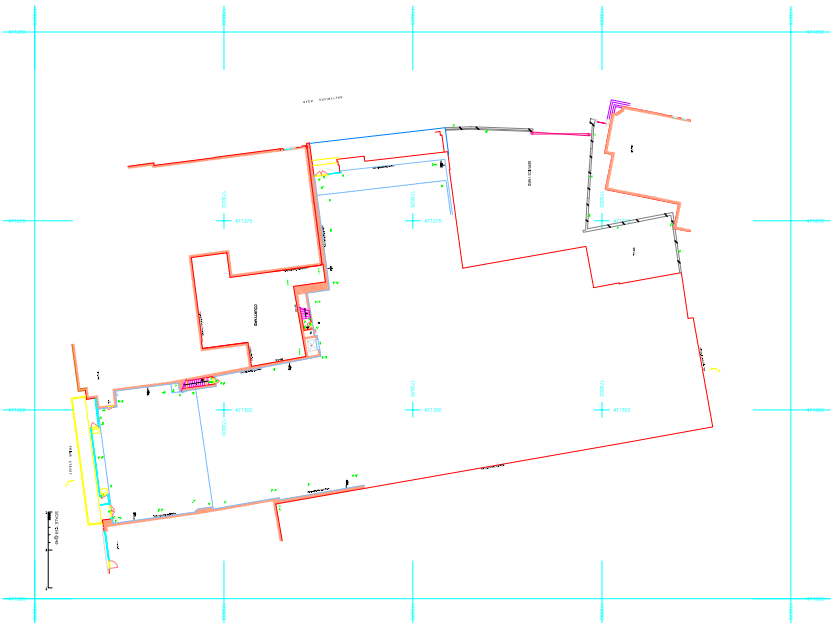
LDA (Architects) Limited
Lion House
147 Oriental Road
Woking
Surrey, GU22 8AP
T. 01932 828933
E. lda@ldaarchitects.co.uk

APPENDIX B

Taylor Whalley Spyra Drawing 8939_702_Existing Site Floor Plans



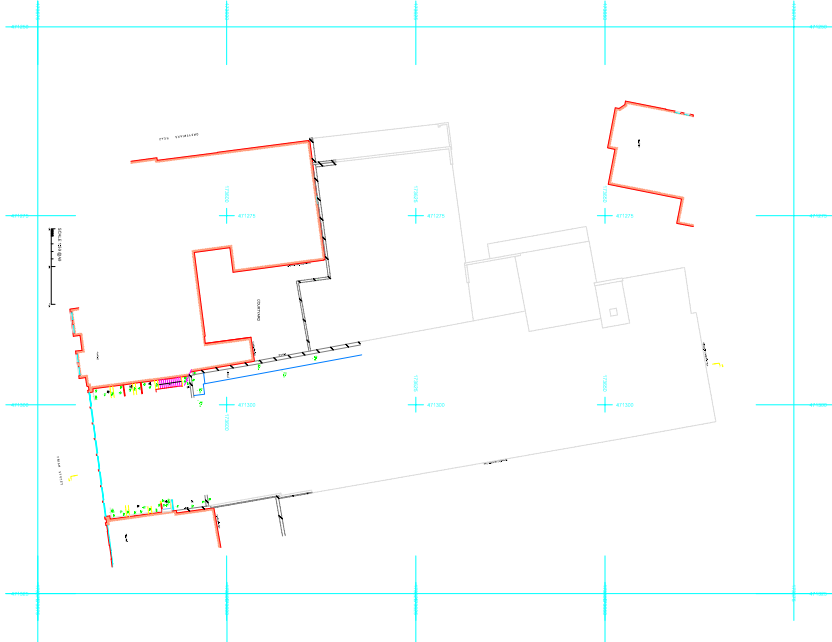
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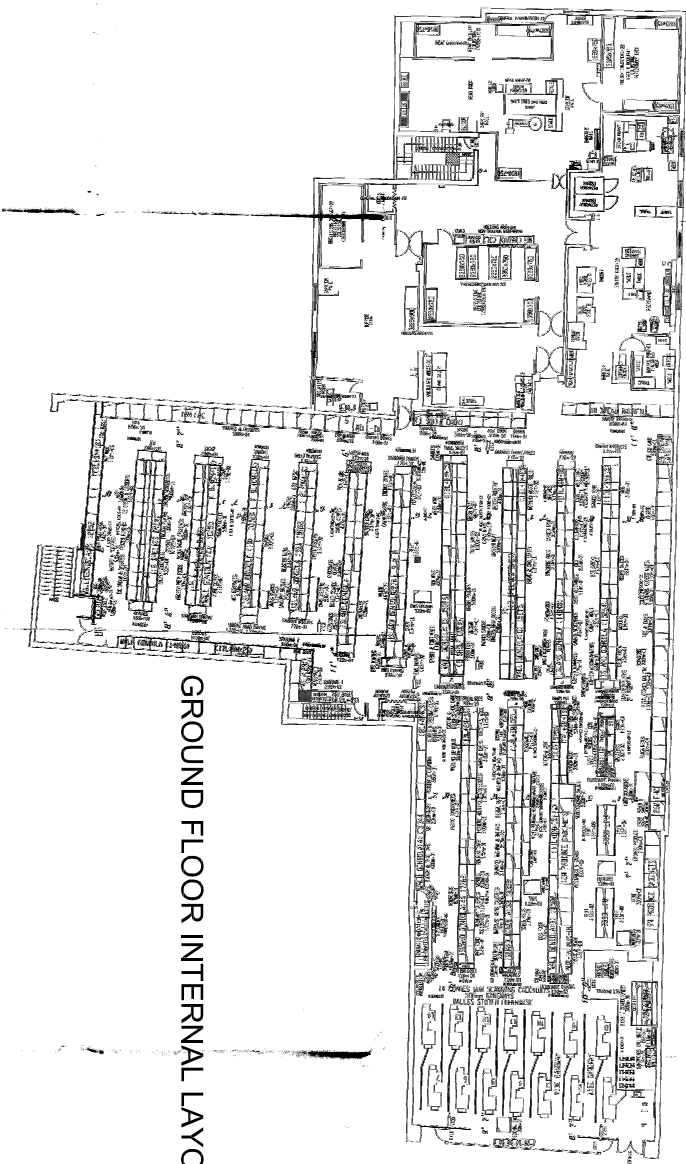
GROUND FLOOR



FIRST FLOOR



SECOND FLOOR



GROUND FLOOR INTERNAL LAYOUT



ROOF LAYOUT AND TOPO LEVELS

1. This Drawing to be used in conjunction with all other Engineers, Architects and Specialist drawings and specifications.
2. No dimensions are to be scaled from this drawing.
3. No alterations shall be made from the details shown on this drawing without prior agreement of the Engineer.
4. Any discrepancy between this drawing and any other documents shall be referred immediately to the Engineer.

1:500

Ref.	Revisions	By	Date

52-56 FRIAR STREET AND
12 GREYFRIERS ROAD,
READING,
RG1 1DX.

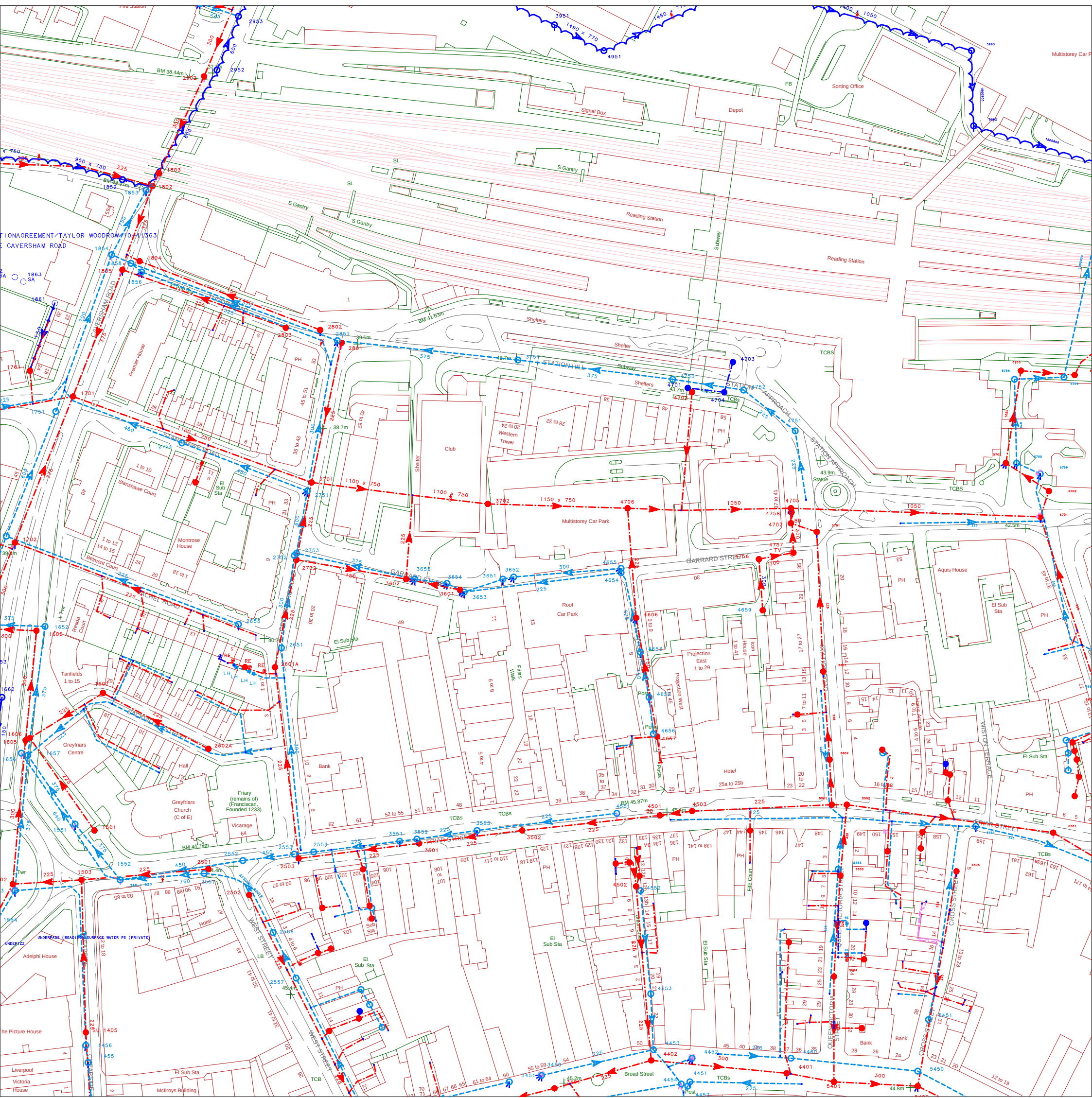
EXISTING BUILDING
FLOOR LAYOUT AND
TOPO LEVELS



Scale at A1	Date	Drawn By	
1:500	24/06/16	GB	
Project No.	Day No.	Rev.	
8939	00	-	

APPENDIX C

Thames Water Utility Search Data and Maps



The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

100 metre intervals

EAGLE hardcopy facility - Normal Map.
The plot is centred on (471378 , 173707), which is in SU7173NW. Printed on 9 April 2009 at 15:34:49 by RIMISSON.

Comments:
Sewer plan



ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

	Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
	Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
	Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
	Joint
	Trunk Surface Water
	Storm Relief
	Vent Pipe
	Proposed Thames Surface Water Sewer
	Gallery
	Surface Water Rising Main
	Sludge Rising Main
	Vacuum
	Trunk Foul
	Trunk Combined
	Bio-solids (Sludge)
	Trade Effluent
	Proposed Thames Water Foul Sewer
	Foul Rising Main
	Combined Rising Main
	Proposed Thames Water Rising Main
	Syphon

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	AV Air Valve		LH Lamp Hole
	BS Blind Shaft		LS Lifting Shaft
	CP Catch Pit		ME Meter
	DC Dam Chase		RE Rodding Eye
	DF Double Flushing Tank / Chamber		VC Vent Column
	SF Single Flushing Tank / Chamber		VT Vent
	HB Hatch Box		WO Washout
	Other (specified on plan)		

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	BD Backdrop Manhole		HY Hydrobrake
	BV Butterfly Valve		PI Petrol Interceptor
	CL Clough		PS Penstock
	DB Dam Board		RV Reflux Valve
	DP Drop Pipe		ST Step
	DS Drop Shaft		SV Sluice Valve
	FL Flume		TA Tank
	FV Flap Valve		WW Weir
	HW Headwall		Other (specified on plan)

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	STW Effluent Discharge		Undefined End
	SA / SA Soakaway		GU Gully
	Outfall		Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

	Public/Private Pumping Station
	Change of characteristic indicator (C.O.C.I.)
	Sewage Treatment Works
	IL Invert Level
	Summit

Areas

Lines denoting areas of underground surveys, etc.

	Building over Case (BOC No.) or Low Lying Land (LLL No.)
	Sewage Treatment Works or Pumping Station
	Area under Adoption Agreement
	Survey Area
	Drawing Area or chamber
	Licence Area
	Area pending Adoption Agreement
	Other Area (specified on plan)

Other Sewer Types (Not Operated or Maintained by Thames Water)

	Foul Sewer		Surface Water Sewer
	Combined Sewer		Highway Drain
	Culverted Watercourse		Proposed
	Status Unknown		Abandoned Sewer

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) For symbols referred to as 'Other' on this key, please see the plan for further information.
- 5) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

- 6) -9999.00 or 0 on a manhole level indicates that data is unavailable.
- 7) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. When cover and invert levels appear on a plan they are clearly prefixed by 'CL' and 'IL'. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0118 925 1504.

Printbox (471124,173453) -> (471632,173961)
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Time : Thu Apr 9 15:35:01 2009

The position of apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no survey information is available.

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At (471619,173788)	there is a MANHOLE with SHORT NUMBER=6754	COVER=	0.00	INVERT=	0.00
At (471608,173743)	there is a MANHOLE with SHORT NUMBER=6755	COVER=	41.95	INVERT=	35.50
At (471189,173842)	there is a MANHOLE with SHORT NUMBER=1804	COVER=	38.41	INVERT=	35.70

Printbox (471124,173453) -> (471632,173961)
Central Mapsheet : SU7173NW
User : RIMISSON
Time : Thu Apr 9 15:35:01 2009

The position of apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no survey information is available.

At (471185,173841)	there is a MANHOLE with SHORT NUMBER=1858	COVER=	38.38	INVERT=	-9999.00
At (471382,173457)	there is a MANHOLE with SHORT NUMBER=3401	COVER=	45.28	INVERT=	41.81
At (471376,173463)	there is a MANHOLE with SHORT NUMBER=3450	COVER=	45.35	INVERT=	44.17
At (471490,173464)	there is a MANHOLE with SHORT NUMBER=4401	COVER=	45.00	INVERT=	41.14
At (471427,173470)	there is a MANHOLE with SHORT NUMBER=4402	COVER=	45.10	INVERT=	41.57
At (471445,173460)	there is a MANHOLE with SHORT NUMBER=4451	COVER=	45.02	INVERT=	43.68
At (471446,173471)	there is a MANHOLE with SHORT NUMBER=4452	COVER=	45.03	INVERT=	43.72
At (471428,173475)	there is a MANHOLE with SHORT NUMBER=4453	COVER=	45.02	INVERT=	43.81
At (471441,173459)	there is a MANHOLE with SHORT NUMBER=4454	COVER=	44.93	INVERT=	42.33
At (471444,173458)	there is a MANHOLE with SHORT NUMBER=4457	COVER=	0.00	INVERT=	0.00
At (471492,173471)	there is a MANHOLE with SHORT NUMBER=4460	COVER=	0.00	INVERT=	0.00
At (471431,173584)	there is a MANHOLE with SHORT NUMBER=4501	COVER=	45.54	INVERT=	42.35
At (471420,173551)	there is a MANHOLE with SHORT NUMBER=4502	COVER=	45.53	INVERT=	-9999.00
At (471446,173586)	there is a MANHOLE with SHORT NUMBER=4503	COVER=	0.00	INVERT=	-9999.00
At (471411,173585)	there is a MANHOLE with SHORT NUMBER=4551	COVER=	45.62	INVERT=	43.90
At (471422,173549)	there is a MANHOLE with SHORT NUMBER=4552	COVER=	45.52	INVERT=	-9999.00
At (471427,173501)	there is a MANHOLE with SHORT NUMBER=4553	COVER=	0.00	INVERT=	-9999.00
At (471421,173556)	there is a MANHOLE with SHORT NUMBER=4556	COVER=	-9999.00	INVERT=	-9999.00
At (471417,173562)	there is a MANHOLE with SHORT NUMBER=4557	COVER=	-9999.00	INVERT=	-9999.00
At (471410,173562)	there is a MANHOLE with SHORT NUMBER=4558	COVER=	-9999.00	INVERT=	-9999.00
At (471420,173676)	there is a MANHOLE with SHORT NUMBER=4606	COVER=	41.29	INVERT=	39.93
At (471426,173639)	there is a MANHOLE with SHORT NUMBER=4652	COVER=	44.08	INVERT=	42.78
At (471422,173660)	there is a MANHOLE with SHORT NUMBER=4653	COVER=	42.67	INVERT=	41.26
At (471413,173697)	there is a MANHOLE with SHORT NUMBER=4654	COVER=	39.53	INVERT=	-9999.00
At (471413,173699)	there is a MANHOLE with SHORT NUMBER=4655	COVER=	39.49	INVERT=	38.06
At (471428,173622)	there is a MANHOLE with SHORT NUMBER=4656	COVER=	0.00	INVERT=	-9999.00
At (471430,173621)	there is a MANHOLE with SHORT NUMBER=4657	COVER=	-9999.00	INVERT=	-9999.00
At (471479,173679)	there is a MANHOLE with SHORT NUMBER=4659	COVER=	-9999.00	INVERT=	-9999.00
At (471446,173781)	there is a MANHOLE with SHORT NUMBER=4702	COVER=	0.00	INVERT=	-9999.00
At (471492,173727)	there is a MANHOLE with SHORT NUMBER=4705	COVER=	44.01	INVERT=	34.08
At (471416,173727)	there is a MANHOLE with SHORT NUMBER=4706	COVER=	38.12	INVERT=	-9999.00
At (471492,173720)	there is a MANHOLE with SHORT NUMBER=4707	COVER=	44.01	INVERT=	39.53
At (471494,173763)	there is a MANHOLE with SHORT NUMBER=4751	COVER=	43.65	INVERT=	40.84
At (471470,173782)	there is a MANHOLE with SHORT NUMBER=4752	COVER=	0.00	INVERT=	-9999.00
At (471437,173787)	there is a MANHOLE with SHORT NUMBER=4753	COVER=	0.00	INVERT=	-9999.00
At (471477,173703)	there is a MANHOLE with SHORT NUMBER=4756	COVER=	-9999.00	INVERT=	-9999.00
At (471493,173706)	there is a MANHOLE with SHORT NUMBER=4757	COVER=	-9999.00	INVERT=	-9999.00
At (471492,173725)	there is a MANHOLE with SHORT NUMBER=4758	COVER=	-9999.00	INVERT=	-9999.00
At (471512,173460)	there is a MANHOLE with SHORT NUMBER=5401	COVER=	44.99	INVERT=	41.12
At (471551,173458)	there is a MANHOLE with SHORT NUMBER=5402	COVER=	44.80	INVERT=	40.83
At (471551,173465)	there is a MANHOLE with SHORT NUMBER=5450	COVER=	44.76	INVERT=	43.18
At (471556,173489)	there is a MANHOLE with SHORT NUMBER=5451	COVER=	0.00	INVERT=	0.00
At (471525,173485)	there is a MANHOLE with SHORT NUMBER=54NK	COVER=	0.00	INVERT=	0.00
At (471507,173651)	there is a MANHOLE with SHORT NUMBER=5601	COVER=	44.61	INVERT=	40.83
At (471510,173610)	there is a MANHOLE with SHORT NUMBER=5602	COVER=	45.13	INVERT=	0.00
At (471504,173716)	there is a MANHOLE with SHORT NUMBER=5701	COVER=	44.08	INVERT=	39.83
At (471473,173577)	there is a MANHOLE with SHORT NUMBER=	COVER=	-9999.00	INVERT=	-9999.00
At (471495,173631)	there is a MANHOLE with SHORT NUMBER=	COVER=	-9999.00	INVERT=	-9999.00
At (471491,173525)	there is a MANHOLE with SHORT NUMBER=	COVER=	-9999.00	INVERT=	-9999.00
At (471164,173483)	there is a MANHOLE with SHORT NUMBER=1405	COVER=	0.00	INVERT=	0.00
At (471165,173469)	there is a MANHOLE with SHORT NUMBER=1455	COVER=	44.43	INVERT=	42.80

Printbox (471124,173453) -> (471632,173961)
Central Mapsheet : SU7173NW
User : RIMISSON
Time : Thu Apr 9 15:35:01 2009

The position of apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no survey information is available.

At (471164,173477)	there is a MANHOLE with SHORT NUMBER=1456	COVER=	44.43	INVERT=	42.66
At (471168,173577)	there is a MANHOLE with SHORT NUMBER=1501	COVER=	43.40	INVERT=	40.34
At (471162,173554)	there is a MANHOLE with SHORT NUMBER=1503	COVER=	44.38	INVERT=	41.04
At (471159,173580)	there is a MANHOLE with SHORT NUMBER=1551	COVER=	43.35	INVERT=	41.10
At (471180,173554)	there is a MANHOLE with SHORT NUMBER=1552	COVER=	44.50	INVERT=	41.85
At (471141,173670)	there is a MANHOLE with SHORT NUMBER=1602	COVER=	39.48	INVERT=	37.13
At (471138,173620)	there is a MANHOLE with SHORT NUMBER=1606	COVER=	0.00	INVERT=	-9999.00
At (471172,173641)	there is a MANHOLE with SHORT NUMBER=1607	COVER=	43.34	INVERT=	40.40
At (471145,173672)	there is a MANHOLE with SHORT NUMBER=1652	COVER=	39.44	INVERT=	38.24
At (471158,173779)	there is a MANHOLE with SHORT NUMBER=1701	COVER=	0.00	INVERT=	-9999.00
At (471150,173772)	there is a MANHOLE with SHORT NUMBER=1751	COVER=	0.00	INVERT=	-9999.00
At (471181,173838)	there is a MANHOLE with SHORT NUMBER=1805	COVER=	38.45	INVERT=	35.43
At (471176,173845)	there is a MANHOLE with SHORT NUMBER=1854	COVER=	38.31	INVERT=	36.21
At (471296,173496)	there is a MANHOLE with SHORT NUMBER=2455	COVER=	0.00	INVERT=	0.00
At (471291,173489)	there is a MANHOLE with SHORT NUMBER=2456	COVER=	0.00	INVERT=	0.00
At (471277,173484)	there is a MANHOLE with SHORT NUMBER=2458	COVER=	0.00	INVERT=	0.00
At (471240,173547)	there is a MANHOLE with SHORT NUMBER=2502	COVER=	44.93	INVERT=	41.96
At (471237,173563)	there is a MANHOLE with SHORT NUMBER=2552	COVER=	44.85	INVERT=	42.93
At (471261,173566)	there is a MANHOLE with SHORT NUMBER=2553	COVER=	44.94	INVERT=	42.74
At (471251,173529)	there is a MANHOLE with SHORT NUMBER=2556	COVER=	-9999.00	INVERT=	-9999.00
At (471262,173508)	there is a MANHOLE with SHORT NUMBER=2557	COVER=	-9999.00	INVERT=	-9999.00
At (471252,173653)	there is a MANHOLE with SHORT NUMBER=2601	COVER=	41.69	INVERT=	38.63
At (471221,173615)	there is a MANHOLE with SHORT NUMBER=2602	COVER=	44.09	INVERT=	41.59
At (471255,173662)	there is a MANHOLE with SHORT NUMBER=2651	COVER=	41.08	INVERT=	39.26
At (471235,173673)	there is a MANHOLE with SHORT NUMBER=2653	COVER=	40.43	INVERT=	39.04
At (471262,173703)	there is a MANHOLE with SHORT NUMBER=2702	COVER=	38.93	INVERT=	36.87
At (471261,173705)	there is a MANHOLE with SHORT NUMBER=2752	COVER=	38.90	INVERT=	37.14
At (471262,173706)	there is a MANHOLE with SHORT NUMBER=2753	COVER=	38.85	INVERT=	37.12
At (471257,173811)	there is a MANHOLE with SHORT NUMBER=2803	COVER=	38.61	INVERT=	36.58
At (471361,173460)	there is a MANHOLE with SHORT NUMBER=3451	COVER=	45.34	INVERT=	44.52
At (471302,173485)	there is a MANHOLE with SHORT NUMBER=3455	COVER=	0.00	INVERT=	0.00
At (471319,173571)	there is a MANHOLE with SHORT NUMBER=3501	COVER=	45.42	INVERT=	41.65
At (471367,173577)	there is a MANHOLE with SHORT NUMBER=3502	COVER=	45.59	INVERT=	41.92
At (471310,173572)	there is a MANHOLE with SHORT NUMBER=3551	COVER=	45.36	INVERT=	43.37
At (471318,173573)	there is a MANHOLE with SHORT NUMBER=3552	COVER=	45.43	INVERT=	43.40
At (471346,173577)	there is a MANHOLE with SHORT NUMBER=3553	COVER=	45.49	INVERT=	43.51
At (471338,173689)	there is a MANHOLE with SHORT NUMBER=3601	COVER=	39.03	INVERT=	36.67
At (471313,173694)	there is a MANHOLE with SHORT NUMBER=3602	COVER=	38.96	INVERT=	36.25
At (471358,173694)	there is a MANHOLE with SHORT NUMBER=3651	COVER=	39.09	INVERT=	37.42
At (471363,173695)	there is a MANHOLE with SHORT NUMBER=3652	COVER=	39.08	INVERT=	37.54
At (471340,173688)	there is a MANHOLE with SHORT NUMBER=3653	COVER=	39.07	INVERT=	37.54
At (471332,173692)	there is a MANHOLE with SHORT NUMBER=3654	COVER=	39.02	INVERT=	37.52
At (471317,173694)	there is a MANHOLE with SHORT NUMBER=3655	COVER=	38.96	INVERT=	37.43
At (471351,173729)	there is a MANHOLE with SHORT NUMBER=3702	COVER=	38.80	INVERT=	-9999.00
At (471365,173796)	there is a MANHOLE with SHORT NUMBER=3751	COVER=	42.39	INVERT=	36.71
At (471297,173541)	there is a MANHOLE with SHORT NUMBER=	COVER=	-9999.00	INVERT=	-9999.00
At (471238,173653)	there is a MANHOLE with SHORT NUMBER=	COVER=	-9999.00	INVERT=	-9999.00
At (471297,173536)	there is a MANHOLE with SHORT NUMBER=	COVER=	-9999.00	INVERT=	-9999.00
At (471130,173552)	there is a MANHOLE with SHORT NUMBER=1502	COVER=	44.36	INVERT=	40.65
At (471131,173549)	there is a MANHOLE with SHORT NUMBER=1553	COVER=	44.31	INVERT=	41.19
At (471136,173619)	there is a MANHOLE with SHORT NUMBER=1605	COVER=	42.88	INVERT=	38.69

APPENDIX D

Thames Water Pre-development Enquiry Response Letter of 28th June 2016

Thames Water Development Foul Water Impact Study Application Form 14th June 2016

Thames Water Email confirm capacity within the network of 4th July 2016

Mr G Boston

Developer Services

TAYLOR WHALLEY SPYRA
3 Dufferin Avenue
Barbican
London EC1Y 8PQ

Your ref

Our ref 50100234 /DS6018481

Name Siva Sivarajan

Phone 0800 009 3921

28 June 2016

Re: 52 -55 Friar Street Reading RG1 1DX

Dear Mr Boston,

I write in relation to the above site and further to your Pre-Development Enquiry application and supporting documentation.

Further to receiving your application we have consulted with our Asset Planners for the area and they have responded with their comments regarding the capacity of the public foul sewer network adjacent to the proposed site to accommodate foul flows from the development as detailed in your application.

They have concerns regarding the sewerage network capacity in this area and its ability to support the foul discharge demand anticipated from this development. It will therefore be necessary for us to undertake a detailed investigation into the impact of the development by means of a ***developer funded impact study***. This will determine whether capacity does exist in the sewerage network or what upgrades to the existing network are required before the site can be connected to it.

Surface water discharges should ideally go to soakaways / infiltration basins / watercourses (if any present in area). If it can be illustrated that none of the above are feasible then surface water discharges should be stored on site and attenuated, to the satisfaction of the local authority stipulation. To this end you have to liaise with the local authority and discuss their criteria regarding surface water discharges in that area. If you adhere to the local authority stipulation then Thameswater sewers can accept surface water flows as per their stipulation.

At no account should the surface water flows be discharged to the TW foul sewer network.

If you wish to proceed with an impact study to determine available capacity & what upgrades to the existing network are required before the site can be connected to it., firstly we would require a cheque made payable to Thames Water Utilities Ltd for £400 + VAT which our Modelling Group need in order ***to scope what is required as part of the impact study***. This will enable them to create a ***quote for the impact study itself which I will then forward to you***. ***Send the cheque with a covering letter quoting the reference numbers***

Thames Water Utilities Ltd,
Clearwater Court, Vastern
Road, Reading RG1 8BD
T 0118 3 738744
I www.thames-water.com

Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading, Berks. RG1 8DB

given on this letter. Also attached is a form which requests information that will be required by our Asset Planning/Modelling team. please try and provide as much info as possible.

Please note that the views expressed by Thames Water in this letter are in response to this pre development enquiry at this time and do not represent our final views on any future planning applications made in relation to this site.

We reserve the right to change our position in relation to any such planning applications.

If you have any further queries then please do not hesitate to contact me.

Yours sincerely,

Siva Sivarajan
Senior Adoptions Engineer (TW)

Developer Services-Adoptions Team
Thames Water Utilities Ltd
Clearwater Court
Vastern Road
Reading, RG1 8DB





Development Foul Water Impact Study Application Form

Please fill out all sections of this form in BLOCK CAPITALS

Application Reference Number 50160234/
DS6018481

Applicant Name GRAHAM BOSTON

Contact Number 0207-253-2626

Site Address 52-55 FRIAR STREET and
12 GREYFRIARS ROAD
READING, RG1 1DX

Ordinance Survey Grid Reference(X, Y) 471290 173620

Development Breakdown Table

Development Type	Existing total Units		Proposed total Units	
	Gravity	Pumped	Gravity	Pumped
General Housing (number of residential properties)			148 Flats	
Non Residential School With Canteen (Number of pupils)				
Non Residential School Without Canteen (Number of pupils)				
Boarding School (number of residents)				
Boarding School (Number of Day staff with mid-day meal)				
Assembly Hall (Number of Seats)				
Student Accommodation (Max number of Persons)				
Industrial Warehouse (GFA in m ²)				
Commercial Premises (GFA in m ²)	3532m ²		650m ²	
Offices (GFA in m ²)	456m ²			
Shopping Centre (GFA in m ²)				
Golf Club (Max number of Persons)				
Community Sports Club (Number of Rooms)				

Swimming-where separate pool exists without associated sports centre. (GFA in m^2)				
Health Club/Sports Centre (Max number of Persons)				
Caravan – Not serviced (Max number of Persons)				
Tent Site (Average number of Tents)				
Caravan – Serviced (Max number of Persons)				
Leisure Park (Max number of Persons)				
Cinema & Theatre (Max number of Seats)				
Restaurants – Full Meals (Max number of Seats)				
Restaurants – Fast Food (Max number of Seats)				
Hotels (Total number of Rooms)				
Residential training/ Conference – Meal inclusive (Max number of Persons)				
Non Residential Conference (Max number of Persons)				
Holiday Camp (Max number of Persons)				
Residential Nursing Hospital (Number of Beds)				
Small Hospital (Number of Beds)				
Large Hospital (Number of Beds)				

Existing Development Connection Details

E.g.

Connection Point: Nearest MH	Connection Type (Gravity or Pumped)	Size of Development Units or m ² or People	Existing Development Type
MH 1401	Gravity	2000m ²	Warehouse
MH2601A	GRAVITY	2250m ²	COMMERCIAL
MH3501	GRAVITY	1782m ²	COMMERCIAL
MH3501	GRAVITY	456m ²	OFFICES

PLEASE PROVIDE THE FOLLOWING DETAILS:

- Drawing showing phasing plan and connection points
- Drawing showing existing drainage
- Drawing showing pumping station specification including cross sections, storage, invert levels and wet well details.

Please note that failure to provide the information requested on this form may lead to a delay in your impact study. If any of this information is not available the results of the impact study may be affected and the outcome may not be as accurate.

If you have any questions please don't hesitate to contact Developer Services on

0800 009 3921.

Print Name	GRAHAM BOSTON
Company	TAYLOR WHALLEY SPYRA
Signed	
Date	14th June 2016

Application for a pre- development enquiry

Application form

You can go to our website thameswater.co.uk/buildover
and apply online or complete this form and return to
Thames Water, Developer Services, Clearwater Court,
Vastern Road, Reading RG1 8DB



Guidance notes

Pre development enquiries are designed to aid developers and their consultants in understanding the impact of their proposed development on Thames Water sewerage network.

You may also use this application form to enable early discussion/meeting on planning issues such as Flood Risk Assessments, capacity checks, drainage strategies and pre S104 application layouts.

Once we have received your application Thames Water will undertake a simple desktop study to determine your sites impact on our network and identify if any detailed further analysis or modelling is required.

Please note, that all relevant sections of the application must be fully completed, as insufficient information will result in your application being returned to you, which will result in your response being delayed.

Applicant Details

Please provide the full name, address and contact details of the person or company making the Pre-development enquiry.

All applications must be paid for prior to any response being answered. Please send your cheque, with the amount (including VAT), to Thames Water Limited with the accompanying fully completed application to:

Thames Water
Developer Services
Clearwater Court
Vastern Road
Reading
Berkshire RG1 8DB

Development site details

The site must hold a comprehensive address, scaled location plan and site layout (if available) which will assist in determining the location of proposed connection points. A 12 figure grid reference highlighting the centre point of the site will also be helpful to us if an address is difficult to determine.

The type, number of units and size of the development will assist us.

We require information on the history of the site, therefore, if the site is Brownfield ie. land identified for redevelopment, then please let us know if the site has sewerage connections and what was previously occupying the site.

Proposed development and flows

Please indicate the proposed discharge rates for surface water and foul discharge in litres per second (l/s).

Checklist and declaration

Ensure that you have fully completed all relevant sections of the application. Please print your name, sign and date the application form and enclose:

- a scaled location plan
- a scaled site layout
- payment of the required fee of £398 + VAT

What happens next?

- Once we have received your fully completed application form we will provide you with the following response to your application:
- A preliminary assessment of any restrictions and potential connection points to the existing sewerage network.
- A preliminary assessment of any reinforcement works that will be required to service the development.
- Details of any protective measures for sewerage assets which may require diversion or easements.

We will endeavor to respond to you within 15 working days of receipt of your application providing it is not necessary to carry out further investigation works.

If further analysis is required, involving detailed modelling and site investigation (depth loggers, rain gauges or flow monitors) we are able to provide you with a scope, estimated cost and timeframe for undertaking a formal impact study for the price of £400 + VAT. Once completed this study would include a full report detailing the impact and recommendations/network improvements required to alleviate any increased flood risk.

Application for a pre-development enquiry

Please complete all sections of this form in BLOCK CAPITALS



About the person applying

This is the person we'll contact about the application and will receive all correspondence. This can be the property owner or someone acting on their behalf.

Are you applying as?

An individual ☐

or

A company ☒

'An individual' is a homeowner and 'A company' is an agent/architect/builder etc acting on behalf of the homeowner

Company name

TAYLOR WHALLEY SPYER

Title

Mr ☒ Mrs ☐ Ms ☐ Miss ☐ Dr. ☐ Other:

First name(s)

GRAHAM

Last name

BOSTON



Applicant contact details

We'll use these details to get in touch with you about your application.

Preferred contact number

020-7253-2626

Alternative number

N/A

Email address

graham.boston@tws.uk.com

Full postal address

Address line 1: 3 DUFFERIN AVENUE

Address line 2:

Town: LONDON

County:

Postcode: EC1Y 8PQ



Nominated contact

Who should we contact to process your application?

Applicant ☒
(Please tick one)

Someone else ☐

If someone else:

Title

Mr ☐ Mrs ☐ Ms ☐ Miss ☐ Dr. ☐ Other:

First name(s)

Continued...

Last name

Preferred contact number

Alternative number

Email address

Full postal address

Address line 1:

Address line 2:

Town:

County: Postcode:



Invoices

Who should we send
invoices to?

Applicant ☒

Nominated contact ☐

Someone else ☐

If someone else:

Title

Mr ☐

Mrs ☐

Ms ☐

Miss ☐

Dr. ☐

Other:

First name(s)

Last name

Full postal address

Address line 1:

Address line 2:

Town:

County:

Postcode:

Email address



Where the work is taking place

What is the address
of the property being
connected?

Same as applicant ☐

Same as the nominated contact ☐

Somewhere else ☒

If somewhere else:

Site name

SAINSBURY'S

Continued...

Full postal address

Address line 1:

52-55 FRIAR STREET

Address line 2:

AND 12 GREYFRIARS ROAD

Town:

READING

County:

Postcode: RG1 1DX



About the site

What is your local authority?

READING BOROUGH COUNCIL

Ordnance survey grid ref

471290

173620

What is the site currently used for?

Greenfield/agricultural ☐ Industry ☐ Housing ☐ Landfill ☐ Other ☒

Supermarket, Retail, Storage, Bakery, Offices

VAT development classification

New build house or flat ☒ Relevant residential or charitable ☐

Commercial, existing or other ☐ Listed ☐ Conversion ☐ Mixed ☐



Location of existing connection

Does the site already have any of these sewerage connections?

Foul water

Yes ☒ No ☐

If yes:

Current discharge rate

3.7 l/s

Litres per second

Size of existing site

0.26 hectares

Number of units/hectares

Location of existing connection?

FRIAR STREET AND GREYFRIARS ROAD

Surface water

Yes ☒ No ☐

If yes:

Current discharge rate

76 l/s

Litres per second

Size of existing site

0.26 hectares

Number of units/hectares

Location of existing connection?

FRIAR STREET AND GREYFRIARS ROAD



Your proposed development

Type of development	Greenfield/agricultural ☐	Industry ☐	Housing ☐	Landfill ☐	Mixed ☒
Preferred foul water connection point	FRIAR STREET and GREYFRIARS ROAD				
Preferred surface water connection point	FRIAR STREET and GREYFRIARS ROAD				
Size of proposed development	0.26 hectares Number of units/hectares				
Proposed foul water discharge rate	6.9 l/s		Litres per second		
Proposed surface water discharge rate	38 l/s		Litres per second		
How will development flows reach the connection point?	Pumped ☐ Gravity ☒				
Trade effluent agreement required?	Yes ☐ No ☒ Don't know ☐				
If Yes, Trade effluent reference number					



Planning status

Is the development identified in the local plan?	Yes ☒	No ☐	Don't know ☐	If Yes, reference number	UNKNOWN
Does the development have outlined planning permission?	Yes ☐	No ☒	Don't know ☐	If Yes, reference number	
Does the development have full planning permission?	Yes ☐	No ☒	Don't know ☐	If Yes, reference number	
Does the development have building regulation permission?	Yes ☐	No ☒	Don't know ☐		



Enclose your documents

All drawings must be of suitable detail and have a drawing reference number on them.

What we need from you to process your application:

- | | |
|---------------------------|--|
| Site plan | This should show the site with nearby buildings, roads and any sewers. |
| Development plan | This should show proposed layout of new development buildings, roads and sewers. |
| Site drainage plan | This should show all proposed sewers, pipe sizes and gradients. |



Checklist and Declaration

I have completed the application form and enclose the following information:

- Application fee of £398 + VAT
- A scaled location plan ie. site plans showing existing and proposed layouts.
- The development site drainage plan.

Declaration

I agree, that for the purposes of the Water Industry Act 2003 and the Data Protection Act 1998, the information provided in this form and in any accompanying documents, may be held on a computer and processed by Thames Water Ltd and its servants and agents for all purposes connected with the Company's statutory water and sewerage undertakings.

Print name

GRAHAM BOSTON

Position within company

ASSOCIATE

Company

TAYLOR WHALLEY SONS

Date

24th May 2016

Signature

Getting in touch with us

For enquiries regarding this application or any other questions relating to your building or development work please contact us on:



thameswater.co.uk/developerservices



developer.services@thameswater.co.uk



0800 009 3921
Monday - Friday 8.00am-5.00pm



**Thames Water, Developer Services, Clearwater Court,
Vastern Road, Reading, Berkshire RG1 8DB**

If you have any other questions for Thames Water



thameswater.co.uk



0800 980 8800

- Queries relating to your bill
- Change of address
- Meter readings

Minicom service if you are deaf or hard of hearing 0800 316 6899

0800 316 9800

- For emergencies
- Other non-billing enquiries
- Literature

Minicom service if you are deaf or hard of hearing 0800 316 9898

To contact us from abroad +44 1793 366011



Thames Water, PO Box 286, Swindon, SN38 2RA



**This leaflet can be supplied in braille or
audio-tape upon request.**

Graham Boston

From: Siva Sivarajan <Siva.Sivarajan@thameswater.co.uk>
Sent: 11 July 2016 11:30
To: Graham Boston
Subject: 52-55 Friar Street Reading RG1 1DX

Fao: Graham Boston,

Dear Sir,

The scheme parameters were reviewed again by the modellers, at my request and recommendations, as it was a borderline case. The TW Asset Planners and the modellers have confirmed that there is capacity in the network to accept the discharges from your development and an Impact study is not required. This confirmation supersedes any letters that may have been sent to you relating to this scheme previously.

Regds,

Siva Sivarajan
Sewer Adoptions Engineer
Strategic Partnering

Planning for and enabling growth
Thames Water Utilities Ltd, Clearwater Court, Vastern Road, Reading, Berkshire, RG1 8DB
Siva.sivarajan@thameswater.co.uk
0800 009 3921



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APPENDIX E

Thame Water Sewer Flooding History Enquiry Letter of 25th May 2016

Graham Boston

Taylor Whalley Spyra Limited
3
Dufferin Avenue
Barbican
London
EC1Y 8PQ

Thames Water Property Searches

Your ref	8939
Our ref	OSS/12/712739
Phone	0118 925 1504
Fax	0118 923 6655/57
E-Mail	OnlineCustomers@thameswater.co.uk
Web	www.thameswater-propertysearches.co.uk

24-05-2016

Dear Customer

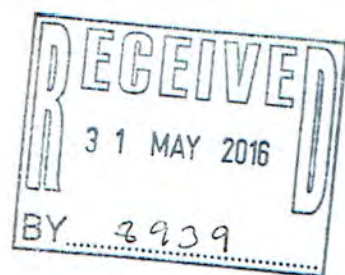
Site Address Supplied: 52-55, Friar Street, Reading, RG1 1DX.

Thank you for placing your order with Thames Water Property Searches. Please find enclosed all products relating to your Case reference OSS/12/712739.

If you have any queries regarding these products please do not hesitate to contact us.

Yours faithfully

Customer Service Team
Thames Water Property Searches



Thames Water Property Searches, PO Box 3189, Slough SL1 4WW

DX 151280 Slough 13

(T) 0118 925 1504 (F) 0118 923 6655/57 (E) OnlineCustomers@thameswater.co.uk (W) www.thameswater-propertysearches.co.uk

Registered in England and Wales No. 2366661. Registered Office Clearwater Court, Vastern Road, Reading, RG1 8DB



Case Reference: OSS/12/712739

Product Name	Date Ordered	Product Status
Sewer Flooding History Enquiry	24-05-2016	Complete

Thames Water Property Searches, PO Box 3189, Slough SL1 4WW

DX 151280 Slough 13

(T) 0118 925 1504 (F) 0118 923 6655/57 (E) OnlineCustomers@thameswater.co.uk (W) www.thameswater-propertysearches.co.uk

Registered in England and Wales No. 2366661. Registered Office Clearwater Court, Vastern Road, Reading, RG1 8DB



Sewer Flooding

History Enquiry



Taylor Whalley Spyra Limited
Dufferin Avenue

Search address supplied 52-55
Friar Street
Reading
RG1 1DX

Your reference	8939
Our reference	SFH/SFH Standard/2016_3335519
Received date	24 May 2016
Search date	25 May 2016

Thames Water Utilities Ltd

Property Searches
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
E searches@thameswater.co.uk
I www.thameswater-propertysearches.co.uk

Registered in England and Wales
No. 2366661. Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

Sewer Flooding

History Enquiry



Search address supplied: 52-55, Friar Street, Reading, RG1 1DX

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Searches, are responsible in respect of the following:-

- (i) any negligent or incorrect entry in the records searched;
- (ii) any negligent or incorrect interpretation of the records searched;
- (iii) and any negligent or incorrect recording of that interpretation in the search report
- (iv) compensation payments

Thames Water Utilities Ltd

Property Searches
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
E searches@thameswater.co.uk
I www.thameswater-propertysearches.co.uk

Registered in England and Wales
No. 2366661. Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

Sewer Flooding

History Enquiry



History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

For your guidance:

- A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- "At Risk" properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company's reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0800 316 9800 or website www.thameswater.co.uk

Thames Water Utilities Ltd

Property Searches
PO Box 3189
Slough SL1 4WW

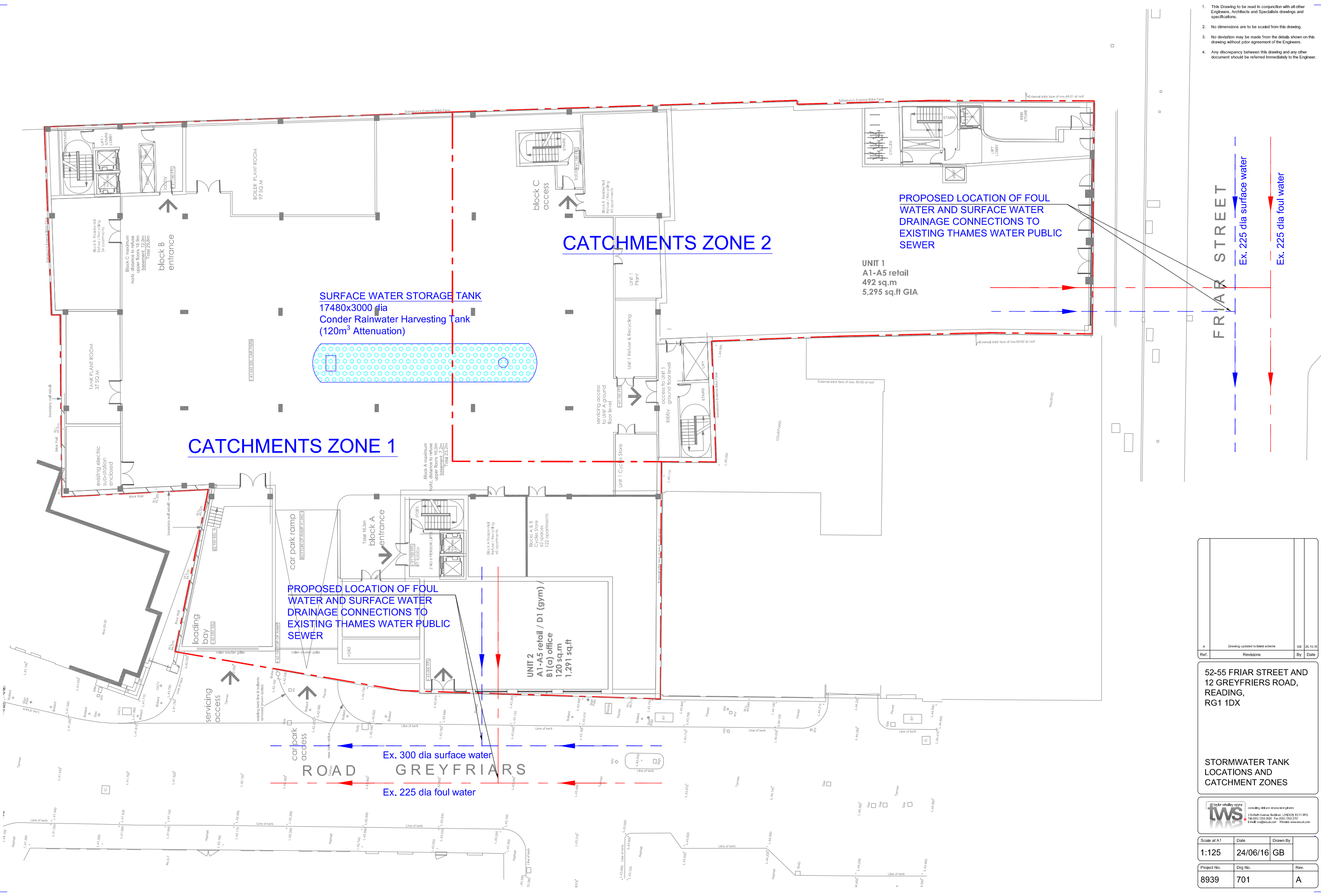
DX 151280 Slough 13

T 0118 925 1504
E searches@thameswater.co.uk
I www.thameswater-propertysearches.co.uk

Registered in England and Wales
No. 2366561. Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

APPENDIX F

Taylor Whalley Spyra Drawing 8939_701 rev A_Surface Water Storage Locations and Catchment Zones



1. This Drawing to be read in conjunction with all other Engineers, Architects and Specialists drawings and specifications.
2. No dimensions are to be scaled from this drawing.
3. No deviation may be made from the details shown on this drawing without prior agreement of the Engineers.
4. Any discrepancy between this drawing and any other document should be referred immediately to the Engineer.

Ref.	Revisions	By	Date
A	Drawing updated to latest scheme	GB	26.10.16

52-55 FRIAR STREET AND 12 GREYFRIARS ROAD, READING, RG1 1DX

STORMWATER TANK LOCATIONS AND CATCHMENT ZONES

tws tailor valuing space consulting and structural engineers
3 Ditch Avenue, Bordon, LONDON EC1Y 8PQ
T: 0203 723 2820 F: 0203 723 2161 E: info@tws.co.uk Website: www.tws.co.uk

Scale at A1	Date	Drawn By
1:125	24/06/16	GB

Project No.	Dwg No.	Rev.
8939	701	A

APPENDIX G

Environment Agency Email of 13th June 2016

Graham Boston

From: Callard, Joe <Joe.Callard@environment-agency.gov.uk> on behalf of Planning-Wallingford <planning-wallingford@environment-agency.gov.uk>
Sent: 13 June 2016 12:09
To: Graham Boston
Subject: RE: Ref 160610/JC16 8939_ 52-55 FRIAR STREET, READING, RG1 1DX
Attachments: West Thames Pre-application Advice Note April 2016.pdf

Dear Mr Boston,

WA/2016/122533-01 - 52-55 Friar Street, Reading, RG1 1DX

Please find attached our response to the above pre-application enquiry. Please note that due to workload constraints we are unable to provide a bespoke response and the letter provided is a standard response outlining environmental constraints that should be considered.

Please note we no longer comment on surface water drainage and this is dealt with by the Lead Local Flood Authority.

For advice on more technical questions we would be willing to review documents and provide advice under our charged for service, which equates to £84 per hour.

Kind regards,

Joseph Callard
Planning Advisor | West Thames Sustainable Places
✉ Planning-wallingford@environment-agency.gov.uk
☎ +442084747657

Our **climate change allowances** for planning were updated on 19 February 2016. The guidance is accessible here: [Flood risk assessment: Climate change allowances](#)

From: Enquiries, Unit
Sent: 10 June 2016 11:05
To: Graham.Boston@TWS.UK.COM
Subject: FW: Ref 160610/JC16 8939_ 52-55 FRIAR STREET, READING, RG1 1DX

Dear Graham

Thank you for your pre-planning enquiry.

I have passed your enquiry to our Sustainable Places team for the relevant area and they will be in touch with you shortly.

The Freedom of Information Act and Environmental Information Regulations state that a public authority must respond to requests for information within 20 working days, but we aim to respond to all enquiries as quickly as we can.

You can find more information about our service commitment by clicking on the link below:

<https://www.gov.uk/government/publications/environment-agency-customer-service-commitment>

Should you wish to contact the Sustainable Places team directly, please use the contact details below. Please quote your Enquiry Reference 160610/JC16 in any correspondence with us regarding this matter.

Sustainable Places
Environment Agency
Thames West Area
Redkite House
Howbery Park
WALLINGFORD
OX10 8BD

Tel: 03708 506506

Kind regards

Joanne Carney
Customer Service Adviser
National Customer Contact Centre - Part of National Operations Services

☎ Tel: 03708 506 506

🌐 Web Site: www.gov.uk/environment-agency

Click an icon to keep in touch with us:-



So how did we do...?

Our National Customer Contact Centre relies on customer feedback, so we really value your thoughts on how we are doing. We will always make changes where we can to improve our service. This will only take three minutes to complete:

<http://www.smartsurvey.co.uk/s/NCCCcustomer/>

From: Graham Boston [<mailto:Graham.Boston@TWS.UK.COM>]
Sent: 06 June 2016 18:14
To: Enquiries, Unit
Subject: Ref 160610/JC16 8939_ 52-55 FRIAR STREET, READING, RG1 1DX

Dear Sirs,

We are writing for some initial advice with regard to the above site and attach a location plan.

A new outline planning applications is to be made to Reading Borough Council, prior to a full planning applications.

The existing site is 2,468m² and full hard standing with no green spaces and all surface water draining to public sewer at two locations in Friar Street and Greyfriars Road.

The proposed site is the same area but with additional floors with green roofs and a central court yard green area see attached PDF.

The site is in FRA zone 1 and south of a flood zone 2 and 3 further north, from NPPF the climate change requirements for the Thames River Basin assuming central with life span of 100 years would be 25% climate change allowance.

We are looking at designing the Surface Water drainage for a 50% reduction in the surface water runoff from site which with the large area of green roofs we would also be looking at a surface water storage tank for retention and a restricted discharge hydrobrake/carbon interceptor to the public sewer.

The final design and discussions with yourselves and Thames water will take place prior to full planning applications and detailed design of the drainage system etc. We have made contact with Thames Water regarding the drainage and allowable discharge rates for the existing system.

Can you review the above and provide any addition comments, with a view to letting us know if the above and attached meet you initial guidance/requirements. If there are any other additional requirements we should review please let me know

Once you have reviewed please give me a call to discuss.

Many thanks

Graham Boston
Technical Associate



consulting civil & structural engineers
3 Dufferin Avenue, London, EC1Y 8PQ

T: 020 7253 2626 **F:** 020 7253 2767 **E:** graham.boston@tw.s.uk.com **W:** www.tw.s.uk.com

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APPENDIX H

Reading Borough Council Lead Local Water Authority Email of 21st June 2016

Graham Boston

From: Cook, Darren <Darren.Cook@reading.gov.uk>
Sent: 21 June 2016 13:28
To: Graham Boston
Cc: Shean, Sam
Subject: RE: 8939_ 52-55 FRIAR STREET, READING, RG1 1DX
Attachments: Adopted National sustainable-drainage-technical-standards March 2015.pdf

Dear Graham,

Further to the emails below I can confirm that the principles appear to be acceptable. We do not have any adopted standards and therefore any proposals would need to comply with the national standards attached.

I hope the above is of use but if you have any questions then please let me know.

Kind regards,

Darren Cook
Transport Development Control Manager
Transport | Directorate of Environment and Neighbourhood Services (DENS)

Reading Borough Council
Civic Offices
Bridge Street
Reading
RG1 2LU

0118 937 2612 (72612)

[Website](#) | [Facebook](#) | [Twitter](#) | [YouTube](#)



From: Shean, Sam
Sent: 13 June 2016 13:26
To: Cook, Darren
Cc: Graham.Boston@TWS.UK.COM
Subject: FW: 8939_ 52-55 FRIAR STREET, READING, RG1 1DX

Hi Darren

Please see contact concerning flood / suds queries for the Sainsbury's site. They are looking for standard guidance documents and run-off figures. Are you able to provide first response?

Sam

SAM SHEAN

Streetcare Services Manager - Highways | DENS Reading Borough Council 19 Bennet Road, Reading, RG2 0QX
0118 937 2138 (72138) M: 0771 516 7880 (Mobex 87497) (sam.shean@reading.gov.uk)

[Website](#) | [Facebook](#) | [Twitter](#) | [YouTube](#)



From: Graham Boston [<mailto:Graham.Boston@TWS.UK.COM>]
Sent: 13 June 2016 12:48
To: Shean, Sam
Cc: Simon Lane; Hab Rahman
Subject: 8939_ 52-55 FRIAR STREET, READING, RG1 1DX

This is an EXTERNAL EMAIL. STOP. THINK before you CLICK links or OPEN attachments.

Hi Sam,

As just discussed on the phone we are writing for some initial advice with regard to the above site and attach a location plan.

A new outline planning applications is to be made to Reading Borough Council, prior to a full planning applications.

The existing site is 2,468m² and full hard standing as per attached topo drawing with no green spaces and all surface water draining to public sewer at two locations in Friar Street and Greyfriars Road.

The proposed site as attached Option C drawing is the same area but with additional floors with green roofs and a central court yard green area see attached green roofs PDF.

The site is in FRA zone 1 and south of a flood zone 2 and 3 further north, from NPPF the climate change requirements for the Thames River Basin assuming central with life span of 100 years would be 25% climate change allowance.

We are looking at designing the Surface Water drainage for a 50% reduction in the surface water runoff from site which with the large area of green roofs we would also be looking at a surface water storage tank for retention and a restricted discharge hydrobrake/carbon interceptor to the public sewer.

The final design and discussions with yourselves and Thames water will take place prior to full planning applications and detailed design of the drainage system etc. We have made contact with Thames Water regarding the drainage and allowable discharge rates for the existing system.

Can you review the above and provide any addition comments, with a view to letting us know if the above and attached meet you initial guidance/requirements. If there are any other additional requirements we should review please let me know

Once you have reviewed please give me a call to discuss.

Many thanks

Graham Boston
Technical Associate



consulting civil & structural engineers
3 Dufferin Avenue, London, EC1Y 8PQ

T: 020 7253 2626 **F:** 020 7253 2767 **E:** graham.boston@tws.uk.com **W:** www.tws.uk.com

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Sustainable Drainage Systems

Non-statutory technical standards for sustainable drainage systems

March 2015

Contents

Introduction	1
Flood risk outside the development	1
Peak flow control	1
Volume control	1
Flood risk within the development.....	2
Structural integrity	2
Designing for maintenance considerations	2
Construction.....	2

Introduction

This document sets out non-statutory technical standards for sustainable drainage systems. They should be used in conjunction with the [National Planning Policy Framework](#) and [Planning Practice Guidance](#).

Flood risk outside the development

S1 Where the drainage system discharges to a surface water body that can accommodate uncontrolled surface water discharges without any impact on flood risk from that surface water body (e.g. the sea or a large estuary) the peak flow control standards (**S2** and **S3** below) and volume control technical standards (**S4** and **S6** below) need not apply.

Peak flow control

S2 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.

S3 For developments which 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.

Volume control

S4 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.

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.

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.

Flood risk within the development

S7 The drainage system must 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.

S8 The drainage system must 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.

S9 The design of the site must ensure that, so far as is reasonably practicable, flows resulting from rainfall in excess of a 1 in 100 year rainfall event are managed in exceedance routes that minimise the risks to people and property.

Structural integrity

S10 Components must be designed to ensure structural integrity of the drainage system and any adjacent structures or infrastructure under anticipated loading conditions over the design life of the development taking into account the requirement for reasonable levels of maintenance.

S11 The materials, including products, components, fittings or naturally occurring materials, which are specified by the designer must be of a suitable nature and quality for their intended use.

Designing for maintenance considerations

S12 Pumping should only be used to facilitate drainage for those parts of the site where it is not reasonably practicable to drain water by gravity.

Construction

S13 The mode of construction of any communication with an existing sewer or drainage system must be such that the making of the communication would not be prejudicial to the structural integrity and functionality of the sewerage or drainage system.

S14 Damage to the drainage system resulting from associated construction activities must be minimised and must be rectified before the drainage system is considered to be completed.



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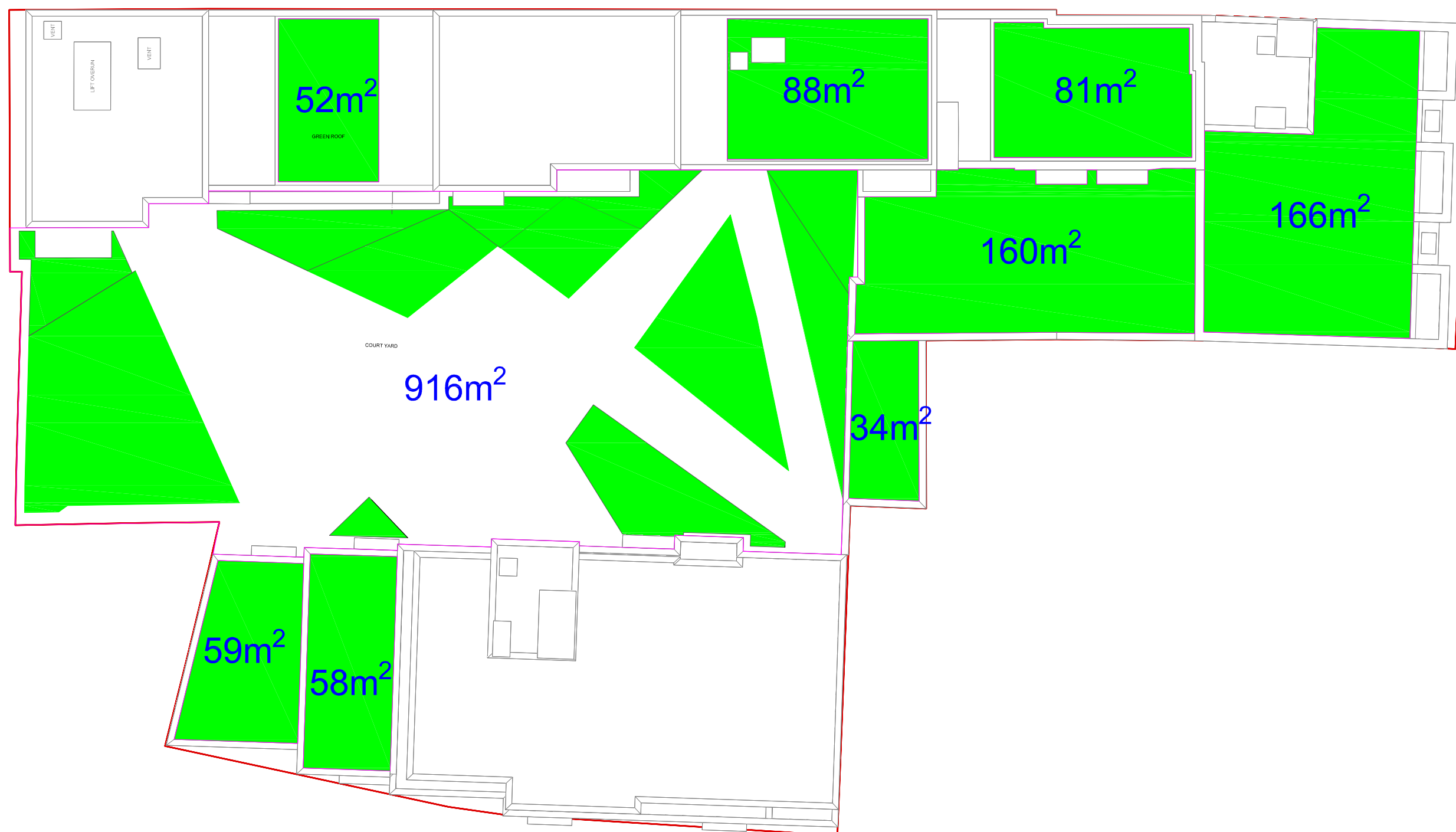
PB14308

APPENDIX I

Taylor Whalley Spyra Drawing 8939_700 rev A_ Green Roof Layouts

LDA Architects Ltd Residential Amenity Green Roof Build-ups

1. This Drawing to be read In conjunction with all other Engineers, Architects and Specialists drawings and specifications.
2. No dimensions are to be scaled from this drawing.
3. No deviation may be made from the details shown on this drawing without prior agreement of the Engineers.
4. Any discrepancy between this drawing and any other document should be referred Immediately to the Engineer.



FRIAR STREET

GREYFRIARS ROAD

A	Drawing Updated to Latest Scheme	GB	26, 10, 16
Ref.	Revisions	By	Date

52-55 FRIAR STREET AND
12 GREYFRIERS ROAD,
READING,
RG1 1DX,

GREEN ROOF AND COURT YARD LAYOUTS

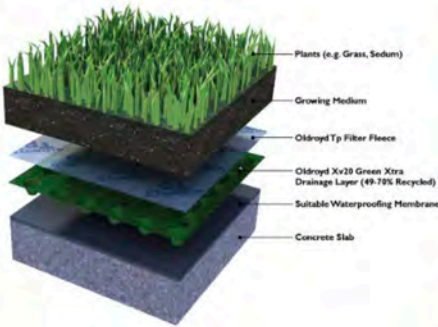


Scale at A1	Date	Drawn By	
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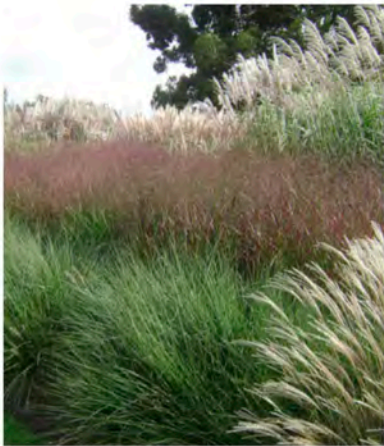
Project No.	Drg No.	Rev.
8939	700	A



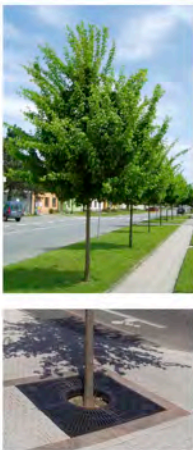
Garden Terraces



Private Balconies



Landscaped Courtyard



Lighting



Green Walls

