

Appendix D: Existing Drainage Information

Asset location search



Property Searches

Cornerstone Projects LTD
91Market Street
HOYLAKE
WIRRAL
CH47 5AA

Search address supplied Ham Close

Your reference 20106

Our reference ALS/ALS Standard/2017_3577459

Search date 25 May 2017

Notification of Price Changes...

From **1 September 2016** Thames Water Property Searches will be increasing the prices of its Asset Location Searches. This will be the first price rise in three years and is in line with the RPI at 1.84%. The increase follows significant capital investment in improving our systems and infrastructure.

Enquiries received with a higher payment prior to 1 September 2016 will be non-refundable. For further details on the price increase please visit our website at

www.thameswater-propertysearches.co.uk



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0845 070 9148



Asset location search



Search address supplied: Ham Close,

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0845 070 9148, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk

Web: www.thameswater-propertysearches.co.uk

Waste Water Services

Asset location search



Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and pressure test to be carried out for a fee.

Asset location search



Property Searches

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Asset location search



Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0845 850 2777
Email: developer.services@thameswater.co.uk

Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0845 850 2777
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2017 3577459



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 517178,172359
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.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

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

Manhole Reference	Manhole Cover Level	Manhole Invert Level
061C	n/a	n/a
9604	n/a	n/a
9602	n/a	n/a
0605	n/a	n/a
9603	n/a	n/a
251F	n/a	n/a
151E	n/a	n/a
151F	n/a	n/a
251G	n/a	n/a
2502	n/a	n/a
2507	n/a	n/a
2501	n/a	n/a
161C	n/a	n/a
241A	n/a	n/a
1407	7.25	4.23
1404	7.12	5.32
341A	n/a	n/a
3401	6.69	3.13
1401	7.15	5.13
2402	7.79	5.11
3402	6.96	4.06
1406	7.44	4.41
1402	7.62	4.78
1403	7.83	4.74
1405	7.83	4.47
2401	7.66	3.12
141A	n/a	n/a
151D	n/a	n/a
1504	n/a	n/a
2503	n/a	n/a
251A	n/a	n/a
251E	n/a	n/a
1503	n/a	n/a
1506	n/a	n/a
2505	n/a	n/a
2506	n/a	n/a
3501	n/a	n/a
1501	n/a	n/a
1507	n/a	n/a
3502	n/a	n/a
9507	n/a	n/a
9502	n/a	n/a
9506	n/a	n/a
9503	n/a	n/a
9403	7.6	6.61
951D	n/a	n/a
951F	n/a	n/a
951A	n/a	n/a
951B	n/a	n/a
9401	n/a	n/a
0506	n/a	n/a
0505	n/a	n/a
0501	n/a	n/a
0401	7.29	5.52
0502	n/a	n/a
051B	n/a	n/a
0503	n/a	n/a
051F	n/a	n/a
051D	n/a	n/a
051E	n/a	n/a
0504	n/a	n/a
151A	n/a	n/a
151B	n/a	n/a
051C	n/a	n/a
1502	n/a	n/a
151C	n/a	n/a
1202	6.83	4.76
3202	6.5	5.1
1201	6.81	4.67
3204	6.62	3.75
3203	6.49	4.88
1204	6.8	3.77
321B	n/a	n/a
1306	6.8	5.1
1309	6.8	4.07
431A	n/a	n/a
2301	6.79	4.46
1311	6.94	4.27
1310	7.23	5.3
1304	6.94	5.27
2303	6.73	4.24
2302	6.73	4.27
1307	6.95	4.07
2304	6.99	5.11
3301	6.59	3.21
1308	7.26	4.77
1303	7.12	5.31
3302	6.62	3.75
231A	n/a	n/a
331A	n/a	n/a
331B	n/a	n/a



















Manhole Reference	Manhole Cover Level	Manhole Invert Level
1302	7.04	5.32
331C	n/a	n/a
1203	6.92	5.23
2203	6.91	3.7
2204	n/a	n/a
221B	n/a	n/a
2205	6.7	3.2
221A	n/a	n/a
2201	6.37	5
2206	6.58	3.17
2202	6.38	4.95
221E	n/a	n/a
221C	n/a	n/a
221D	n/a	n/a
321C	n/a	n/a
321A	n/a	n/a
3105	6.47	4.76
311C	n/a	n/a
3201	6.61	4.66
3102	6.7	4.63
3108	6.78	2.95
4201	6.92	3.31
411F	n/a	n/a
411G	n/a	n/a
411C	n/a	n/a
421A	n/a	n/a
0102	6.04	5.48
011A	n/a	n/a
1103	7	5.23
0202	7.14	5.11
0203	n/a	n/a
0201	7.16	5.56
0204	7.14	5.74
0304	7.35	5.57
9306	7.72	5.87
1305	7.16	6
9305	7.7	5.97
1301	7.2	6.29
0301	7.32	6.1
0303	7.34	5.8
9301	n/a	n/a
931B	n/a	n/a
931A	n/a	n/a
0302	7.48	5.68
3106	6.77	5.27
2104	6.53	2.52
3107	6.58	2.6
4102	6.95	5.59
3109	6.66	2.7
3103	6.37	5
311B	n/a	n/a
3104	6.38	4.95
311A	n/a	n/a
1102	6.83	5.42
1101	6.81	5.48
1106	n/a	n/a
1105	n/a	n/a
1104	n/a	n/a
2111	n/a	n/a
2102	6.7	5.28
2101	6.72	5.39
2109	7.6	3.2
2110	6.8	3.27
2108	6.58	3.11
2107	6.51	3
2105	7.59	2.48
2103	6.54	2.94
0101	7.92	5.79
911B	n/a	n/a
9103	7.26	4.47
9101	n/a	n/a
911D	n/a	n/a
111A	n/a	n/a
0103	n/a	n/a

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.








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.
-  Trunk Surface Water
-  Trunk Foul
-  Storm Relief
-  Trunk Combined
-  Vent Pipe
-  Bio-solids (Sludge)
-  Proposed Thames Surface Water Sewer
-  Proposed Thames Water Foul Sewer
-  Gallery
-  Foul Rising Main
-  Surface Water Rising Main
-  Combined Rising Main
-  Sludge Rising Main
-  Proposed Thames Water Rising Main
-  Vacuum





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.

-  Air Valve
-  Dam Chase
-  Fitting
-  Meter
-  Vent Column




Operational Controls

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

-  Control Valve
-  Drop Pipe
-  Ancillary
-  Weir





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.

-  Outfall
-  Undefined End
-  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.)
-  Invert Level
-  Summit

Areas

Lines denoting areas of underground surveys, etc.

-  Agreement
-  Operational Site
-  Chamber
-  Tunnel
-  Conduit Bridge

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

-  Foul Sewer
-  Surface Water Sewer
-  Combined Sewer
-  Gully
-  Culverted Watercourse
-  Proposed
-  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) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'na' or '0' on a manhole level indicates that data is unavailable.
- 6) 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. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

Asset Location Search Water Map - ALS/ALS Standard/2017_3577459



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 517178, 172359.








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.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.







ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)


- 
Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.
- 
Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.
- 
Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.
- 
Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.
- 
Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.
- 
Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.
- 
Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Valves

-  General Purpose Valve
-  Air Valve
-  Pressure Control Valve
-  Customer Valve

Hydrants



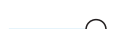




-  Single Hydrant

Meters










-  Meter

End Items

Symbol indicating what happens at the end of a water main.

-  Blank Flange
-  Capped End
-  Emptying Pit
-  Undefined End
-  Manifold
-  Customer Supply
-  Fire Supply



Operational Sites

-  Booster Station
-  Other
-  Other (Proposed)
-  Pumping Station
-  Service Reservoir
-  Shaft Inspection
-  Treatment Works
-  Unknown
-  Water Tower

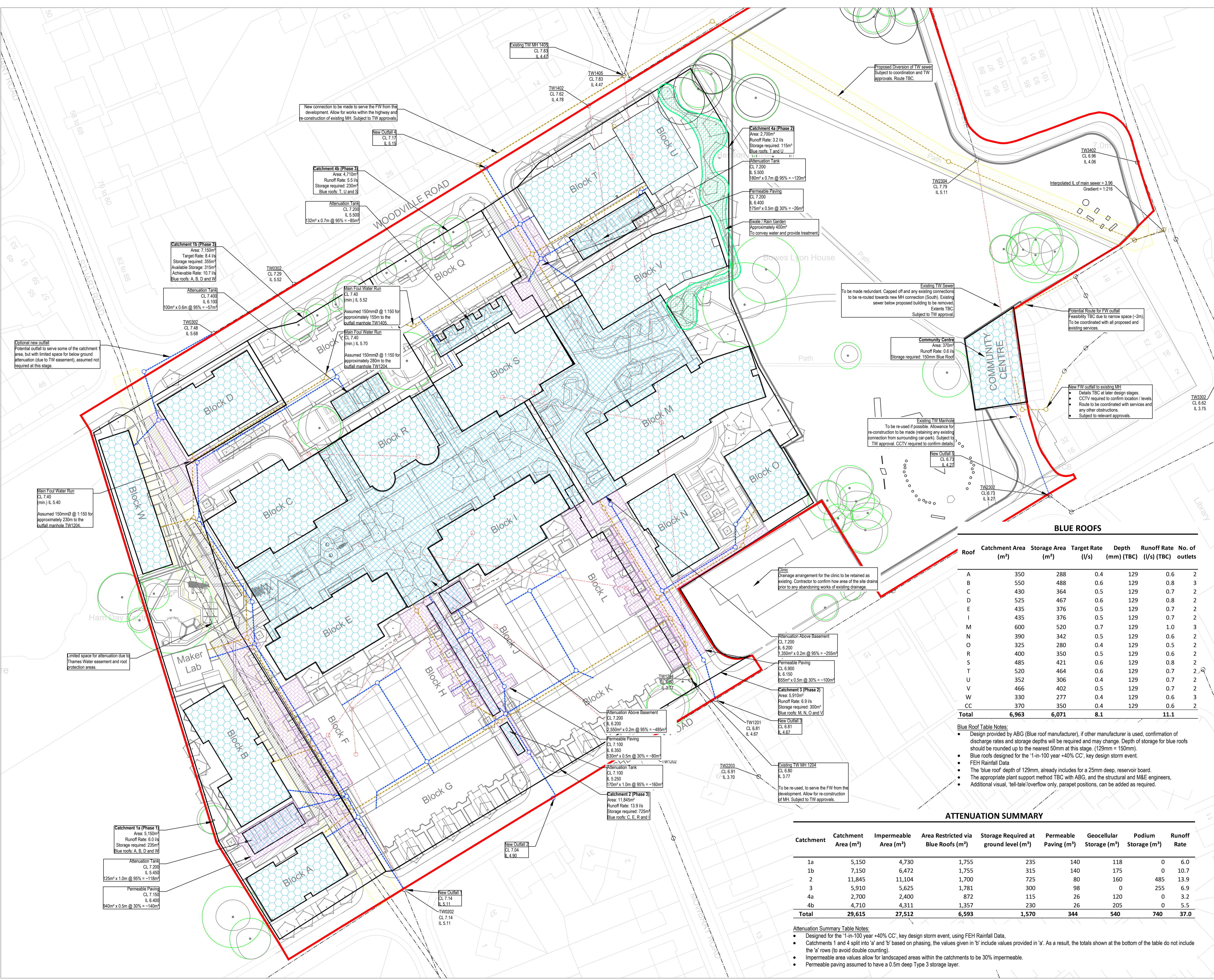
Other Symbols

-  Data Logger

Other Water Pipes (Not Operated or Maintained by Thames Water)

-  **Other Water Company Main:** Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.
-  **Private Main:** Indicates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Appendix E: Proposed Drainage Drawings



- NOTES
- Drawing to be viewed in colour.
 - Indicative drainage strategy, subject to coordination.
 - Blue roof details, depths and runoff rates to be confirmed by the architect and the manufacturer.
 - Surface Water runoff rates based on greenfield rate of 11.7 l/s/ha
 - Any diversions / works to Thames Water sewers subject to relevant approvals, allowance for removal of all abandoned sewers to be made.
 - Allowance for new manholes to be constructed online of the existing sewers to allow for new connections from site.
 - Temporary works to enable phasing of construction to be reviewed at a later stage, where proposed phase cuts off drainage to an area being retained, allowance should be made for re-providing new runs suitable with the layout for that area.
 - Do not scale from this drawing.
 - Locations of existing sewers taken from record information and may be incorrect. Confirmation of levels onsite is required prior to any works.
 - Exact routes of sewers through site TBC at later stage, subject to detailed coordination with the services and landscaping.

- LEGEND
- Proposed Surface Water Sewer
 - Proposed Foul Water Sewer
 - Proposed Attenuation Tank
 - Proposed Permeable Paving
 - Proposed Blue Roof
 - Rain Garden / Swale
 - Existing Public Foul Water Sewer
 - Existing Public Surface Water Sewer
 - Foul Water Sewer To Be Abandoned
 - Surface Water Sewer To Be Abandoned
 - Sewer Easement (6m)
 - Utilities Strip (2.75m)
 - Utilities Strip (2.0m)
 - Utilities Strip (1.5m)
 - Proposed Tree Zone (2.0m)

BLUE ROOFS

Roof	Catchment Area (m ²)	Storage Area (m ²)	Target Rate (l/s)	Depth (mm) (TBC)	Runoff Rate (l/s) (TBC)	No. of outlets
A	350	288	0.4	129	0.6	2
B	550	488	0.6	129	0.8	3
C	430	364	0.5	129	0.7	2
D	525	467	0.6	129	0.8	2
E	435	376	0.5	129	0.7	2
I	435	376	0.5	129	0.7	2
M	600	520	0.7	129	1.0	3
N	390	342	0.5	129	0.6	2
O	325	280	0.4	129	0.5	2
R	400	350	0.5	129	0.6	2
S	485	421	0.6	129	0.8	2
T	520	464	0.6	129	0.7	2
U	352	306	0.4	129	0.7	2
V	466	402	0.5	129	0.7	2
W	330	277	0.4	129	0.6	3
CC	370	350	0.4	129	0.6	2
Total	6,963	6,071	8.1		11.1	

- Blue Roof Table Notes:**
- Design provided by ABG (Blue roof manufacturer), if other manufacturer is used, confirmation of discharge rates and storage depths will be required and may change. Depth of storage for blue roofs should be rounded up to the nearest 50mm at this stage. (129mm = 150mm).
 - Blue roofs designed for the '1-in-100 year +40% CC', key design storm event.
 - FEH Rainfall Data
 - The blue roof depth of 129mm, already includes for a 25mm deep, reservoir board.
 - The appropriate plant support method TBC with ABG, and the structural and M&E engineers.
 - Additional visual, 'tell-tale/overflow only, parapet positions, can be added as required.

ATTENUATION SUMMARY

Catchment	Catchment Area (m ²)	Impermeable Area (m ²)	Area Restricted via Blue Roofs (m ²)	Storage Required at ground level (m ³)	Permeable Paving (m ³)	Geocellular Storage (m ³)	Podium Storage (m ³)	Runoff Rate
1a	5,150	4,730	1,755	235	140	118	0	6.0
1b	7,150	6,472	1,755	315	140	175	0	10.7
2	11,845	11,104	1,700	725	80	160	485	13.9
3	5,910	5,625	1,781	300	98	0	255	6.9
4a	2,700	2,400	872	115	26	120	0	3.2
4b	4,710	4,311	1,357	230	26	205	0	5.5
Total	29,615	27,512	6,593	1,570	344	540	740	37.0

- Attenuation Summary Table Notes:**
- Designed for the '1-in-100 year +40% CC', key design storm event, using FEH Rainfall Data.
 - Catchments 1 and 4 split into 'a' and 'b' based on phasing, the values given in 'b' include values provided in 'a'. As a result, the totals shown at the bottom of the table do not include the 'a' rows (to avoid double counting).
 - Impermeable area values allow for landscaped areas within the catchments to be 30% impermeable.
 - Permeable paving assumed to have a 0.5m deep Type 3 storage layer.

Rev	Date	Description	By	App'd
P2	04.03.22	Updated Layout	KG	RL
P1	31.01.22	FRA Report Issue	KG	RL

PROJECT:
HAM CLOSE, RICHMOND

TITLE:
DRAINAGE LAYOUT
SITE WIDE STRATEGY

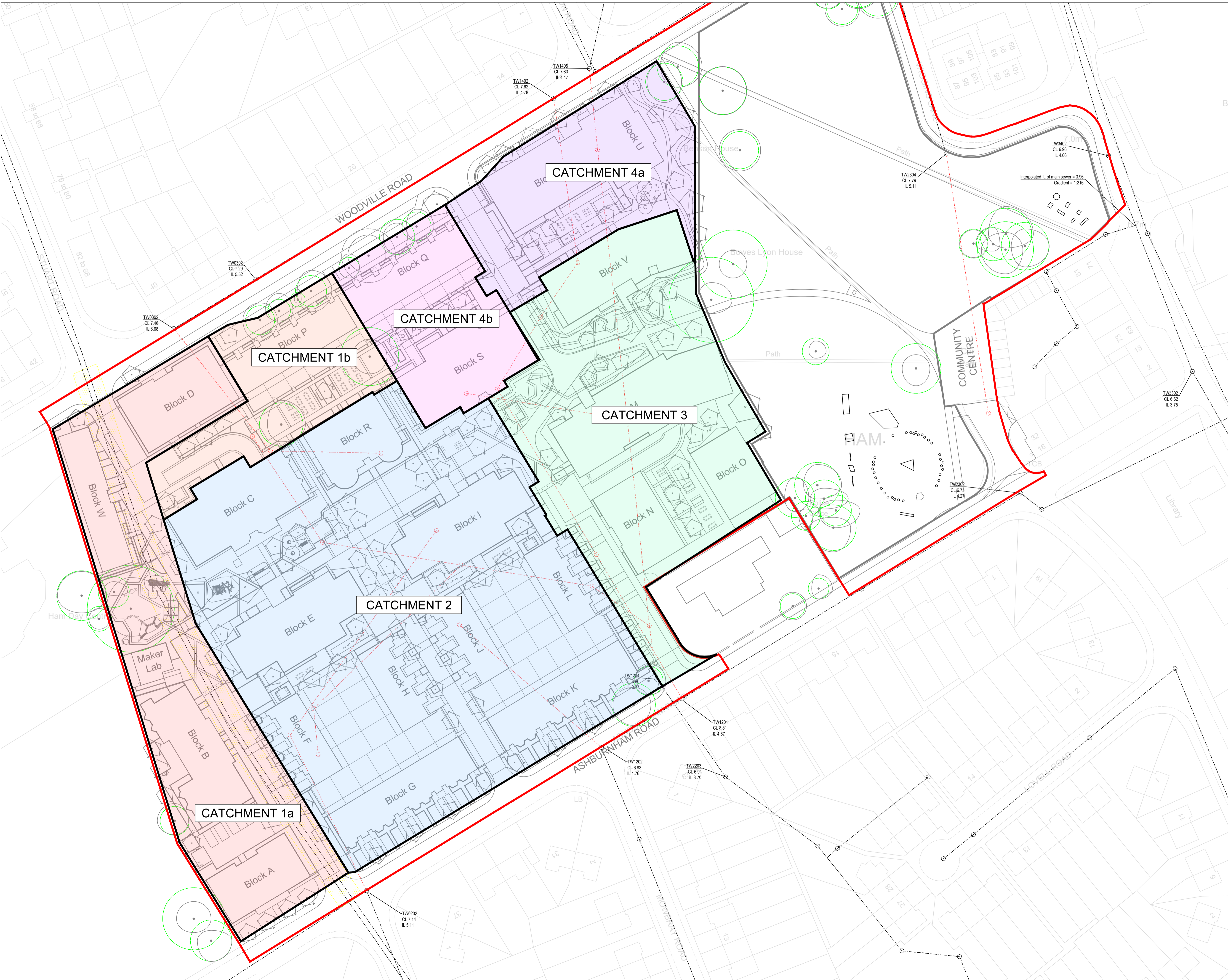
CLIENT:
HILL RESIDENTIAL

SCALE@A1:
1:500

PROJECT REF:
21246
DRAWING No:
JUB_XX_XX_DR_C_0500

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction





- NOTES
1. Drawing to be viewed in colour.
 2. Indicative drainage strategy, subject to coordination.
 3. Temporary works to enable phasing of construction to be reviewed at a later stage, where proposed phase cuts off drainage to an area being retained, allowance should be made for re-providing new runs suitable with the layout for that area.
 4. Do not scale from this drawing.
 5. Locations of existing sewers taken from record information and maybe incorrect. Confirmation of levels onsite is required prior to any works.
 6. Routes of sewers through site TBC at later stage, to be coordinated with the services and landscaping.

- LEGEND
- Catchment 1a
 - Catchment 1b
 - Catchment 2
 - Catchment 3
 - Catchment 4a
 - Catchment 4b

Rev	Date	Description	By	Apvd
P2	04.03.22	Updated Layout	KG	RL
P1	31.01.22	FRA Report Issue	KG	RL

PROJECT:
HAM CLOSE, RICHMOND

TITLE:
DRAINAGE LAYOUT
CATCHMENT PLAN

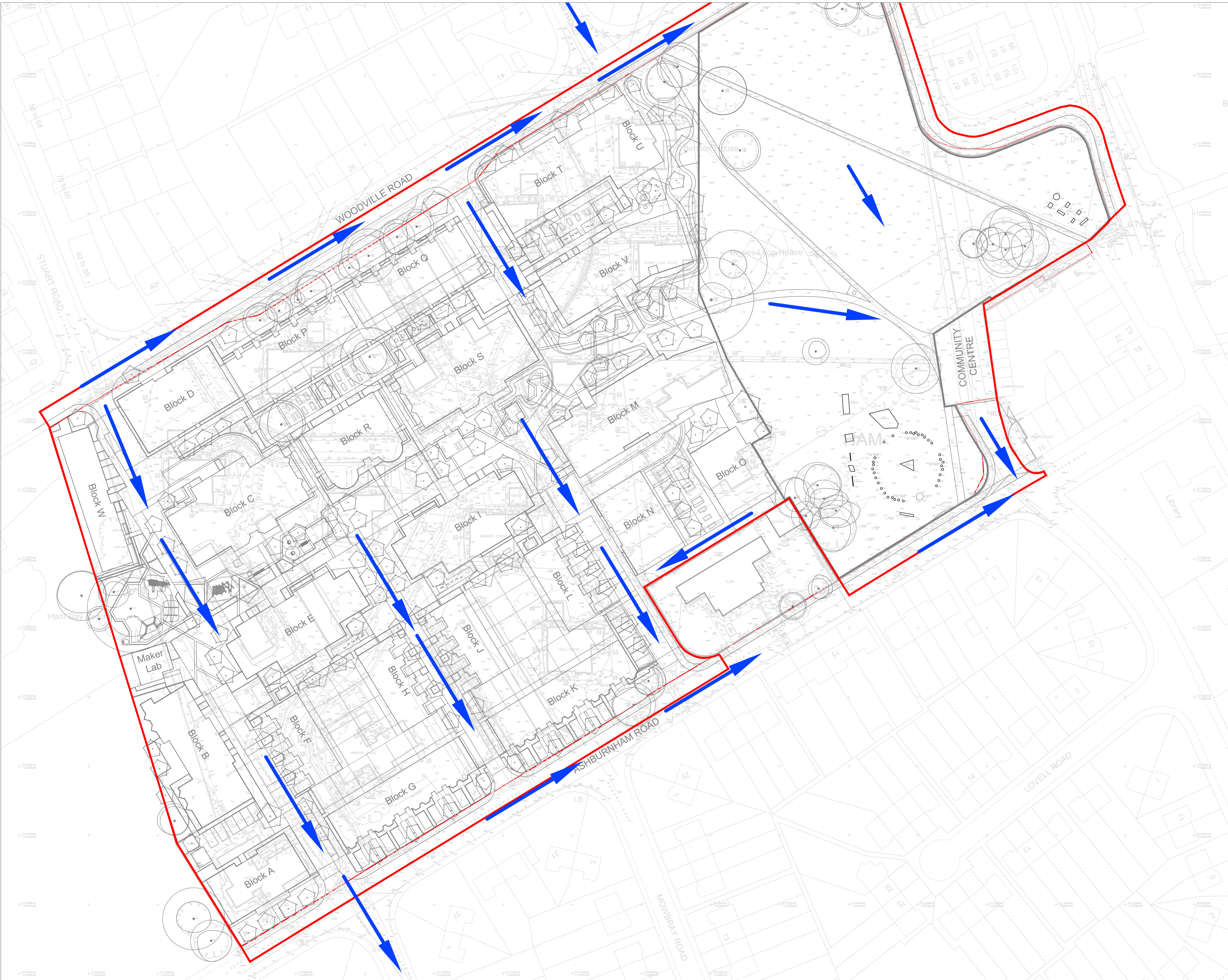
CLIENT:
HILL RESIDENTIAL


SCALE@A1:
1:500

PROJECT REF:
21246
DRAWING No: JUB_XX_XX_DR_C_0510
REV: P2

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction





LEGEND
 Overland Flow Route

P2	04.03.22	Updated Layout	KG	RL
P1	31.01.22	FRA Report Issue	KG	RL
Rev	Date	Description	By Apvd	

PROJECT:
 HAM CLOSE, RICHMOND

TITLE:
 OVERLAND FLOW ROUTES

CLIENT:
 HILL RESIDENTIAL

SCALE@A1:
 1:500

PROJECT REF:
 21246
 DRAWING No:
 JUB_XX_XX_DR_C_0520
 Revision Referencing
 P = Preliminary A = Approval T = Tender C = Construction

REV:
 P2

