

18th May 2015

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Dear Mark

38-44 London Road, Purbrook, Waterlooville, PO7 5LJ

Introduction

We have been asked to prepare an initial drainage assessment to identify surface and foul water drainage constraints alongside any future required/desired recommendations supporting a re-development located at 38-44 London Road, Purbrook, Waterlooville. The proposal is for the construction of retirement dwellings comprising 41 units. A location plan is shown in Appendix A.

WSP have not consulted the Environment Agency (EA) and Local Planning Authority (LPA) regarding flood risk issues, as this is expected to be part of the Flood Risk Engineer's scope of works.

Existing Site Details

The site is located in the village of Purbrook, a suburb of Waterlooville, and can be accessed via public transport from Cosham Rail Station, which is located approximately 3 miles to the south.

The site currently consists of a car showroom, a car service/tyre repair garage and associated buildings on site. The site is bound to the north by Stakes Road, to the west by London Road, to the south by shopping units, and to the east by Purbrook Centre (previously the Methodist Church).

Topography

A topographical survey has been made available to us (Appendix B). Examination of the survey shows that levels tend to drop in a southerly direction from approximately 44.0 AOD at the northern boundary to approximately 43.00m AOD at the southern boundary. A site visit undertaken on the 6th May 2015 verified the general direction of falls noted above.

Groundwater and Geology

A Desktop Appraisal study, completed by Crossfield Consulting in April 2015, identifies a culverted watercourse located approximately 100m south east of the site. On inspection of the Environment Agency online maps, it can be seen that the watercourse is a main river.

The Desktop Appraisal study highlights that the site's underlying strata *"is likely to comprise London Clay (mainly clays) but possibly Wittering Formation strata (mainly fine-grained sands with silt and clay)"*

in the northwestern corner of the site". This information is noted to be sourced from sheet 316 of the geology map of Fareham, together with British Geological Survey (BGS) digital maps.

With regards to hydrogeological detail, the study highlights that the solid strata of the majority of the site (assumed to be the London Clay formation), is Unproductive i.e. non-aquifer strata. The solid strata located at the north western corner (assumed to be the Wittering Formation), is a Secondary (A) Aquifer i.e. aquifers that may have permeable layers capable of supporting water at a local scale. The appraisal refers to BGS borehole logs associated immediately to the east of the site. These record logs found *"limited thickness of Topsoil overlying a firm, orangish grey clay to a depth of 3m and then a stiff dark grey clay to a depth of at least 12m"*. The record log also states that groundwater may also be present between depths of 5m-10m, as *"possible groundwater seepages are noted at a depth of 8.7m"*.

Based on the Environmental Agency (EA) Online groundwater mapping, the site is within a Groundwater source protection zone: Inner zone – subsurface activity only (Zone 1c). This appears consistent with the Desktop Appraisal which highlights Groundsure Environmental Database records; showing that the site is not within a Source Protection Zone (with respect to shallow strata), but that there is a confined aquifer located at considerable depth which is designated as being within a Source Protection Zone.

With regard to land contamination issues, the Desktop Appraisal study highlights that there may be significant contamination issues within the site as there are *"a number of potential pollutant linkages"*. It further states that the northern part of the site may have historically had a fuel tank for refuelling delivery vehicles.

A further Preliminary Appraisal of Ground Condition investigation, undertaken by Crossfield Consulting, has proved this to be incorrect, but states that the southern part of the site has potential contamination. Furthermore, the existing workshops may be associated with asbestos construction materials (ACM) which may have potential to enter the ground following demolition. For that reason, the Desktop Appraisal study identifies the risk to the development lies with proposed soft landscaped areas as potential contaminants could enter and further states that:

"Expected ground conditions beneath the site are unlikely to be suitable for soakaway drainage".

The Preliminary Appraisal of Ground Conditions investigation, which included intrusive testing (assumed to be borehole sampling), concludes that:

"Based on the recorded ground conditions, comprising low permeability silt and clay strata, it is considered that soakaway drainage is unlikely to be feasible for the proposed development".

Existing site drainage

The land agent has informed us that no drainage survey has been obtained at this time to confirm how the existing site drains, however based on reviewing the topographical survey and having completed a site visit it is clear that there is a formal drainage system within proximity of the site. Since infiltration does not appear feasible and the closest surface water feature is at a considerable distance away from site, it is expected that surface water discharges to the Southern Water surface water sewer nearby. It is also expected that foul water from the existing site drains to the Southern Water foul sewers also in close proximity to the site, see below regarding further details of the existing Southern Water sewers.

Proposed Development

At the time of writing the current proposal is for the construction of retirement dwellings' development comprising a total of 41 units, with associated ground level car parking, and hard and soft landscaping incorporated.

Proposed Plans were received on the 07th May 2015 and are shown in Appendix C.

Drainage Constraints and Recommendations

Sewer Records

From reviewing the Southern Water Sewer Records (Appendix D), there are separate surface water and foul water systems in close proximity to the site. Both surface water (DN225mm) and foul water sewers (DN200mm) exist along London Road and run south of the site.

There are also separate surface water and foul water sewers running along Stakes Road, just north of the site, although no pipe sizes are stated on the plans.

Within the site, there is a public foul water sewer (DN100mm) on the southern boundary of the site. It appears that the building to the south, Purbrook Tyre services, is served by this sewer.

Sewer Capacity

Since there are both public foul and surface water sewers close to the site, there is potential to discharge to the Southern Water public drainage system.

A capacity check has been submitted to Southern Water (Appendix E) to determine if there is sufficient capacity within the network to accommodate the proposed development in terms of both surface and foul water discharge rates. However, Southern Water has not yet provided a response to our capacity check.

Based on all of the above we have the following comments for surface and foul water drainage management at the site.

Surface water drainage management

Best practice for surface water drainage management based on the *Building Regulations 2010 Part H* states that surface water runoff from a site shall discharge to one of the following in order of priority;

1. An adequate soakaway or some other adequate infiltration system
2. A watercourse
3. A sewer

Crossfield Consulting have stated that soakaway drainage is unlikely to be feasible in both of their reports mentioned previously. This Initial Drainage Assessment agrees with Crossfield Consulting statement by virtue of the geology and contamination reasons.

In light of the above and of the presence of a public surface water drainage network in the area it is in our view to reasonably discount infiltration as a means of surface water disposal. However, we recommend obtaining confirmation of this from the council at the planning stage, as part of the surface water drainage strategy, as they might expect infiltration testing and groundwater monitoring to be undertaken.

The option to discharge directly into the culverted watercourse nearby is unlikely to be feasible given the distance from the site i.e. over 100m away from the site, and also the presence of third party land between the watercourse and the site. Such option should be ruled out as an option at the planning stage, when producing a surface water drainage strategy for the site.

As mentioned above, a public surface water sewer is shown to be within both London Road and Stakes Road, and as such it is assumed that the site currently discharges its surface water in to this sewer. It is therefore recommended to maintain this existing drainage connection, where feasible.

In order to assess surface (and foul) water capacity of the public drainage network we have submitted a capacity check to Southern Water on the 30th April 2015. Existing surface water flows have been calculated based on the Wallingford Procedure. For the purpose of the capacity check submission, it has been assumed that discharge from the site for the 1 in 100 year plus 30% climate change event will be restricted to match the 1 in 100 year event i.e. a like-for-like discharge rate. It is expected that a reduction in surface water runoff compared to the existing discharge rates will be required by the council and attenuation storage onsite will be needed. The use of Sustainable Drainage Systems

(SuDS) is also expected to be required and may help reduce attenuation storage volumes as well as improving water quality, amenity and biodiversity. Based on the Proposed Plans there appears to be suitable space for attenuation and/or SuDS.

A response from Southern Water is awaited and we will forward under a separate cover once received. Should there be no capacity in the public sewer system then network improvements may need to be required although any surface water attenuation proposed is expected to reduce flows compared to the existing situation.

Foul water drainage management

A capacity check along with appropriate foul water calculations was submitted to Southern Water to determine if the public foul water sewers surrounding the site would have adequate capacity to accommodate the additional foul flows, (which have been calculated based on Sewers for Adoption 7th Edition recommendations and 41 units (Appendix E).

A response from Southern Water is awaited and we will forward under a separate cover once received. Should there be no capacity in the public sewer system then onsite foul water attenuation or network improvements may need to be required.

It is recommended that the Southern Water and the Local Planning Authority be consulted prior to planning to confirm if the DN100mm foul water sewer at the southern site boundary is in fact a public sewer. If confirmed to be a public sewer, a drainage survey would confirm the exact location. However based on the Proposed Plans (PDF format), it is estimated that a Building Over Agreement (which allow a Developer to build over or within 3m of a public sewer) is not required although this will need to be re-assessed at the planning stage. It is worth noting that Southern Water may not permit construction over their public sewers

Summary and Actions

The table below summarises our assessment of the expected risk linked to drainage constraints based on the information available at this time. The level of risk might change should additional information become available and we recommend confirming all assumptions at the planning stage through further consultation.

	Risk/Note	Action
Surface Water	Medium The risk would reduce down to Low if Southern Water's response regarding surface water capacity in the public drainage network was positive. If capacity in the public drainage system was a problem, discharge into it would be expected to be feasible subject to further on site attenuation or any required offsite improvement works. This is expected to be a cost issue rather than a fundamental technical problem that cannot be resolved. It is assumed that the site currently discharges its surface water in to this sewer and infiltration or discharge into the culverted watercourse to the south does not appear feasible options for future surface water drainage management. Please note that the Local Planning Authority may request for further intrusive site investigation such as infiltration testing and/or groundwater monitoring, together with additional contamination studies to assess the feasibility of infiltration at the site.	Await Southern Water capacity check A survey of the existing on-site drainage system (such as dye testing) would confirm how the site currently drains and is therefore recommended. Liaise with the Local Planning Authority prior to planning/at the planning stage to understand their requirements and confirm that infiltration and discharge into the culverted watercourse to the south are not feasible. Any request for infiltration testing from the local planning authority should be questioned as infiltration is unlikely to be feasible based on the available information which limits the value of such investigations.

Foul Water	Medium This would reduce down to Low if Southern Water response regarding foul water capacity was positive. If capacity in the public drainage system was a problem, discharge into it would be expected to be feasible subject to any required offsite improvement works. This is expected to be a cost issue rather than a fundamental technical problem that cannot be resolved. The presence of a public sewer onsite may constrain any future Proposed Plans.	Await Southern Water capacity check A survey of the existing on-site drainage system (such as dye-testing) would provide additional information on how the site currently drains and on the foul water sewer at the southern end of the site and is therefore recommended. Obtain confirmation from Southern Water and the Local Planning Authority of the nature of the sewer to the south of the site and of any specific requirement related to it. If the sewer was public and to be maintained we recommend not design the building over or within 3m of the public sewer and to agree any proposals with Southern Water. However if building over the sewer was unavoidable then early discussion with Southern Water would be recommended, alongside submission of the Building Over Agreement prior to planning.
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Yours sincerely



William Ko
Graduate Engineer

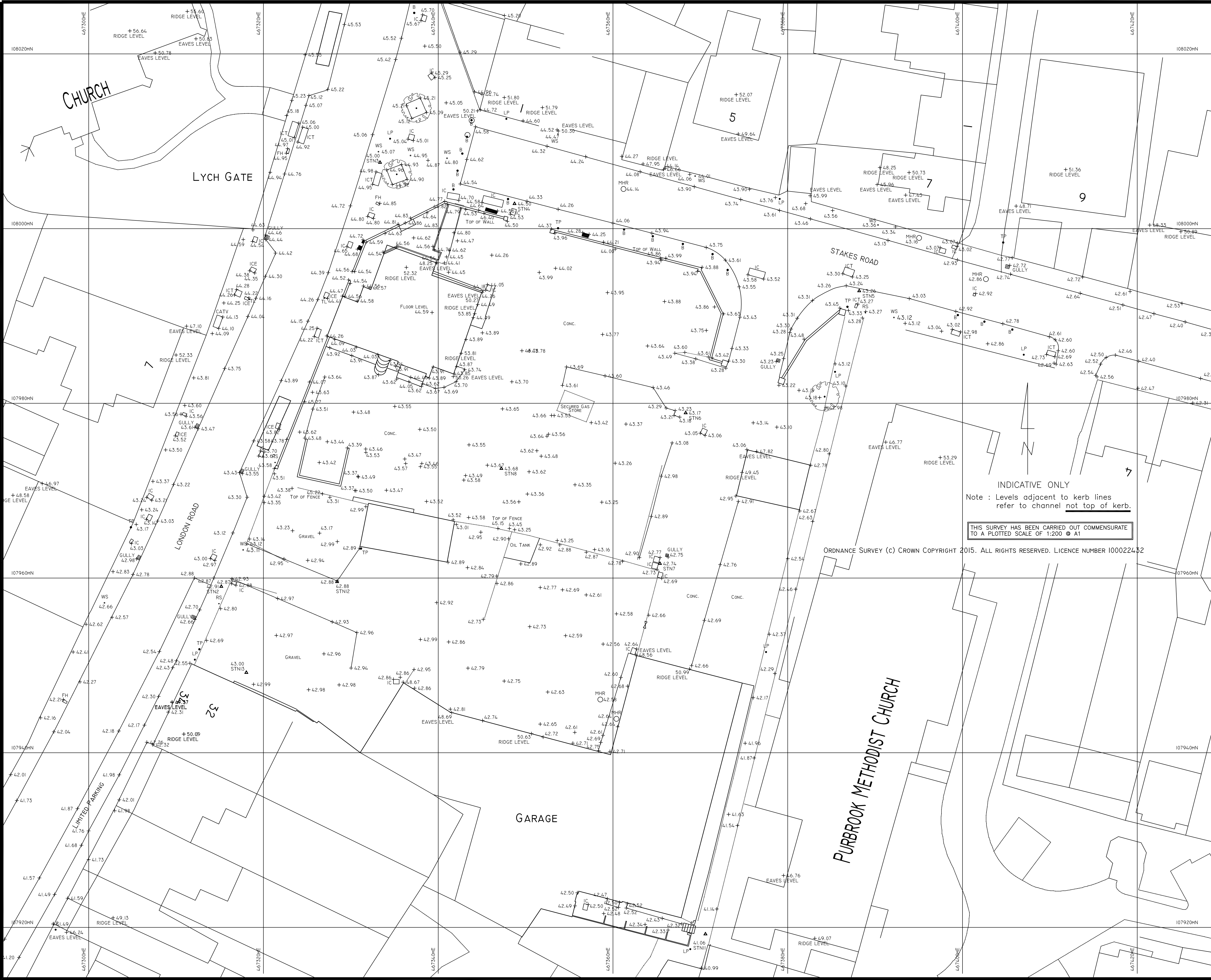
Checked by Rob Forsyth and approved by Enrico Isnenghi

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Appendix A – Site Location Plan



Appendix B – Topographical Survey



DRG NO: PP/3066/M8S/PURBROOK/FI

LEGEND

- A AREA
 - CATV CABLE TV SERVICE COVER
 - CF CELLAR FLAP
 - CP COAL PLATE
 - E ELECTRICITY SUPPLY
 - FH FIRE HYDRANT
 - IC INSPECTION CHAMBER
 - KL LOWERED KERB FOR ACCESS
 - LP LAMP POST
 - MH MANHOLE
 - NP ROAD NAME PLATE
 - PL PAYMENT LIGHT
 - RS ROAD SIGN
 - STN SURVEY STATION
 - T BT SERVICE BOX
 - TGB TELEPHONE CALL BOX
 - TL TRAFFIC LIGHTS
 - TP TELEGRAPH POLE
 - UP STEP ARROW
 - DN RAMP ARROW
 - (D) DEAD OR (P) POLLARDED TREE
 - DECIDUOUS TREE (INDIVIDUALLY SHOWN)
 - EVERGREEN TREE (INDIVIDUALLY SHOWN)
 - TREES (DECIDUOUS) - PART OF A GROUP OF TREES
- 3066Purbrook-F1.dwg

STATION CO-ORDINATES				
STATION	TYPE	EASTING	NORTHING	LEVEL
STN2	NAIL	467315.177	107959.027	42.909
STN3	NAIL	467333.332	108007.580	45.004
STN4	NAIL	467348.734	108002.853	44.503
STN5	NAIL	467388.183	107992.869	43.265

BENCH MARK INFORMATION:
ALL LEVELS IN METRES TO ORDNANCE SURVEY DATUM AND BASED ON BENCH MARK:
LEVELS AND COORDINATES SET BY GPS AND CORRECTED TO ORDNANCE SURVEY ACTIVE NETWORK

INDICATIVE ONLY
Note : Levels adjacent to kerb lines refer to channel not top of kerb.

THIS SURVEY HAS BEEN CARRIED OUT COMMENSURATE TO A PLOTTED SCALE OF 1:200 @ A1

ORDNANCE SURVEY (C) CROWN COPYRIGHT 2015. ALL RIGHTS RESERVED. LICENCE NUMBER 100022432

REV	DRG. AMENDMENTS	BY	DATE
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MCCARTHY & STONE

2 GENESIS BUSINESS PARK
ALVERT DRIVE
WOKING
GU21 5RW

38-44 LONDO ROAD
PURBROOK
PO7 5LJ

TOPOGRAPHICAL SURVEY

PROSPAPLANS LIMITED Operating to ISO9001:2000

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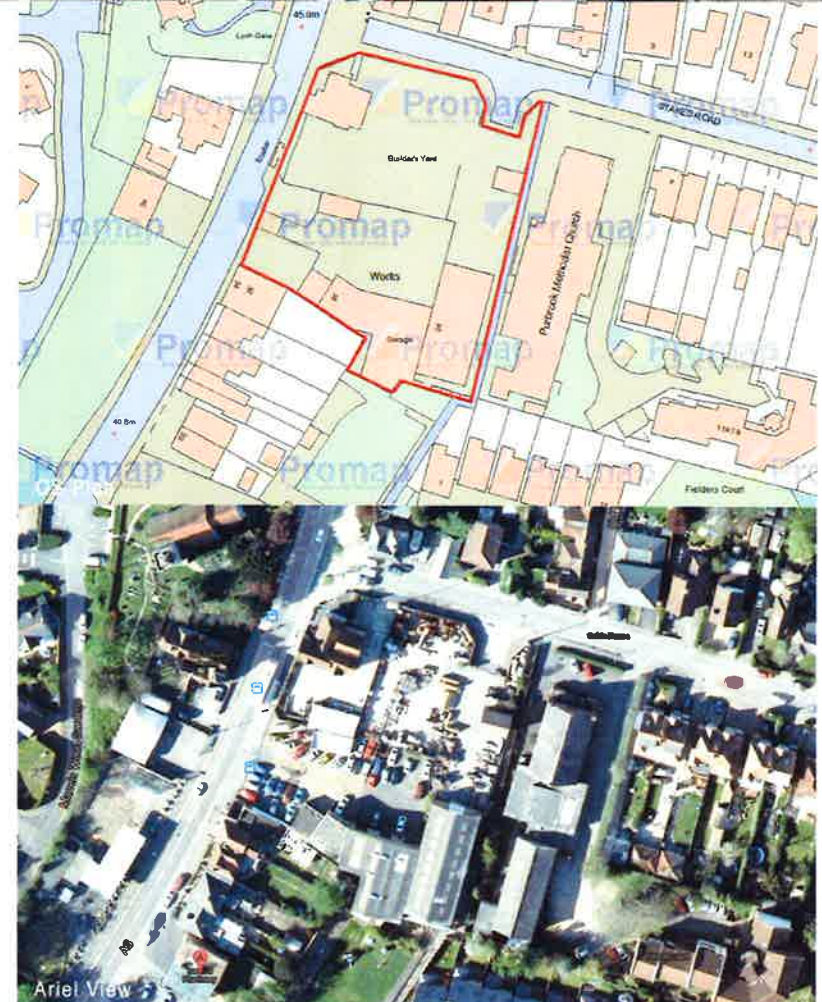
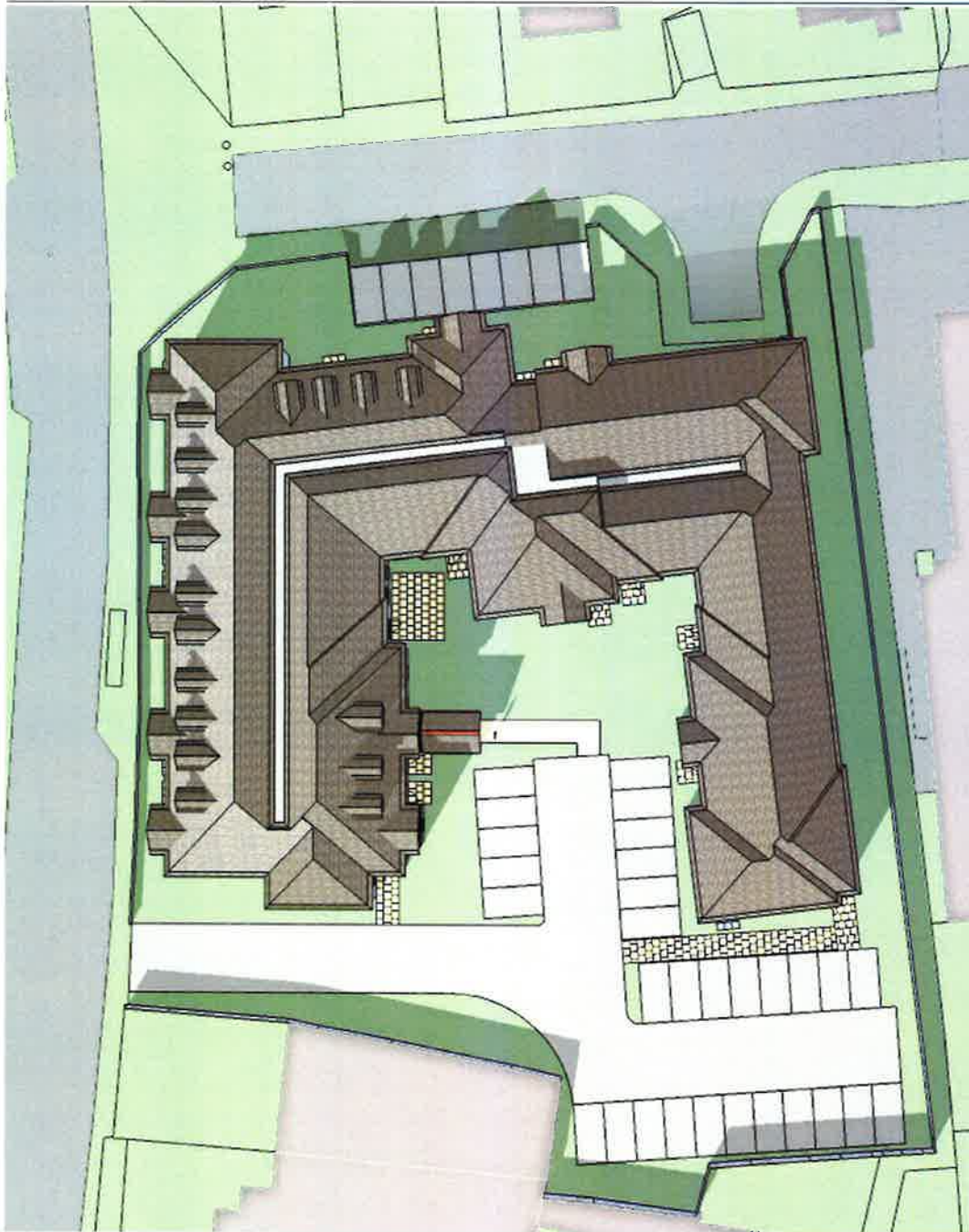
SCALE: 1:200

DATE: APRIL 2015

DRAWN BY: R WELTON	CHECKED BY: G RUTHERFORD
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DRG NO: PP/3066/M8S/PURBROOK/FI

Appendix C – Development Proposals



Appendix D – Southern Water Asset Records



Premier Energy
4 The Courtyard
Pondtail Farm
West Grinstead
Horsham
RH13 8LN

Your Ref 400487
Our Ref 193252
Date 17 April 2015
Contact searches@southernwater.co.uk
Fax 01634 844514
DX:400450 Chatham 5

Attention: Alex Revell

Dear Sirs

Provision of Public Sewer Main Record Extracts – VAT Receipt
38 44 London Road, Purbrook, Hampshire PO7 5QN

Further to your recent enquiry regarding the provision of Southern Water apparatus record extracts for the above location.

Please be aware that there are areas within our region in which there are neither sewers nor water mains. Similarly, whilst the enclosed extract may indicate the approximate location of our apparatus in the area of interest, it should not be relied upon as showing that further infrastructure does not exist and may subsequently be found following site investigation. Therefore actual positions of the disclosed (and any undisclosed) infrastructure should be determined on site, because Southern Water does not accept any responsibility for inaccuracy or omission regarding the enclosed plan and accordingly it should not be considered to be a definitive document.

I confirm payment of the appropriate fee in the sum of £ **49.92**

The breakdown of costs is as follows: -

- Provision of record extracts £ 41.60
- VAT @ 20.0% £ 8.32

VAT Registration Number 813 0378 56

Should you require any additional information regarding this matter please contact this office at the address given at the foot of this letter.

Yours faithfully

Land Search Department



SU6707NW



Southern
Water

SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape
1801X	37.71	29.89	900	CP	CIRC	4001X	45.77	44.16	200	VC	CIRC												
1850X	37.73	35.28	OTHER	CI	CIRC	4002X			100	VC	CIRC												
2001X	46.78	45.45	150	VC	CIRC	4003X			UNK	UNK	CIRC												
2002X	46.48	44.95	150	VC	CIRC	4101X	46.36	44.07	150	VC	CIRC												
2003X	43.65	41.4	150	PVC	CIRC	4151X	46.62	44.67	225	VC	CIRC												
2004X			UNK	UNK	CIRC	4801X	37.96	36.32	200	VC	CIRC												
2005X			UNK	UNK	CIRC	4804X	36.16	29.2	900	CP	CIRC												
2050X	46.13	44.78	225	VC	CIRC	4805X	37.4	36.27	225	VC	CIRC												
2051X	47.09	46.23	150	VC	CIRC	4901X	42.91	41.28	200	VC	CIRC												
2052X	44.6	43.97	225	VC	CIRC	4902X	41.52	39.49	200	VC	CIRC												
2053X	46.38	45.86	150	VC	CIRC	4903X	37.6	36.23	225	VC	CIRC												
2054X	43.7	40.9	225	PVC	CIRC	4904X			UNK	UNK	CIRC												
2801X	40.49	38.78	200	VC	CIRC	4950X	42.27	40.92	150	VC	CIRC												
2802X	39.35	37.55	150	PVC	CIRC	4951X	42.48	41.23	150	VC	CIRC												
2803X	38.18	36.84	150	PVC	CIRC	4952X			UNK	UNK	CIRC												
280DX			150	VC	CIRC	5001X	44.64	42.74	150	VC	CIRC												
2850X	38.1	36.68	300	CP	CIRC	5002X	43.17	41.46	150	VC	CIRC												
2851X	38.64	37.54	300	CP	CIRC	5003X	42.52	40.92	150	VC	CIRC												
2854X	39.35	37.67	225	PVC	CIRC	5004X			100	VC	CIRC												
2855Y	38.18	36.88	300	CO	CIRC	5005X			100	VC	CIRC												
2856X	37.94	36.73	300	CO	CIRC	5006X			100	VC	CIRC												
2901X	42.64	40.435	150	PVC	CIRC	500DX			150	VC	CIRC												
2902X	41.65	39.7	150	PVC	CIRC	5050X	44.75	43.15	225	VC	CIRC												
2903X	40.34	38.491	150	PVC	CIRC	5051X	43.21	41.62	225	VC	CIRC												
2950X	41.68	40.51	300	CP	CIRC	5052X	42.53	41.21	225	VC	CIRC												
2951X			675	CP	CIRC	5802X	37.33	35.67	250	VC	CIRC												
2952X	42.64	40.417	225	PVC	CIRC	5803X	37.43	34.79	225	VC	CIRC												
2953X	41.65	40.048	225	PVC	CIRC	5804X	37.51	33.97	300	CI	CIRC												
2954X	40.34	38.715	225	PVC	CIRC	5805X	37.59	35.79	225	VC	CIRC												
295IX	39.27		375	PVC	CIRC	5806X	37.55	28.86	900	CP	CIRC												
3001X	47.01	46.21	150	VC	CIRC	5807X	36.96	34.1	250	VC	CIRC												
3002X	47.71	46.94	150	VC	CIRC	5809X	37.27	35.99	225	VC	CIRC												
3003X	47.01	46.03	150	VC	CIRC	5810X	36.87	29.03	900	CP	CIRC												
3004X	48	46.44	200	VC	CIRC	5811X	37.3	36.11	200	VC	CIRC												
3005X	46.38	45.6	150	PF	CIRC	5851X	37.59	35.5		OTHER	CP	RECT											
3006X	46.43	45.18	150	PF	CIRC	585DX				OTHER	CP	RECT											
3007X	46.4	44.69	150	PF	CIRC	586DX				OTHER	CP	RECT											
3008X	45.8	44.46	150	VC	CIRC	5901X	39.9	38.86	150	VC	CIRC												
3009X			UNK	UNK	CIRC	5902X	39.77	37.68	200	VC	CIRC												
3010X	44.19	42.37	200	VC	CIRC	5903X	37.3	36.13	225	VC	CIRC												
3011X	45	43.11	200	VC	CIRC	5904X			UNK	UNK	CIRC												
3012X	45.92	44.47	200	VC	CIRC	5905X			UNK	UNK	CIRC												
3013X			UNK	UNK	CIRC	5906X			UNK	UNK	CIRC												
3014X	48.99		150	VC	CIRC	5907X			UNK	UNK	CIRC												
3015X	48.13	47.63	100	VC	CIRC	5908X			UNK	UNK	CIRC												
301DX			200	VC	CIRC	5909X			UNK	UNK	CIRC												
3050X	46.4	45.52	225	VC	CIRC	590DX			200	VC	CIRC												
3051X	48.28	47.19	225	VC	CIRC	5910X			UNK	UNK	CIRC												
3052X	49.09	48.15	225	VC	CIRC	5950X	40.02	39.25	225	VC	CIRC												
3801X	40.88	39.52	150	VC	CIRC	5951X	39.31	38.37	150	VC	CIRC												
3802X	40.87	37.83	200	VC	CIRC																		
3803X	38.32	36.94	200	VC	CIRC																		
3804X	38.7	37.65	100	VC	CIRC																		
3805X	39.63	36.67	200	VC	CIRC																		
381DX			200	VC	CIRC																		
3851X	37.67	35.81	300	CP	CIRC																		
3852X	38.14	36.53	225	CP	CIRC																		
3853X	39.2	37.28	225	CP	CIRC																		
3854X	38.88	36.89	225	CP	CIRC																		
3855X	40.05	37.67	225	CP	CIRC																		
3901X	43.03	41.46	200	VC	CIRC																		
3902X	42.93	41.59	100	VC	CIRC																		
3950X	43.21	42.04	300	CP	CIRC																		
3951X	43.2	42.06	225	VC	CIRC																		
3952X	43.13	42.46	150	VC	CIRC																		

LINE STYLES / COLOURS	MATERIALS	LEGEND - SEWERS
Brown Foul Foul Syphon Sewer Foul Vacuum Main Foul Rising Main	AK Alkathene BAC Bonded Asbestos Cement BRC Brick (Common) BRE Brick (Engineering) CC Concrete Box Culvert CI Cast Iron CO Concrete (In-Situ) CP Concrete (Pre-Cast) CSB Concrete Segments (bolted) CSU Concrete Segments (unbolted) DI Ductile Iron GRC Glass Reinforced Concrete GRP Glass Reinforced Plastic MAC Masonry in regular Courses MAR Masonry in random Courses PE Polyethylene PF Pitch Fibre PP Polypropylene PVC Polyvinyl Chloride RPM Reinforced Plastic Matrix SI Spun Iron ST Steel VC Vitrified Clay XXX Other ZZZ Unknown	Manhole (SW) Manhole (F&C) Lamp hole (SW) Lamp hole (F&C) Pumping Station (SW) Pumping Station (F&C) Side entry manhole (SW) Side entry manhole (F&C) Blind shaft (SW) Blind shaft (F&C) Ejector station (SW) Ejector station (F&C) Watertight door (SW) Watertight door (F&C) Flushing ch. Min-e (SW) Flushing ch. Min-e (F&C) Flushing ch. No-e (SW) Flushing ch. No-e (F&C) Demarcation Chamber Washout (SW) Washout (F&C) Rodding Eye (SW) Rodding Eye (F&C) Gauging point (SW) Gauging point (F&C) Intercept chamber (SW) Intercept chamber (F&C) Storm Tank (SW) Storm Tank (F&C) Vortex chamber (SW) Vortex chamber (F&C) Label ellipse Dummy/S24 manhole Outfall Penstock chamber Damboards Storm Overflow Backdrop manhole Other (s) Other Change in sewer (s) Change in sewer Reflex valve Flap valve Cascade Anode Valve Closed Valve Air Valve Hatch box (SW) Hatch box (F&C) Direction arrow Emptying valve Catchpit Soakaway Inlet Balancing Pond Wastewater treatment works Marine treatment works Outfall headworks Vent Vent column Tidal storage tank Blank end Head of Public Sewer Micro Pumping Station
Orange Building Over Agreement Area Dark Blue Treated Effluent Purple Sludge Sewer Catchment Section 104 Area Light Blue Surface Water Surface Water Rising Main Yellow Private Green Access Shaft Decommissioned		

Drawn by:	mondalb	
Title:	193252_38 44 London Road, Purb	
Date:	17/04/2015	

Appendix E – Southern Water Capacity Check and Calculations

Application for Water and Wastewater Capacity Check



A. Type of capacity check required:

Please indicate the type of capacity check required (refer to guidance notes for explanations)

☐ **Level 1**
Preliminary capacity check

☒ **Level 2**
Design capacity check

B. Applicant details:

Name: **WSP UK**
(company name if appropriate)

Contact name: **WILLIAM KO**
(if different)

Address: **WSP House, 70 Chancery Lane, London**

Postcode: **WC2A 1AF**

Contact details:

Daytime 'phone number: **020 7314 5084**

Mobile:

Fax no:

Email: **WILLIAM.KO@WSPGROUP.COM**

C. Site details:

Site/project name: **70006032 - London Road**

Site address: **38-44 London Road, Purbrook, Waterlooville**

Postcode: **PO7 5LJ**

Please indicate type of development:

☒ Residential

☐ Commercial

☐ Industrial

Has planning permission been applied for?

☐ Yes

☒ No

Please state local planning authority: -

Planning application no: -

D. Development details:

Are **foul** flows to be connected to a public sewer? ☒ Yes ☐ No

Datum at Lowest point on site (mAoD)

Residential: **number of properties to be connected** **1.9 l/s**

Do you require a water supply? ☐ Yes ☐ No

Commercial: **estimated population to be connected**

Anticipated peak flow rate

Industrial: **estimated maximum trade flow (l/s)**

Anticipated continuous flow rate

Calculated foul sewer design flow (l/s):

Details of preferred point of connection:

(As per Sewers for Adoption (6th edition))

Are **surface water** flows to be connected to a public sewer?

☒ Yes ☐ No

If YES, please state the type of sewer:

☐ Combined sewer ☒ Surface water sewer

If needing a non-standard connection (eg school, hotel, nursing home) please provide information on proposed fitting

RE-UTILISATION OF EXISTING CONNECTIONS TO BE MADE IF POSSIBLE

Total site area (ha) **0.41ha**

Do you require a fire supply? ☐ Yes ☒ No

Estimate of impermeable area to contribute surface water flows (ha)
0.30ha

What type of equipment will be installed?

☐ Hydrant

☐ Sprinkler

☐ Hose reel

Estimate of peak surface water run-off in two-year event (l/s)

Required flow rate for this supply -

(As per Sewers for Adoption (6th edition))

REFER TO DRAINAGE NOTE

E. Existing land use:

Does the site drain to an existing sewer?

Foul: ☒ Yes ☐ No

Surface water: ☐ Yes ☐ No TBC

Does the site have an existing connection to the water mains? ☒ Yes ☐ No

What is the present impermeable area? (ha) 0.41ha

Please provide brief description of existing land use **A CAR SHOWROOM/TYRE & CAR SERVICE REPAIR GARAGE AND ASSOCIATED BUILDINGS ON SITE.**

F. Proposed land use:

Please provide brief description of the development proposal (e.g. new build, conversion, number of properties)

PROPOSAL IS TO REDEVELOP THE EXISTING SITE TO 41 RETIREMENT HOME UNITS.

G. Attachments

All applications should include the following:

National Grid reference of site

☒ Area Map

☒ Detailed site layout

* Site boundary clearly shown

* Preferred point of connection to public water system clearly shown

H. Charges (all charges are inclusive of VAT)

Level one preliminary capacity check

Water supply or wastewater flow:

No of units	Cost (£) inc. 20% VAT
0 to 50	169.00
51 - 250	510.00
251 - 500	680.00

Notes:

1. Under conditions where it is deemed necessary to carry out a full pumping station survey it is advised that discussions be held with Southern Water prior to submission of the form.

Surface water capacity check:

2-year flow (l/s)	Cost (£) inc 20% VAT
0 to 50	341.00
50 - 250	1,019.00
250 - 500	1,360.00

Notes:

For flows in excess of 500l/s it is advised that discussions be held with Southern Water prior to submission of this form.

Level two design capacity check

Water supply or wastewater flow:

No of units	Cost (£) inc 20% VAT
0 to 50	256.00
51 - 250	766.00
251 - 500	1,020.00
> 500	1,276.00

Surface Water capacity check:

2-year flow (l/s)	Cost (£) inc 20% VAT
0 to 50	510.00
51 - 250	1,529.00
251 - 500	2,040.00
> 500	2,550.00

Terms and conditions

Failure to include any of the requested information will be deemed as an incomplete application and may result in this application being delayed/returned. This application DOES NOT mean approval has been granted. No work should commence until written approval has been given by Southern Water.

Checklist and declaration

☒ Drawings ☒ Correct fee

Wastewater £ 256.00

Water supply £

Surface water £ 510.00

Total fee enclosed £ 766.00

Please make cheques payable to Southern Water Services Ltd

Do you require a VAT receipt? ☒ Yes ☐ No

I confirm that to the best of my knowledge the information I have supplied is complete and correct.

Signature:



Full name: WILLIAM KO

(BLOCK CAPITALS)

Date: 28.04.15

Position: GRADUATE ENGINEER

Please forward your complete submission to:

Developer Services, Southern Water, Southern House, Sparrowgrove, Otterbourne, Hampshire, SO21 2SW
Phone: 0330 303 0119 Fax: 01962 716228

38-44 London Road - Drainage Note



Design By: WK
28 April 2015

Tel: 020 7314 5000

Existing Surface Water Discharge

Existing Site Area = 4172.27m² = 0.41ha

N.B the area is measured from the Promap Title plan provided by the McCarthy and Stone. It is assumed that the existing site discharges to the local Southern Water sewerage network.

For design purposes, the site has been taken to be 100% impermeable.

FEH rainfall data has been used to input throughout the design for 1:1, 1:30 and 1:100 year (15min duration) storm events. The rainfall intensities (below) have been calculated using Micro Drainage WinDes rainfall generator. The 15 minute duration is assumed as the worst case event for the time it takes the site to drain into the public sewer network i.e. time of concentration.

Rainfall Intensity of Site:

Return Period	Rainfall Intensity (mm/hr)
1:1	19.95
1:30	63.34
1:100	95.93

Table 1

The existing discharge rates for the site have been calculated for each return period storm event below, using the Wallingford Procedure's rational method:

$$Q = 2.78 \times \text{Rainfall Intensity (mm/hr)} \times \text{Impermeable Area (ha)}$$

1:1 Year Storm Event

$$\begin{aligned} Q &= 2.78 \times 19.95 \times 0.41 \\ &= 22.74 \text{ l/s} \end{aligned}$$

1:30 Year Storm Event

$$\begin{aligned} Q &= 2.78 \times 63.34 \times 0.41 \\ &= 72.19 \text{ l/s} \end{aligned}$$

1:100 Year Storm Event

$$\begin{aligned} Q &= 2.78 \times 95.93 \times 0.41 \\ &= 109.34 \text{ l/s} \end{aligned}$$

Proposed Surface Water Drainage Strategy

As part of the proposed development, flows will not increase for the return period storm events above and therefore will have no detrimental impact on the existing surface water sewer network.

Furthermore, it is proposed that the site will not discharge any more than the existing 1:100 year event (**109.34 l/s**) for the 1:100 year (15 minute) + 30% climate change event.

Existing Foul Water Discharge

Existing Foul Water Discharge

The existing site currently consists of a car showroom/tyre & car service repair garage and associated buildings on site. No detail of the existing number of foul water appliances known.

Proposed Foul Water Drainage Strategy

The proposed development will comprise of 41 retirement units. It is envisaged that the number of foul water appliances will have increased when compared to pre-development.

In accordance with Sewers for Adoption 7, a flow rate of 4000 litres/unit dwelling/day has been used to determine the foul flows from the retirement units. Therefore, the proposed foul rate is **1.90 l/s**.

Annex 1 – FEH Rainfall Profiles (15min)

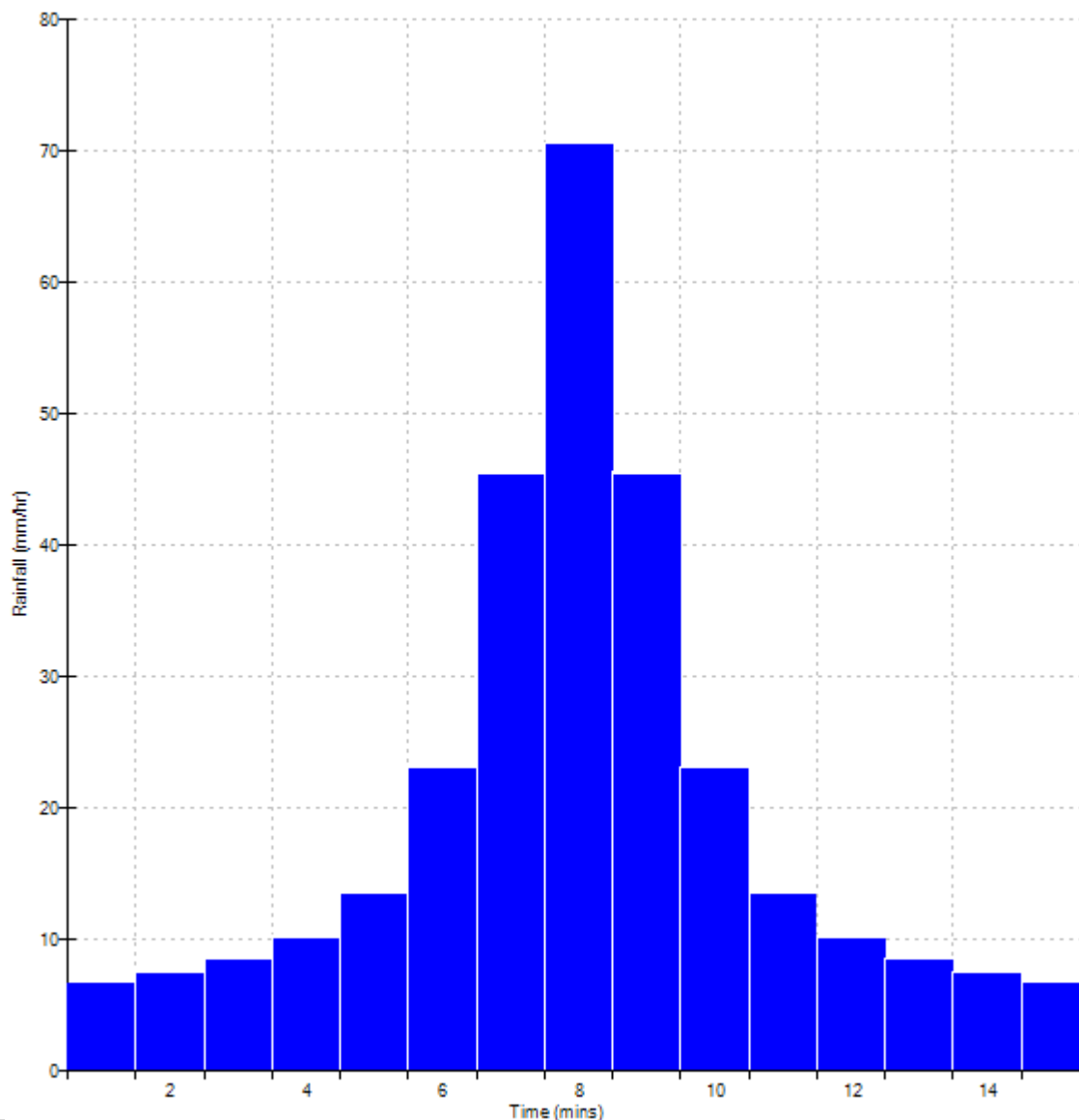
WSP Management Services		Page 1
WSP House 70 Chancery Lane London WC2A 1AF		
Date 27/04/2015 18:07	Designed by UKWXXK005	
File	Checked by	
Micro Drainage	Source Control 2014.1.1	

Rainfall profile

Storm duration (mins) 15

FEH Data

C(1km) -0.027
 D1(1km) 0.459
 D2(1km) 0.288
 D3(1km) 0.376
 E(1km) 0.304
 F(1km) 2.243
 Peak Intensity (mm/hr) 70.486
 Ave. Intensity (mm/hr) 19.945
 Return Period (years) 1



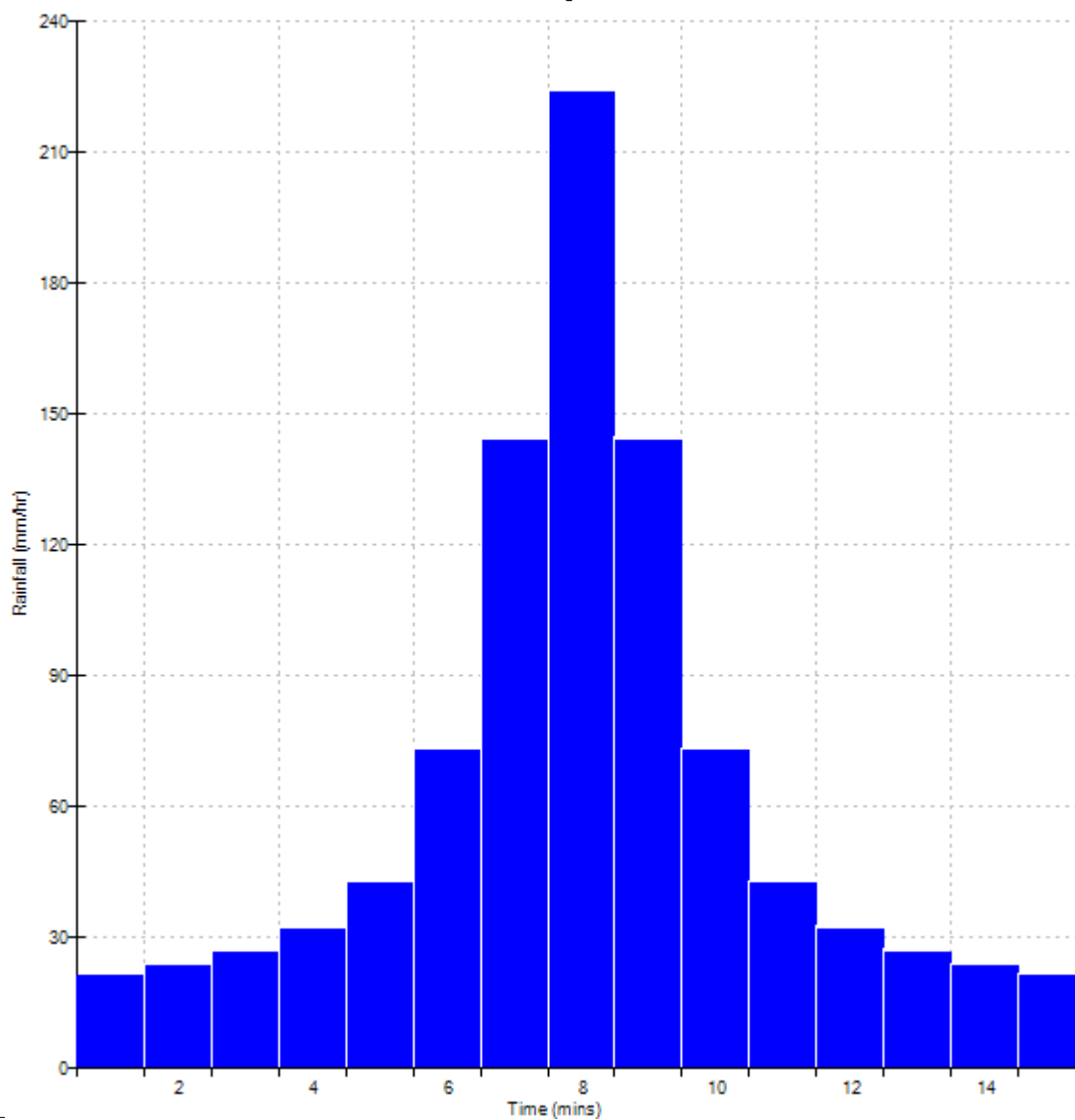
WSP Management Services		Page 1
WSP House 70 Chancery Lane London WC2A 1AF		
Date 27/04/2015 18:08	Designed by UKWXXK005	
File	Checked by	
Micro Drainage	Source Control 2014.1.1	

Rainfall profile

Storm duration (mins) 15

FEH Data

C (1km)	-0.027
D1 (1km)	0.459
D2 (1km)	0.288
D3 (1km)	0.376
E (1km)	0.304
F (1km)	2.243
Peak Intensity (mm/hr)	223.836
Ave. Intensity (mm/hr)	63.338
Return Period (years)	30



WSP Management Services		Page 1
WSP House 70 Chancery Lane London WC2A 1AF		
Date 27/04/2015 18:09	Designed by UKWXXK005	
File	Checked by	
Micro Drainage	Source Control 2014.1.1	

Rainfall profile

Storm duration (mins) 15

FEH Data

C (1km)	-0.027
D1 (1km)	0.459
D2 (1km)	0.288
D3 (1km)	0.376
E (1km)	0.304
F (1km)	2.243
Peak Intensity (mm/hr)	339.015
Ave. Intensity (mm/hr)	95.930
Return Period (years)	100

